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Technical Report of The Commission on Obscenity and Pornography

Volume VIII

EROTICA AND SOCIAL BEHAVIOR

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U.S. Commission on Obscenity and Pornography.

Technical Report of The Commission on Obscenity and Pornography

, v. 8

Volume VIII

EROTICA AND SOCIAL BEHAVIOR

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Foreword

The members of the Commission on Obscenity and Pornography take special satisfaction in making available these Technical Reports of research undertaken at the Commission's request and under the direction of its staff.

These reports are an important part of the Commission's response to the directive from Congress to study and report on (*a*) constitutional and definitional problems relating to obscenity controls, (*b*) traffic in and distribution of obscene and pornographic materials, and (*c*) effects of such materials, particularly on youth, and their relationship to crime and other antisocial conduct.

Most of the Technical Reports are original work because, outside of the legal field, very little research on the questions assigned to the Commission had been undertaken by anyone prior to the funding of the Commission in the summer of 1968. At appropriate points in these volumes, reference is made to reports of earlier research, as well as to research projects undertaken independently of the Commission during the two years of its effective life. Primarily, however, the Commission found it necessary to rely on the original research reported here.

Although attention will initially focus on the findings and recommendations of the Commission and its four panels, the research reflected in these Technical Reports will have greater long-range importance. The findings by the Commission and its panels are necessarily limited and hurried distillations, and its recommendations are inevitably tempered by the give and take of seeking to reach a group judgment on a highly controversial subject. The research reported here, however, was subject to no such limitations and is being made available primarily for two purposes:

(1) We expect and invite critical examination and appraisal of these reports, for we have only begun the task of interpreting the wealth of information they contain.

(2) We hope that the Commission-sponsored research will stimulate and point the way to further scientific inquiry in this difficult and baffling field. There are still many unanswered questions, and these will require further research with more refined techniques and instruments.

For the Commission, I wish to express deep appreciation to all the individuals and teams whose research is reported here. We are most grateful both for their willingness to pioneer in this unexplored and controversial field and for their shouldering of the burden on such short notice and with such restrictive time schedules.

I also wish to express for the Commission our admiration and thanks to Dr. W. Cody Wilson, our executive director, and his excellent staff. Only through their valiant and effective efforts in planning and implementing this vast array of highly diverse research projects, all focusing on specific tasks assigned to the Commission, was it possible for us to bring our work to a timely completion.

WILLIAM B. LOCKHART
Chairman

General Preface

Many of the papers in these volumes share two characteristics: a focus on empirical description and a lack of refinement in presentation. Each of these characteristics is a product of both circumstance and deliberate policy.

The emphasis on empirical description reflects in part the nature of existing knowledge at the beginning of the Commission's work. Few empirical observations had been reported in the literature, and these were not sufficient to provide even a tentative description of the phenomena of concern to the Commission, nor to form the basis for research at a higher level of conceptualization.

The emphasis on empirical description also reflects the nature of the task assigned to the Commission. The policy questions posed by the Congress required primarily empirical description for guidance.

The overall research strategy and the specific research projects were guided, however, by ideas and concepts from more theoretically developed areas of the behavioral sciences such as socialization, personality, and social structure. Hopefully, the data compiled for purposes of empirical description of the phenomena of obscenity and pornography will be relevant to theoretical issues in these other areas.

Some of the empirical descriptions may appear to many social scientists as demonstrations of the obvious. This is often the case *after* an empirical description has been provided. Yet, it is never certain that "obvious" concepts and relations are valid until they have been tested empirically. As it turned out, there were a few surprises to a few people.

The policy implications of the findings of this research program may very well stir controversy and debate. Because of their crucial importance for policy discussion and decision, the Commission has presented the basic empirical observations with a minimum of complex statistical manipulation and conceptual analysis. The lack of refinement in presentation of several of the research reports is due in part to the Commission's desire to keep very close to the raw data.

Most of the researchers had less than nine months in which to establish a research team, arrange a research setting, develop measuring instruments, secure subjects, collect the data, reduce the data, and write a report. In several instances we are presenting, literally, the first draft of a report.

The Commission staff has refrained from all but very minor editing of these reports. The observations and interpretations are entirely the authors'. To insure that ideological standards were not imposed on the results of the reports, the Commission and its staff have also foregone the prerogative of imposing generally accepted standards of scientific reporting. To the same end we have also published all of the research that has been undertaken for us.

Nevertheless, most of the reports in these volumes quite satisfactorily reflect current standards, not only for conducting research but also for reporting on its results.

We trust that many of the authors will soon present to the behavioral science community reports based on these data but directed to more theoretical and conceptual issues and reflecting a higher degree of refinement of both data and presentation than has been possible here.

This series of volumes of Technical Reports is a joint effort of the Congress, the Commission, the Commission staff, the research teams headed by the authors of the several papers, and the many people who participated in the studies: Congress posed the general problems, authorized the Commission to contract with competent agencies to conduct research, and provided the necessary funds. The Commission specified the kinds of information that it required and worked closely with the staff in designing an appropriate research program. The Commission staff specified the details of the research program and, under the direction and guidance of the Commission, implemented it—partly by undertaking research directly, but more often by contracting with outside agencies to conduct research. The authors of the papers accepted responsibility for developing concrete research arrangements, collecting and analyzing data, and writing reports, all under tremendous time pressure. Several thousand people cooperated in collecting the data and devoted uncounted hours of time providing the information in these volumes.

On behalf of the Commission, its staff, the authors of the papers, and the people who read these volumes and make use of the contents, I express deep appreciation to the Members of Congress who initiated and make possible the gathering of this information, and to the people who participated in the various studies and contributed the basic information.

W. CODY WILSON
Executive Director
and Director of Research

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An Investigation of Behavioral, Psychological, and Physiological Reactions to Pornographic Stimuli

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ABSTRACT

Two studies are described in this report, the purpose of which was to investigate some of the behavioral, psychological, and physiological effects of exposure to pornographic stimuli. Sixty male subjects participated in the first study, individually and in groups, and rated 27 sexual slides along three dimensions: pornographic-nonpornographic, stimulating-nonstimulating, and pleasant-unpleasant. The results of this study indicated that the subjects were able reliably to order the stimuli along these dimensions. No differences were found between the group and individual conditions for collecting the data. A tentative "meaning" of pornography also emerged from the data, that is, that the label "pornography" tends to be given to sexual stimuli that are both stimulating *and* unpleasant.

In the second study, which employed 56 male subjects, the effects of the pornographic ratings of the slides on the time spent looking at them were examined under two conditions: when the subject viewed the slides alone and when he viewed them while observed by an audience. In addition, this study

explored further the "meaning" of pornography, using a series of semantic differential scales. Study II results indicated that looking time was significantly lower in the audience condition than in the alone condition. However, the hypothesized curvilinear relationship between pornographic scale value and looking time was not obtained.

Data from the semantic differential scales confirmed and extended the "meaning" of pornography derived from Study I. Only two of the usual three semantic differential factors, evaluation and activity, were indicated. The ratings of the slides on the pornographic scale were highly determined (multiple r=.99) by these factors, with a large negative weight attributed to evaluation and a small positive weight for activity. Looking time was also highly determined by the semantic structure (multiple r=.94), with a large positive weighting of activity and a small negative weight for evaluation.

There were few personality and demographic correlates of reactivity to the sexual slides. The viewing of the slides had little effect on reported sexual behavior. In general, the sexual behaviors most affected were those involving only the subject (e.g., masturbation); there were no effects on heterosexual activity.

INTRODUCTION

Three major problems make research involving pornography especially difficult: First is the definitional problem, that is, the difficulty in determining the pornographic or erotic value of the sexual stimuli investigated. The second problem, as in other areas of research on arousal, concerns the measurement of sexual arousal (self-report vs. physiological indices) and the differentiation of sexual arousal from more general arousal. The third problem concerns the difficulties involved in the investigation of the behavioral effects of exposure to pornographic stimuli. Here one encounters technical, measurement, definitional, and even ethical problems.

The primary aim of the studies reported herein was to investigate the effects of sexual arousal and the presence of others upon the length of voluntary exposure to erotic stimuli, that is, upon looking behavior. However, the investigation of these relationships required some consideration of the problems mentioned above. The resolution of these problems was the design of two studies. The first dealt with the establishment of the pornographic values of stimuli to be used in subsequent studies; and the second involved a more direct examination of looking behavior as a function of sexual arousal and the presence of an audience.

STUDY I

Study I sought to establish a pornographic rating or value for each of the stimuli to be used in the subsequent study as well as to examine the effects on such ratings of various experimental manipulations. The stimuli were pornographic color slides of a male and a female, in a variety of poses ranging from alone and fully clothed to nude and participating in various sexual acts.

Rating of sexual stimuli prior to investigation of their effects on behavior has been a feature of many studies. Some researchers have obtained such ratings from groups of subjects (e.g., Brady & Levitt, 1965; Levitt & Brady, 1965; Schmidt, Sigusch, & Meyberg, 1969); in other studies individual subjects have provided the ratings (e.g., Levitt & Hinesley, 1967; Schmidt & Sigusch, 1970). In these studies, however, no attempt was made to determine whether differences in ratings occur as a consequence of being alone or in a group when exposed to the stimulation. This possibility was examined in the present study.

Some studies have also investigated the psychophysiological correlates of arousal during exposure to sexual material, employing GSR (Hain & Linton, 1969; Loiselle & Mollenauer, 1965; Solyom & Beck, 1967); heart rate (Bernick, Borowitz, & Kling, 1968; Fisher & Osofsky, 1967; Lacey, 1967); phallography (Freund, 1965; McConoghy, 1967); and pupillary responses (Gang, 1945; Hess, Seltzer, & Shlien, 1965; Lowenstein & Loewenfeld, 1962). Other studies have utilized multiple physiological measures as indices of arousal (e.g., Davis & Buchwald, 1957; Fisher & Osofsky, 1967; Wenger, Averill, & Smith, 1968) or have used a combination of psychophysiological measures and self-report to assess sexual interest and arousal (e.g., Koegler & Kline, 1965; Walters & Amoroso, 1967). The results of these studies, by and large, have tended to be inconclusive.

Psychophysiological measurement was planned for Study II as a check on the self-reported arousal of the subjects (*cf.* Amoroso & Walters, 1969; Martin, 1961; Walters & Parke, 1964). However, psychophysiological attachments (biopotential electrodes, etc.) were employed in Study I in order to obtain ratings of stimuli under conditions comparable to those to be experienced by subjects in Study II, as well as to investigate possible differences in the subjects' ratings of the sexual material as a function of whether or not they believed that physiological measures were being obtained as they rated the stimuli. Thus, biopotential electrodes were attached to one-half of the subjects while the other half had no such attachments.

Finally, Study I investigated the relationships between certain personality variables and ratings of erotic material. To examine these individual differences in responses to pornography, certain personality measures (explained under *Method*) were obtained from all subjects and these were selected in terms of their potential relevance to the perception of and response to sexual stimulation.

Study I was exploratory, designed specifically to obtain consensual validation of the stimuli under the conditions described above; therefore no hypotheses were proposed.

Method

The general purpose of Study I was to investigate the ratings of pornographic stimuli as they might be affected by: (a) whether the subject was alone or with other subjects; (b) whether the subject was "hooked up" to devices recording physiological responses; and (c) the order of their presentation. All subjects were shown a series of 27 slides and asked to rate each on three dimensions (see

below). Half the subjects saw the slides alone, the other half in groups of five. Half of each of these groups were apparently "hooked up" to the physiological recording devices. A simulated finger plethysmograph was attached to the subject's index finger and electrodes were attached to both sides of the head lateral to each eye. The dummy electrodes and plethysmographs were excellent and indistinguishable from real ones. Finally, the slides were shown in one of three orders, yielding 12 experimental groups in all, with five subjects in each group.

Subjects

In all, 60 subjects served in Study I. They were male students, ranging in age from 18 to 25, from the University of Waterloo. They were part of a larger group of subjects recruited by means of an ad in the campus newspaper. The ad was addressed to males 18 and over and offered $6.00 for participation in three hours of psychological experiments (not involving painful stimulation). Interested students were asked to return a coupon to the campus address of one of the investigators. In all, 211 replies were received. Of these, 91 were sent a postcard requesting their attendance at a group session and 76 (84%) actually attended. There were six such sessions involving 11 to 17 subjects each.

Group session

At the group sessions one of the investigators explained the nature of the project and the stimuli to the potential subjects. The subjects were also told what the tasks involved, the kinds of responses required, and the general nature of the questions they would be asked. They were assured that their anonymity would be guaranteed; that their responses would be known only to the investigators (and then only in terms of their code numbers); and, moreover,their responses would be used only for purposes of the research project. The subjects were also told that they could discontinue participation in the study at any point and for any reason, and that in the event they did they would be paid for their participation to that point. It is of note that only two subjects decided not to continue at that or any subsequent point. Any questions raised were answered at this session.

The session itself involved the administration of several personality inventories, a biographical data questionnaire, and a sex attitude scale.

The personality scales were: (a) the repression-sensitization scale (Byrne, Barry, & Nelson, 1963), (b) the locus of control or internal-external (IE) scale (Rotter, 1966), (c) the extraversion-introversion, neuroticism, and lie scales of the Eysenck Personality Inventory (Eysenck, 1968), and (d) the social desirability scale (Crowne & Marlowe, 1964) as a measure of the need for social approval. The scales were put into a single booklet which, including the filler items and the sex attitude scale, consisted of 194 items for Study I. (Fillers and duplicate items were removed for Study II, leaving a total of 158 items.)

The sex attitude scale was a modification of the Clinical Interview prepared by the Legal and Behavioral Institute for the Commission on Obscenity and Pornography. It consisted of eight multiple choice items involving subjects' attitudes toward nudity, homosexuality, premarital sex, and prostitution.

The biographical data questionnaire was quite brief. It asked questions about subjects' birth order, size of home town, marital status, and a few questions about religious beliefs and commitments, as well as general life satisfaction.

All responses were identified only by the code number assigned the subjects. Great care was taken to have names and numbers matched in only one place and under tight security.

The initial group session took about an hour.

Laboratory

The room in which the experimental sessions were carried out was a large (18' x 14') room in the Psychology Wing of a centrally located campus building. The room was attractively furnished with six upholstered chairs, arranged in a semicircle. The chairs were furnished with special arm rests which permitted the subjects to write comfortably with one hand and to keep the other still and relaxed for physiological recording. Two living-room type lamps provided dim illumination, sufficient for writing. Curtains covered two of the walls.

A slide projector was located toward the back of the room and projected the slides on a 40-inch square beaded screen at the front. The projector was controlled automatically from an adjoining room. In this room the physiological equipment, automatic controls, and so forth were housed. The rooms were connected by an interior door and by an intercom system, but the experimenter was not present when the slides were viewed and rated.

Slides

Forty-nine pornographic slides were obtained from the United States Commission on Obscenity and Pornography. The slides were in color and of fairly high quality. The same couple was shown in a wide variety of heterosexual activities. In addition, there were slides of male and female masturbation. Twenty-seven slides were chosen to represent a wide variety of sexual themes (see Table 1) and to parallel the categories of Schmidt et al. (1969) as closely as possible. Unfortunately, the slides available did not permit close matching with Schmidt's, and the two sets of slides, though overlapping to some extent, are not parallel.

The slides were presented in three different orders. The first was the investigators' judgment of some sort of progression of sexual activity, for example, from necking to fellatio/cunnilingus to various positions of intercourse. The mixed order was designed to be uncorrelated with the progressive order (the actual rank-order correlation was .00), and the reverse order correlated negatively (-.70) with the progressive order.

Table 1

SLIDE NUMBERS AND SEXUAL THEMES FOR STUDY I AND STUDY II

Slide no.	Theme
1	Couple dressed, entering room
2	Couple dressed, embracing
3	Couple undressing each other
4	Female in underwear
5	Female wearing panties, breasts exposed
6	Female wearing panties with legs spread apart
7	Female nude, sleeping on bed
8	Female on bed, genitals and anus exposed
9	Female masturbating
10	Close-up of female genitals
11	Nude male, front view
12	Male masturbating
13	Couple in underwear
14	Couple, wearing shorts, manual-breast contact
15	Couple in bed, under blanket
16	Couple in bed, genitals exposed
17	Manual-genital/oral-breast contact, male active
18	Manual-genital, kissing, male active
19	Cunnilingus #1
20	Cunnilingus #2
21	Fellatio #1
22	Fellatio #2
23	Male ejaculating on female's breast
24	Coitus, ventral-ventral, male above
25	Coitus, ventral-ventral, female above
26	Coitus, ventral-dorsal, female above
27	Coitus, ventral-dorsal, couple on side

Table 2

ORDER OF PRESENTATION OF SLIDES FOR STUDY I

Order 1 (progressive)	Order 2 (mixed)	Order 3 (reverse)
1	1	23
2	23	25
3	5	22
4	24	21
5	9	24
6	4	19
7	17	18
8	15	17
9	21	3
10	6	20
11	27	15
12	13	27
13	8	16
14	20	14
15	11	13
16	19	11
17	10	12
18	25	10

Table 2 (Continued)

Order 1 (progressive)	Order 2 (mixed)	Order 3 (reverse)
19	26	9
20	18	8
21	14	6
22	22	7
23	12	5
24	2	4
25	7	26
26	3	1
27	16	2

The subjects were asked to rate each of the slides on three 11-point rating scales by circling one of the 11 numbers on each scale: (a) How pleasant or unpleasant he found the slide. This was a scale labeled "extremely pleasant" at one end and "extremely unpleasant" at the other, and numbered from 5 through 0 to 5 at the other end. (b) How pornographic he thought the slide. This scale was labeled "not at all" (0) at one end and "extremely" (10) at the other. (c) How sexually stimulating he found the slide, labeled and numbered the same way as the pornography scale. The rating scale instructions are given in Appendix A. The experimental sessions varied in length from one to one and a half hours, depending on the experimental conditions.

In addition to the 27 pornographic slides chosen for the experiment, the subjects were shown and asked to rate two neutral slides (black and white portrait of a girl and a picture of a couple holding hands on a beach) to familiarize them with the rating procedures. To standardize the subjects' "set" and to give them an indication of the range of slides they would see, the subjects were also shown five slides, chosen from the original 49, which represented a fairly wide range of sexual activity.

Procedure[1,2]

Physiological condition:

(1) The experimenter met the subjects outside the laboratory, introduced himself, and seated the subjects. Then he said:

> "I want to thank you for assisting us on this project. As you have been told, in this study we're investigating the behavioral and physiological (inserted where applicable) responses of an individual to sexual stimuli."

---

1. Essentially the same instructions were used for subjects run individually and in groups. A few slight changes in the instructions were made in the case of groups where appropriate. In addition, the time required to "hook-up" the subjects in groups was somewhat longer (roughly 15 minutes instead of 5 required for an individual).

2. Dots (. . .) in this section represent pauses in delivering instructions, not omissions of wording.

(2) For the physiological "hook-up" conditions, the experimenter explained: "You will be shown a number of slides. While you are rating the slides we want to measure your physiological responses, that is, your bodily response to the whole situation. Therefore I'd like to attach some transmitters to you. These are simply to record the electrical activity of the eye muscles and your finger pulse pressure. Of course, you won't feel any pain whatsoever. Is this all right with you?"

(3) After the subject agreed, the experimenter attached the dummy electrodes to the subject's eyes and to his nondominant hand. The subject was shown how to position his hand and told:
"During the entire experiment, it is very important that you keep still; you should try not to move your head since such movement will distort the physiological record. . . . Also let this hand relax on the arm rest, so that your fingers dangle freely over the end. Again, in order to avoid distortion, try not to move your head at all. . . ."

(4) The experimenter then explained how the slides were to be rated:
"The task you will have to perform is very simple: Slides will be projected, one at a time, on that screen and you will be asked to rate these slides on several scales. I'll explain the rating scales in greater detail later. Before showing you the slides to be rated, I will project a few other slides on the screen. You are not to rate these preliminary slides, they are only intended to give you an idea of what the experimental slides are like. Following these slides will be a blank and then the actual experimental slides will be projected, one at a time.

"While you are viewing the slides we would like you to rate them on several scales. These are the scales. You do not have to fill in the slide number or the code number; I will do that later. The instructions for rating are here. Read them over and I will answer any questions you have when you are finished. . . . Are there any questions about the scales? . . . .There is one page for each slide and each slide is to be rated on all of the scales. . . ."

(5) After answering any questions, the experimenter turned the overhead lights off and the projector on, and had the subect rate two practice slides:
"I will show you a couple of practice slides. It is important to realize that these slides are nothing like the experimental slides and therefore the scales may not apply. . . . Do not rate any slide while it is on the screen. . . . Wait for this instruction slide. When this instruction slide comes on you are to rate the slide. Would you please make a rating now, on the practice slide you just saw."

(6) The experimenter answered any questions and continued:
"I'll be in the other room operating the equipment that records your physiological responses. I have to go to the other room to adjust the equipment. I'll come back in before we start the experiment."

(7) The experimenter advanced the projector to the eye fixation slide and, pointing appropriately, explained:

"In order to excite the electrical activity of the eye, for making adjustments, I will ask you to look left, center and right of the screen. I will also ask you to look back and forth several times."

(8) The experimenter then left the room briefly, apparently to adjust the equipment. When he returned to the laboratory, he told the subject:

"We have to wait a few minutes for the equipment to warm up."

To relax the subject and obtain baseline physiological measures, the experimenter then sat down and engaged in small talk about university courses, summer employment and so on for about five minutes.

(9) The final instructions were given next:

"O.K. I'll leave you to view and rate the slides. The slides will be projected automatically. Remember that the preliminary slides are just to give you an idea of the kind of slides you'll have to rate. Also remember that there will be a blank just before the slides to be rated are presented. Are there any questions?"

(10) All questions were answered after which the experimenter left the room. The preview slides were then shown (approximately two to three seconds each), and the programmed timer turned on.

(11) After the subject was finished, he was told:

"Please sit still for a few minutes. I would like to continue recording."

(12) After a few minutes the subject was either given a postexperimental questionnaire or was interviewed.

Nonphysiological condition:

For this condition, only steps (1), (4), (5), (9), (10) and (12) of the above procedure and instructions were used.

Postexperimental interview and questionnaire

Immediately following the rating session, each subject was asked a series of questions about his reactions to the slides, previous experience with various kinds of sexual and pornographic material, and the effects of this material on frequency and enjoyment of sexual activity, his attitude toward sex, and, finally, other questions about his sexual practices. To determine how best to ask the questions, half the subjects were interviewed by the experimenter and the other half were asked the same questions by means of a questionnaire.

Follow-up questionnaire

In order to determine what effects the viewing of the slides had upon the subject's sex attitudes and behavior, the subjects were asked to return for their

payment a week or so after the rating session. At that time they were asked to complete a short questionnaire based upon the one developed by Schmidt et al. (1969). The major question asked the subjects to consider the week immediately preceding the viewing of the slides and to indicate their sexual activity, day by day, during that week. This was taken as the baseline measure of sexual activity. The subjects were then asked to do the same thing for the week immediately following the viewing of the slides. In addition, questions concerning the subjects' general reactions to the slide viewing (how long afterwards did they remain sexually excited) and to the study were included.

Results

Slide ratings

Analyses of variance (see Table 4) showed that the main effects of order of presentation and experimental conditions (group vs. alone) did not significantly influence any of the slide ratings, but that there were significant effects due to measures (physiological "hook-up" vs. not). Therefore, the two conditions and three orders were combined to yield the ratings presented in Table 3. Table 3 gives the means and standard deviations of the ratings of pornography, stimulation, and pleasantness in both the presence and absence of physiological measuring. Also given are the ranks of the average ratings on each scale (1 representing the "low" end on each).

Table 3

MEANS, STANDARD DEVIATIONS, AND RANK ORDER OF SLIDES FOR STUDY 1[a]

		RATINGS					
		Pornographic		Pleasant		Stimulating	
Slide no.		Physiological hook-up	No physiological hook-up	Physiological hook-up	No physiological hook-up	Physiological hook-up	No physiological hook-up
1	Mean	0.13b	0.17	1.76b	1.13	1.06b	0.80
	SD	0.43	0.38	1.45	1.41	1.31	1.35
	Rank	1	1	25	20	1	1
2	Mean	1.30	0.83	1.63	1.53	2.40	2.23
	SD	1.60	1.23	1.45	1.55	1.89	2.14
	Rank	2	3	23	24	3	5
3	Mean	2.76	1.07	1.10	1.10	3.50	2.63
	SD	2.16	1.11	1.69	1.06	2.36	1.81
	Rank	5	4	20	19	7	7
4	Mean	2.63	1.17	0.56	0.30	2.96	2.20
	SD	2.27	1.29	1.68	1.97	2.11	1.83
	Rank	4	5	14	15	6	4

Table 3 (Continued)

Slide no.		RATINGS: Pornographic, Physiological hook-up	Pornographic, No physiological hook-up	Pleasant, Physiological hook-up	Pleasant, No physiological hook-up	Stimulating, Physiological hook-up	Stimulating, No physiological hook-up
5	Mean	3.33	1.97	1.70	1.30	4.46	3.13
	SD	2.28	1.85	1.68	1.80	2.36	2.15
	Rank	6	7	24	22	8	8
6	Mean	4.56	2.73	0.63	0.56	4.53	3.46
	SD	2.37	1.66	1.99	2.06	2.39	2.32
	Rank	9	9	15	25	9	9.5
7	Mean	3.66	1.63	2.40	2.40	4.93	4.03
	SD	2.80	1.56	2.01	1.59	2.45	2.16
	Rank	7	6	27	27	12	11
8	Mean	7.70	5.63	-1.16	-0.76	4.76	4.23
	SD	2.00	2.92	2.46	2.50	2.97	2.43
	Rank	27	17	1	3	11	12
9	Mean	7.50	5.80	0.23	-0.03	5.66	5.33
	SD	2.39	2.92	2.96	2.47	2.96	2.14
	Rank	23.5	18.5	12.5	12	17	21
10	Mean	7.52	5.36	-0.33	-0.30	5.40	4.53
	SD	2.32	3.16	2.94	2.52	3.19	2.11
	Rank	25	14	5	9	14	15
11	Mean	5.90	4.70	-0.83	-1.03	2.03	1.16
	SD	2.64	3.21	1.68	2.39	2.14	1.90
	Rank	12	12	2.5	2	2	2
12	Mean	7.03	5.80	-0.83	-1.76	2.73	1.70
	SD	2.33	3.16	2.80	2.11	2.87	1.70
	Rank	16.5	18.5	2.5	1	4	3
13	Mean	4.16	2.53	0.93	0.73	4.73	3.46
	SD	2.25	2.21	1.91	1.29	2.59	2.11
	Rank	8	8	18	17	10	9.5
14	Mean	5.06	3.53	1.43	1.33	5.60	4.36
	SD	2.55	2.37	2.22	1.49	2.50	2.24
	Rank	10	10	22	23	15.5	13
15	Mean	1.93	0.73	1.96	1.63	2.90	2.46
	SD	1.89	0.98	1.71	1.56	2.60	2.13
	Rank	3	2	26	26	5	6
16	Mean	7.13	5.43	0.06	0.43	5.73	5.16
	SD	2.63	2.92	2.64	2.24	2.75	2.45
	Rank	18	15	11	16	19	19.5
17	Mean	6.63	5.13	1.40	1.23	6.46	6.06
	SD	2.81	3.10	2.69	2.05	2.54	2.52
	Rank	13	13	21	21	25	25

Table 3 (Continued)

Slide no.		RATINGS: Pornographic, Physiological hook-up	Pornographic, No physiological hook-up	Pleasant, Physiological hook-up	Pleasant, No physiological hook-up	Stimulating, Physiological hook-up	Stimulating, No physiological hook-up
18	Mean	6.90	5.96	1.00	1.06	6.63	6.53
	SD	2.82	3.22	2.55	2.33	2.74	2.29
	Rank	15	16	19	18	27	27
19	Mean	7.30	6.23	-0.46	-0.20	5.60	5.46
	SD	2.39	3.07	2.52	2.38	2.85	2.24
	Rank	21	22.5	4	10	15.5	23.5
20	Mean	7.56	6.43	-0.10	-0.10	5.76	5.46
	SD	2.24	3.22	2.82	2.29	2.85	2.89
	Rank	26	24	8	11	20	23.5
21	Mean	7.26	6.76	-0.16	-0.40	6.20	5.13
	SD	2.68	3.39	3.01	2.25	2.96	2.62
	Rank	19.5	27	6.5	8	22.5	17.5
22	Mean	7.26	6.46	-0.06	-0.53	6.20	5.16
	SD	2.69	3.25	2.78	2.49	2.86	2.38
	Rank	19.5	25	9.5	7	22.5	19.5
23	Mean	6.83	6.23	-0.16	-0.70	6.13	4.76
	SD	2.68	3.28	2.76	2.26	2.70	2.57
	Rank	14	22.5	6.5	4	21	16
24	Mean	5.66	4.36	0.23	0.26	5.23	4.46
	SD	2.88	3.05	2.25	1.74	2.82	2.40
	Rank	11	11	12.5	13.5	13	14
25	Mean	7.03	6.10	0.70	-0.66	6.50	5.13
	SD	2.36	3.46	2.56	2.11	2.99	2.87
	Rank	16.5	20	16.5	5	26	17.5
26	Mean	7.43	6.53	0.70	0.26	6.36	6.50
	SD	2.58	3.32	2.68	2.35	2.77	2.69
	Rank	22	26	16.5	13.5	24	26
27	Mean	7.50	6.20	-0.06	-0.63	5.70	5.40
	SD	2.24	3.13	2.42	2.20	2.95	2.67
	Rank	23.5	21	9.5	6	18	22

a. See Table 1 for description of slides.

b. The larger the mean value the more pornographic (or pleasant or stimulating) is the slide rated.

For each of the three scales, rank-order correlations were computed between the average ratings under the conditions of physiological measuring and no physiological measuring. In each case the correlation was extremely high (pornographic: rho=.87; stimulating: rho=.92; pleasantness: rho=.86; all $ps < .01$), indicating that the relative ratings of the slides were not affected by whether or

not the subjects were "hooked up." In addition, the pornographic ratings were highly correlated with both stimulating (rho=.61 and .73 for conditions of physiological measuring and no physiological measuring, respectively) and pleasantness (rho=.73 and -.70) ratings (all *p*s<.01), but there was little relationship between the stimulating and pleasantness scales (rho=-.17 and -.20). Thus, the ratings of pornography were highly related to ratings of both pleasantness and stimulation. Furthermore, the multiple correlations predicting pornography from the stimulating and pleasantness/unpleasantness scales were .88 and .92 for the physiological "hook-up" and no physiological "hook-up" conditions.

Table 4

ANALYSES OF VARIANCE OF RATINGS OF SLIDES FOR STUDY I

		Pornography		Pleasant/unpleasant		Stimulating	
Source	df	M.S.	F	M.S.	F	M.S.	F
Order of presentation (O)a	2	56.54	< 1	12.63	< 1	161.20	2.06
Alone-group condition (C)a	1	120.05	< 1	2.61	< 1	41.73	< 1
Physiological—no physiological hook-up (M)a	1	651.07	5.01*	20.67	< 1	204.80	2.73
Slides (S)b	26	296.42	123.57**	52.92	17.88**	146.54	48.18**
Subjects (P[OCM])‡b	48	126.27	52.64**	53.53	18.09**	75.04	24.67**
O x Ca	2	50.52	< 1	170.10	3.03	100.13	2.57
O x Ma	2	14.93	< 1	3.34	< 1	210.07	2.75
C x Ma	1	0.67	< 1	96.31	1.72	88.20	1.17
O x Sb	52	3.12	1.30	2.71	< 1	4.70	1.55**
C x Sb	26	3.48	1.45	3.23	1.09	2.59	< 1
M x Sb	26	4.17	1.74*	2.16	< 1	2.90	< 1
S x P[OCM]	1248	2.40		2.96		3.04	
O x C x Ma	2	34.44	< 1	48.01	< 1	78.50	1.05
O x C x Sb	52	2.94	1.22	3.63	1.23	4.20	1.38
O x M x Sb	52	2.16	< 1	4.12	1.39*	2.53	< 1
C x M x Sb	26	1.34	< 1	4.29	1.45	2.74	< 1
O x C x M x Sb	52	1.70	< 1	2.05	< 1	2.34	< 1

‡ Subjects were nested under O, C, and M. Repeated measures were obtained for S.

* p < .05.

** p < .01.

a. Error term. See footnote 3.

b. Error term = Slides x Subjects (S x P[OCM]).

Table 4 shows the results of the analyses of variance of the slide ratings.[3] All three ratings differed significantly across slides and between raters (all $ps<.01$). In addition, the slides were rated as more pornographic when the subjects were "hooked up" than when they were not ($p<.05$), and there was also a small, but statistically significant, interaction involving measures and slides. The rank-order correlation (rho=.87) for the "hooked up" with the not "hooked up" conditions for the pornography scale indicates that this interaction is a function of somewhat minor shifts in the position of the slides from one condition to another. In addition to the previously mentioned main effect, the pleasantness and stimulating ratings were affected by some small, borderline significant two- and three-way interactions.

The major results here are the clear differences among the ratings of the slides when averaged over raters and the individual differences among the raters when their scores are averaged over slides. These two findings are clear for all three rating scales. The reliabilities (Myers, 1966, pp. 294-299) of these average ratings were determined. The reliability of the slide ratings for each of the three rating scales was: pornographic = .99, pleasant = .94, and stimulating = .98. Thus, the slides were differentiated by the subjects in a highly reliable manner. In addition, the same procedure permits one to evaluate the reliability of between-subjects differences. This was: pornography = .98, pleasant = .94, stimulating = .96.

Behavioral effects of viewing slides

The subjects were asked to indicate what sexual activity they had engaged in during the weeks immediately preceding and following the slide viewing.

The left hand section of Table 5 shows the number of subjects indicating some of each kind of sexual activity before and after viewing the slides. There appears to be a slight increase in the number of subjects reporting each activity following the slide viewing, but only in the case of spontaneous erection is this increase significant. The right hand part of Table 5 indicates the actual numbers of subjects increasing or decreasing sexual activity of each type. Again, there is a tendency for more subjects to increase than to decrease their activity, but only in the case of masturbation is this tendency statistically significant (sign test). The greatest change involves spontaneous erection (48.3%), petting (41.4%), sexual dreams (39.7%), and masturbation (34.5%); the least change involves nocturnal emission (20.7%), coitus (22.4%), and total ejaculation (29.3%).[4] The activities showing a net increase are masturbation (15:5), spontaneous erection (17:11), and sexual dreams (15:8), but only in the case of masturbation is this net change significant ($p<.05$). In general, then, there is little effect on sexual behavior of viewing the slides. What effect there is tends to involve a small increase in activities that are autoerotic (that is, do not involve a partner).

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3. In the analysis of variance, in addition to subjects the slides were considered a random variable of classification. In this design some effects do not have appropriate error terms unless certain specific higher-order interactions are assumed not to exist. These assumptions were tested with $\alpha = .25$. In those cases where the assumptions were not appropriate, quasi-*F* tests (Winer, pp. 199-202) were used.

4. Percentages refer to the sum of the change in activity (see Table 5. For example, spontaneous erection: 29.3% + 19.0% = 48.3%).

Table 5

EFFECTS OF VIEWING SLIDES ON SEXUAL ACTIVITY, STUDY I

Activity	Subjects indicating some activity		Change in activity	
	Pre	Post	Increase	Decrease
Masturbation	28 48.3%	30 51.7%	15 25.9%	5* 8.6%
Petting	24 41.4%	28 48.3%	13 22.4%	11 19.0%
Coitus	17 29.3%	19 32.8%	7 12.1%	6 10.3%
Nocturnal emission	10 17.2%	13 22.4%	7 12.1%	5 8.6%
Spontaneous erection	26 44.8%	34* 58.6%	17 29.3%	11 19.0%
Sex dreams'	23 39.7%	25 43.1%	15 25.9%	8 13.8%

N = 58

*p .05.

Discussion

The results of Study I suggest that the absolute judgment of pornography depends not only upon the sexual content of the slides, but also upon the context within which they are seen. Thus, being "hooked up" for physiological measures tends to result in all the stimuli being seen as more pornographic than when the subjects are not "hooked up". Context seems also to affect how stimulating the slides are perceived (i.e., "hooking up" resulting in higher stimulation ratings), but not their pleasantness/unpleasantness ratings. However, context does not seem to affect the relative ratings of the stimuli (the rank ordering of the slides on the pornography dimension), as evidenced by the high rank-order correlations between the two experimental conditions for all three rating scales.

One interpretation of the data presented so far is that the fact of being "hooked up" emphasized the requirement of candor in the experiment in a manner that was not evident when there was no such physiological "hook up". In other words, this manipulation, in some undetermined manner, conveyed to the subject in this condition that his responses could be assessed correctly and even independently of his overt behavior, and that it was therefore incumbent upon him to be as veridical as possible in his judgments of the stimuli.

The reliability of the slide ratings, as estimated, is extremely high. The subjects, then, tend to clearly differentiate the different slides in their ratings. Further, there is considerable variation in the way different subjects rate the same slides, suggesting that individual differences affect the perception of the slides. This

possibility will be investigated in further analyses of the Study I data. In particular, the relationships between Levitt and Brady's (1965) "reactivity index" (the mean rating of all slides) and a number of personality, experiential, and demographic variables will be explored.

The data also provide a preliminary indication of the "meaning" of pornography. There is a high positive correlation between the pornography ratings and the stimulation ratings, and an equally high negative correlation between the pornography ratings and the ratings of pleasantness/unpleasantness. The combination of the stimulating and pleasantness/unpleasantness ratings correlated .88 and .92 with the pornography ratings for the conditions of physiological measurement and no physiological measurement respectively. These extremely high correlations suggest that material is seen as highly pornographic when it is both highly stimulating and quite unpleasant. Unfortunately, only three rating scales were used in Study I and they were all printed on the same page, with the possibility that the rating on one scale may have affected the rating on another. This is not a strong possibility, however, since two of the scales (i.e., sexually stimulating and pleasantness/unpleasantness) were not significantly correlated. In any event, Study II examines this question more thoroughly by obtaining ratings of the slides on these dimensions as well as on a number of semantic differential bipolar scales.

One interesting result was that male masturbation tends to be rated as very unpleasant when judged by males. It would appear that, for male subjects at least, public display by others of this behavior is considered distasteful even though regular masturbation was common among the subjects and, furthermore, is the behavior that is most affected by viewing the slides. This implies the existence of an interesting double standard.

Regarding changes in sexual behavior as a consequence of experimental exposure to sexual stimuli, the results of this study seem to parallel those of Schmidt and Sigusch (1969). The changes in reported sexual behavior were small, what changes there were tended to involve autoerotic activities, and only masturbation increased significantly. It is nevertheless interesting that these behaviors were the ones most commonly reported prior to the viewing of the slides. Too much should not be made of these results, however, since the differences tended not to be significant.

STUDY II

The results of Study I indicated that the subjects reliably rated the stimuli along the dimensions of pornography, pleasantness-unpleasantness, and stimulation value, and that the ratings were similar when made alone or in groups. The results further suggested that the context within which the slides were seen influenced the absolute but not the relative judgment of the slides as pornographic. That is, the slides were rated as more pornographic when the subjects were "hooked up" for physiological measures. Moreover, the data of Study I

suggested tentatively the "meaning" of pornography, at least as far as these subjects were concerned. The stimuli were seen as pornographic to the extent that they were highly arousing (sexually stimulating) *and* quite unpleasant.

Study II carried these investigations further by examining (*a*) the relation of sexual arousal and pornographic scale values to looking time, and (*b*) the effects of an audience (with the implication of increased arousal of the subjects) upon looking time. In addition, the study further investigated the "meaning" of pornography. Theoretical considerations of these three areas are given hereunder.

Looking time. The study attempted to investigate the relationship between the pornographic rating values established in Study I and (*a*) arousal as assessed by both self-report measures and two physiological indices—heart rate and finger pulse volume,[5] and (*b*) the amount of time the subjects spent looking at the stimuli when they were alone and when they were in the presence of an audience.

Looking time was assumed to reflect the subject's willingness to be exposed to the stimuli. An increase in looking time was therefore expected as long as the stimuli being viewed were judged to be pleasant or the looking behavior considered appropriate. However, as the stimuli became too arousing or threatening the looking time might decrease. Some support for this expectation is given by Martin (1964), who observed that the amount of time subjects spent rating nude photographs was determined both by the degree of sexual arousal of the subjects and by the condition of "permissiveness" that prevailed during the experiment. The selection of looking time as a dependent variable was also prompted by the investigators' belief that people exposed to pornographic material would not necessarily and invariably "take it all in." There is a good deal of evidence in the psychological literature, particularly the psychoanalytic and perceptual defense literature, which suggests that conscious or unconscious defensive processes would tend to screen out material that is too arousing or threatening. In addition, research on the "Yerkes-Dodson law" (Yerkes & Dodson, 1908) has shown a curvilinear relationship between arousal and performance. The present study hypothesized a similar curvilinear relationship between sexual arousal and looking time, on the assumption that high sexual arousal might be a source of anxiety or threat. Moreover, it was expected that arousal would increase as a direct function of the pornographic rating of the stimuli.

Audience effects. Interest in the effects of sexual arousal on subsequent behavior gave rise to a consideration of an audience as a potent contributor to such arousal. There is some evidence that the presence of an audience increases the arousal (anxiety) level of a performing individual because of his apprehension of evaluation by that audience. Anxiety, in turn, affects the performance of the individual depending, however, on the task and the kind of audience (Zajonc,

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5. Heart rate, finger pulse volume, and eye movement data were obtained from the subjects as they viewed the slides. Because of technical difficulties, however, the data for many subjects were unusable in their present form and are not included in this report. Attempts to "clean up" the records are being made and, if successful, will be submitted in a supplementary report.

1965; Cottrell, 1967, 1968). From this it was expected that (*a*) arousal would be higher when pornographic material was viewed in the presence of other nonperforming upperclassmen than when it was viewed alone, and (*b*) this higher arousal, in turn, would produce earlier defensive reactions, and hence looking time should begin to decrease sooner (i.e., at a lower "pornographic" level) in the audience condition.

Definition of pornography. As indicated above, data from Study I indicated that the pornographic ratings of the stimuli were related positively to stimulation (arousal) ratings and negatively to the rated pleasantness/unpleasantness of the material. Study II sought to explore further the meaning of pornography by using a number of semantic differential scales (Osgood, 1957).

Personality variables

Study II, like Study I, was also interested in the effects of certain individual differences and biological variables upon the subjects' looking time and general reactions to the slides. For this purpose the same personality measures used in Study I were employed (e.g., the Extraversion-Introversion scale, the Repression-Sensitization scale, and so on). Again, these investigations were seen as essentially exploratory and no hypotheses were proposed.

Method

The major dependent variable was the time spent by the subjects looking at the slides. The purpose of the study was to investigate the effects on looking time of: (*a*) the rated pornographic values of the slides; (*b*) whether the subjects viewed the slides alone or were observed by an "audience"; and (*c*) the order of presentation of the slides. The study, then, involved a 15 (slides) x 2 (alone vs. audience) x 2 (orders of presentation) experimental design.

Subjects

The 56 subjects in Study II were obtained from the same pool of respondents to the advertisement as were the Study I subjects (see *STUDY I, Subjects*). In all, 120 students were invited to attend the initial session and 81 (67%) actually attended one of the group sessions. There were eight sessions, identical to the group testing sessions of Study I (see *STUDY I, Group session*), involving four to 16 subjects each. These sessions were run late in the academic year, fairly close to the examination period, and only 56 of the subjects could be run in the experimental sessions. Of these four were "pilot" subjects. In order to simplify the data analysis, it was decided to use equal cell sizes for the 2 x 2 analyses of variance. Since the smallest cell consisted of 10 subjects, the other cells were equalized,

first, by eliminating those subjects whose records were in any way incomplete (thus eliminating seven subjects); the remainder was randomly eliminated.

Of the 40 subjects involved in the analyses of variance, half viewed the slides alone, the other half in the presence of three observers (presented as graduate students interested in the experiment; see *Procedure* section, following). Half the subjects in each of the groups were shown the slides in ascending order of rated pornographic value (based on the Study I ratings), the other half in a mixed order (see Table 6). The two orders correlated .00. Measurements of heart rate, blood volume, and eye movement were obtained from all subjects.

A detailed account of the experimental session is given in the *Procedure* section below.

Slides

The slides were 15 of the 27 used in Study I. They were selected primarily on the basis of the Study I ratings of their pornographic value ("physiological" condition). The mean ratings varied from 0.13 to 7.70, in steps of .30 to .50, on the 11-point rating scale. An attempt was also made to select slides for which the between-subject variability in ratings was relatively low as well as to represent as wide a variety of sexual behavior as possible. The slides selected are listed in Table 6. The Study I and Study II pornography ratings are given in Table 7.

Table 6

ORDER OF PRESENTATION OF SLIDES FOR STUDY II

Order 1 (progressive)	Order 2 (mixed)
1	14
2	21
15	6
3	15
5	8
13	2
6	5
14	27
11	3
17	12
12	1
21	20
27	17
20	11
8	13

Rating scales

Each of the slides was rated on a number of dimensions. These ratings were obtained for two reasons. First, an effort was made to further explore the "meaning" of pornography by having the slides rated on several scales; secondly,

the rating task provided a credible rationale for having the subjects view the slides without, at the same time, suggesting that looking time was being measured.[6]

Each of the slides, then, was rated on 12 seven-point bipolar semantic differential scales. The scales included minor revisions of the three used in Study I (pornographic-nonpornographic, pleasant-unpleasant, stimulating-nonstimulating) as well as eight additional scales, to cover the three semantic differential factors. The evaluative factor consisted of pleasant-unpleasant, beneficial-harmful, clean-dirty, and good-bad. The activity factor included stimulating-nonstimulating, active-passive, and hot-cold. The potency factor included heavy-light, strong-weak, and serious-humorous. One additional scale, usual-unusual, was also included. All scales were chosen on the basis of their assumed relevance to the sexual content. The rating sheet and the rating instructions are given in Appendices C and D.

Table 7

STUDY I VS. STUDY II MEAN RATINGS

	Pornographic		Stimulating		Pleasant	
Slide	Study I Mean	Study II Mean	Study I Mean	Study II Mean	Study I Mean	Study II Mean
1	0.13	1.33	1.06	2.78	1.76	5.83
2	1.30	2.40	2.40	3.53	1.63	5.15
15	1.93	2.25	2.90	3.70	1.96	5.23
3	2.76	2.85	3.50	4.35	1.10	5.10
5	3.33	3.35	4.46	4.58	1.70	5.13
13	4.16	3.73	4.73	4.93	0.93	4.73
6	4.56	3.80	4.53	4.45	0.63	4.68
14	5.06	4.13	5.60	4.73	1.43	4.55
11	5.90	4.23	2.03	2.38	-0.84	3.25
17	6.63	4.58	6.46	5.95	1.40	5.53
12	7.03	4.75	2.73	3.08	-0.84	3.08
21	7.26	5.05	6.20	5.10	-0.17	4.20
27	7.50	4.70	5.70	5.18	-0.07	4.10
20	7.56	5.05	5.76	5.85	-0.10	4.33
8	7.70	5.38	4.76	4.93	-1.17	3.50
Product-moment correlation		+0.986		+0.939		+0.926

Physiological measures

Three physiological measures were obtained from the subjects while they viewed and rated the slides. Heart rate and finger pulse volume were measured by a finger plethysmograph attached to the index finger of the subject's dominant hand. The subject rested his hand, roughly at the level of his heart, on a specially constructed arm rest.

Gross eye movements were measures by Beckman biopotential skin electrodes placed just lateral to each eye at the level of the cornea. The "ground" electrode was placed on the neck just below the right ear.

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6. Work with a few pilot subjects suggested that unless the subjects were given a good reason for viewing the slides, the looking time would be very short and would vary little over slides.

The plethysmograph and electrodes were connected by shielded cable to a Beckman dynograph via AC couplers. The dynograph was connected to an FM tape recorder, which recorded all physiological data and the various events (slide changes, etc.) for subsequent direct input to a computer for analysis.

An attempt was made to minimize any environmental effects upon the physiological responses by maintaining the laboratory temperature at 72-74°F, and by keeping constant humidity. To "acclimatize" the subjects to the indoor condition they were asked to be in the building a half hour before the experimental session.

Procedure[7]

The experimental session took place in the same laboratory used in Study I.

Audience condition:

(1) The experimenter met the subjects outside the laboratory, introduced himself, seated the subjects, and said:

> "I want to thank you for assisting us on this project. As you have been told, in this study we're investigating the behavioral and physiological responses of an individual to sexual stimuli. You will be shown a number of slides. While you are rating the slides we want to measure your physiological responses, that is, your bodily response to the whole situation. Therefore, I'd like to attach some transmitters to you. These are simply to record the electrical activity of the eye muscles and your finger pulse pressure. Of course, you won't feel any pain whatsoever. Is this all right with you?"

(2) After the subject agreed, the experimenter attached the electrodes to the subject's eyes and the plethysmograph to his nondominant hand. The subject was shown how to position his hand and told:

> "During the entire experiment, it is very important that you keep still, you should try not to move your head since such movement will distort the physiological record. Also let this hand relax on the arm rest, so that your fingers dangle freely over the end. Again, in order to avoid distortion, try not to move your head at all."

(3) When the electrodes and plethysmograph were attached, the experimenter asked:

> "Oh yes! . . . There are a number of graduate students in this department who are very interested in this project. Would you mind if they observed the session? . . . Of course, they will respect your anonymity the same as we promised . . . I'll check in a few minutes to see if they are here."

(4) The experimenter then explained how the slides were to be rated:

> "While you are viewing the slides we would like you to rate them on several scales. These are the scales. You do not have to fill in the slide number or the

7. Dots (. . .) in this section represent pauses in delivering instructions, not omissions of wording.

code number; I will do that later. The instructions for rating are here." (See Appendix D.) "Read them over and I will answer any questions you have when you are finished . . . . Are there any questions about the scales? . . . There is one page for each slide and each slide is to be rated on all of the scales. . . . There are only about a dozen and a half slides so you can view each for as long as you wish. There is no hurry. I'll be in the other room operating the equipment that records your physiological responses, therefore you'll operate the projector. To change a slide simply push this button once." (The experimenter demonstrated with a blank slide.) "Do you understand? Advance the projector, please. This slide, 'Please rate the slide you have just seen,' follows after each of the stimulus slides. Do not rate any slide while it is on the screen. When you have finished viewing a slide, advance to this instruction slide before rating the slide. . . . I have to go to the other room to adjust the equipment. I'll come back in before we start the experiment. Please advance the projector again. In order to excite the electrical activity of the eye, for making adjustments, I will ask you to look at the left, center and right of the screen. I will also ask you to look back and forth several times."

(5) The experimenter then left the room briefly to adjust the equipment. When he returned to the laboratory, he told the subject:

"We have to wait a few minutes for the equipment to warm up."

To relax the subject and obtain baseline physiological measures, the experimenter engaged the subject in small talk about university courses, summer employment, and so on for about five minutes.

(6) At the end of this period the experimenter explained:

"I think the equipment should be ready now. . . . Let me check to see if the people are here yet."

(7) Going to the door and opening it the experimenter greeted the "observers" and explained the experiment to them.

"You may come in now. . . . Why don't you have a seat? . . . The subject is about ready to start. Let me tell you briefly what he will be doing. He will be shown a number of slides and while he is viewing the slides we will be taking a continuous physiological recording of his responses. At the same time, he will be rating slides on a number of scales. Actually he will be rating each slide on all of 12 separate scales. That's about it."

At this point one of the observers asked "What physiological measures are you taking?" The experimenter replied "We are recording pulse information and certain information from the eye."

Another observer asked "Exactly how are you taking these measures?" The experimenter replied, "As you can see there is a sensor on the finger which measures the pulse and the electrodes on each side of the head measure the electrical activity of the eye."

(8) The final instructions were given next:

"O.K. I'll turn on the projector from the other room and leave you to view the slides. Remember that to change a slide you only need to press the button once. Also try not to move your head or your one hand as it will distort the recording. I have to make a few further adjustments on the equipment before starting. I'll tell you when the physiological apparatus is ready. After that you can begin when you are ready. By the way, the first slide is a blank and then come the experimental slides. Are there any questions?"

(9) All questions were answered, after which the experimenter left the room. The projector was turned on and final adjustments were made on the equipment and the subject was advised (via the intercom system):

"You may begin whenever you are ready."

(10) After the subject was finished, the experimenter advised:

"Would the subject please remain still for a few minutes, I would like to continue recording. For the rest of you the formal part of the experiment is finished; you may leave now if you wish."

(11) After a few minutes the subject was given a postexperimental questionnaire.

Alone condition:

For this condition only steps (1), (2), (4), (5), (8), (9), (10, modified), and (11) of the above procedure and instructions were used. In the alone condition, step 10 instructions were: "Would the subject please remain still for a few minutes, I would like to continue recording."

Postexperimental interview and questionnaire

Immediately following the rating session, each subject was given a questionnaire which asked a series of questions similar to those asked in Study I, that is, about his reactions to the slides, previous experience with various kinds of sexual and pornographic material and the effects of this material on the frequency and enjoyment of sexual activity, his attitude toward sex, and, finally, other questions about his sexual practices. Following this an interview was conducted for clarification of his responses and further comments. An attempt was made to obtain a better baseline of sexual behavior than in Study I, by separating the questions about the subject's pre- and postexperimental sex activity. That is, one of the questions asked the subject to consider only the week immediately preceding the viewing of the slides and to indicate their sexual activity, day by day, during that week. This was taken as the baseline measure of sexual activity.

Follow-up questionnaire

In order to determine what effects the exposure to the slides had upon the subjects' sex attitudes and behavior, they were asked to return for their payment a week or so after the rating session. At that time they were asked to complete a short questionnaire based upon the one developed by Schmidt et al. (1969). The subjects were asked to indicate their sexual activity, day by day, for the week immediately following the viewing of the slides. In addition, questions concerning the subjects' general reactions to the slide viewing (how long afterwards did they remain sexually excited) and to the study were included.

Results

The time spent by each subject looking at each slide (looking time) was determined. Table 8 shows the means and standard deviations of this variable, for both the alone and audience conditions, and Table 9 summarizes the analysis of variance of these data.

Table 8

MEANS, STANDARD DEVIATIONS, AND RANK ORDER OF SLIDES FOR STUDY II

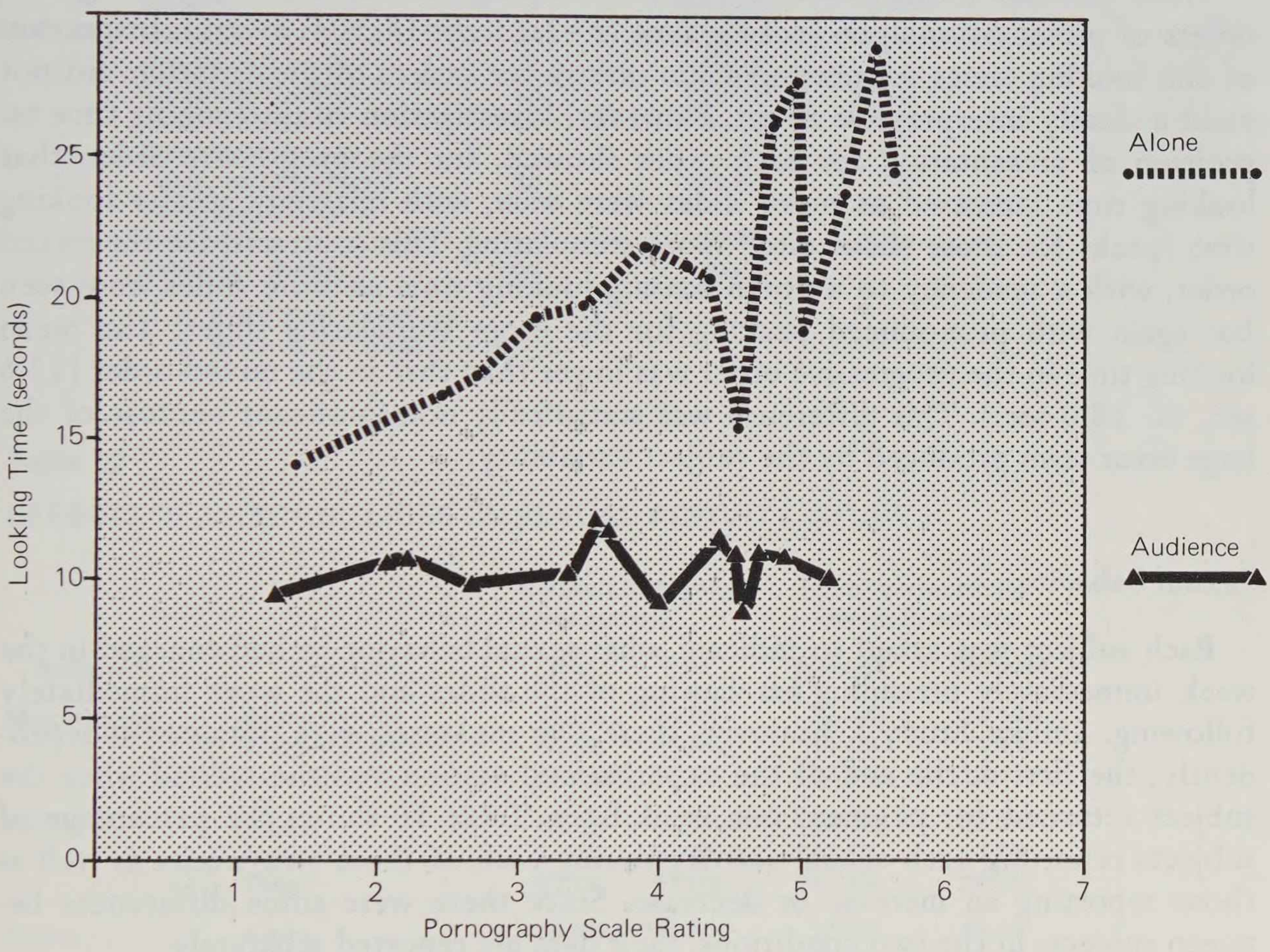
(Alone and audience conditions)

Slide		Looking time (seconds)		Slide		Looking time (seconds)	
		Alone	Audience			Alone	Audience
1	Mean	14.12	9.49	11	Mean	15.41	7.13
	SD	7.44	4.75		SD	9.02	3.36
	Rank	1	3		Rank	2	1
2	Mean	17.15	10.72	17	Mean	26.28	11.48
	SD	9.82	5.79		SD	16.78	7.06
	Rank	4	8		Rank	13	13
15	Mean	16.54	10.45	12	Mean	18.90	8.69
	SD	8.32	5.57		SD	12.00	6.01
	Rank	3	7		Rank	5	2
3	Mean	19.41	9.92	21	Mean	23.85	10.88
	SD	8.92	5.20		SD	15.42	6.33
	Rank	6	4		Rank	11	9
5	Mean	19.75	10.10	27	Mean	27.57	11.07
	SD	12.55	6.31		SD	14.31	8.21
	Rank	7	5		Rank	14	10
13	Mean	21.99	11.83	20	Mean	29.20	11.14
	SD	13.31	5.67		SD	18.05	7.51
	Rank	10	14		Rank	15	11
6	Mean	21.35	12.05	8	Mean	24.89	10.21
	SD	12.29	7.19		SD	14.93	6.24
	Rank	9	15		Rank	12	6
14	Mean	20.92	11.21				
	SD	14.62	5.12				
	Rank	8	12				

As expected, looking time was considerably shorter when the subjects were observed by an audience (mean = 10.43 seconds) than when they viewed the slides alone (mean = 21.16 seconds). This difference is statistically significant (F=15.88; df=1/36; $p<.01$). Looking time varied significantly across slides (F=9.63; df=14/504, $p<.01$), and the slides by conditions interaction was also significant (F=5.16; df=14/504; $p<.01$).

Figure 1

LOOKING TIME AS A FUNCTION OF PORNOGRAPHIC RATING OF THE SLIDES IN ALONE AND AUDIENCE CONDITIONS, STUDY II



Note: 15 points are plotted for the Alone condition but only 14 points for the Audience condition. Since two slides in the latter condition had the same mean pornographic rating, the looking times for these two slides were averaged.

Figure 1 shows the relationship between looking time and the Study II pornographic ratings of the slides in both conditions. Since the slide ratings were slightly different in the two conditions, Figure 1 shows looking time in the alone condition plotted against the pornography ratings of the subjects in that condition; the same holds for the audience condition. Figure 1 also shows that both

the main effect and the interaction are attributable to the fact that looking time tended to increase as the slides were seen as more pornographic in the alone condition, but not in the audience condition.

There was no evidence of the anticipated curvilinear relationship between looking time and pornographic value in either the alone or the audience condition. There was a tendency for the looking time of highly pornographic slides to be more variable than for those rated lower (see Table 8 and Figure 1). This is partly due to the fact that the looking time for the male masturbation and nude slides was extremely low. Finally, there was significantly more variability in the mean looking times in the alone condition (SD=13.34) than in the audience condition (SD=6.25) (F=4.56; df=14/14; $p<.01$).

There was also a significant interaction involving the effects of slide ratings and orders of presentation upon looking time (F=2.23; df=14/504; $p<.01$). Inspection of the looking times vs. pornographic ratings for orders of presentation did not yield a clearly interpretable result. However, investigation of the looking time vs. position of presentation for each order showed, for the progressive order, that looking time increased as more slides were seen, with relatively greater looking time (peak) for those slides rated more stimulating. This contrasts, for the mixed order, with a tendency to a nonincreasing looking time as more slides were seen but again with pronounced peaking for the more stimulating slides. The mean looking time in the progressive order was lower than that in the mixed order (13.6 sec. vs. 18.0 sec.). This difference was statistically nonsignificant because of the large error term produced by the subject variability.

Sexual behavior

Each subject was asked to indicate what sexual behavior he had engaged in the week immediately preceding his viewing of the slides and the week immediately following. Unlike Study I, however, these two measures were obtained independently, the first at the end of the experimental session and the second when the subject returned for payment one week later. Table 10 shows the percentage of subjects reporting each sexual activity during each of these two weeks as well as those reporting an increase or decrease. Since there were some differences between subjects in the two conditions, their data are reported separately.

There were some differences between Study II data and those of Study I. In the week preceding the viewing of the slides the Study II subjects reported more nocturnal emissions (22.4% vs. 17.2%), more spontaneous erections (85.7% vs. 44.8%), and more sexual dreams (55.1% vs. 39.7%) than did those of Study I during the comparable period. Further, the Study II subjects reported a drop in both spontaneous erections and sexual dreams after viewing the slides while the Study I subjects reported an increase.

During the week preceding the viewing of the slides, subjects in the audience condition reported less petting (44.4% vs. 58.1%), nocturnal emissions (16.7% vs.

Table 9

MEANS, STANDARD DEVIATIONS, AND ANALYSIS OF VARIANCE OF TIME (in seconds) SPENT IN LOOKING AT SEXUAL STIMULI, STUDY II

Looking time	Alone	Audience
Mean	21.16	10.43
SD	13.34	6.25

Analysis of variance

Looking time

	df	M.S.	F
Condition [a]	1	17272.48	15.88 **
Order [a]	1	2859.43	2.63
Stimuli [b]	14	285.55	9.63 **
Condition x order [a]	1	179.78	1
Condition x stimuli [b]	14	152.87	5.16 **
Order x stimuli [b]	14	66.15	2.23 **
Subjects (nested in order and condition)	36	1087.85	
Condition x order x stimuli [b]	14	42.86	1.45
Subjects x stimuli	504	29.64	

a. Error term = subjects.
b. Error term = subjects x stimuli.
** $p < .01$.

Table 10

EFFECTS OF VIEWING SLIDES ON SEXUAL ACTIVITY, STUDY II

		Subjects indicating some activity		Subjects reporting change in activity	
Activity	Condition	Pre	Post	Increase	Decrease
Masturbation	Alone (N=31)	51.6%	54.8%	32.3%	22.16%
	Audience (N=18)	55.6%	50.0%	11.1%	11.1%
	Total (N=49)	53.1%	53.1%	24.5%	18.4%
Petting	Alone	58.1%	61.3%	22.6%	29.0%
	Audience	44.4%	33.3%	11.1%	16.6%
	Total	53.1%	51.0%	18.4%	24.5%
Coitus	Alone	25.8%	25.8%	12.9%	19.4%
	Audience	27.8%	22.2%	16.6%	16.6%
	Total	26.5%	24.5%	14.3%	18.4%
Nocturnal emission	Alone	25.8%	32.3%	16.1%	12.9%
	Audience	16.7%	22.2%	16.6%	0.0
	Total	22.4%	28.6%	16.3%	8.2%
Spontaneous erection	Alone	83.9%	61.3%	19.4%	54.8%
	Audience	88.9%	72.2%	16.6%	38.9%
	Total	85.7%	65.3%	18.4%	49.0%
Sex dreams	Alone	58.1%	58.1%	12.9%	29.0%
	Audience	50.0%	33.3%	65.6%	33.3%
	Total	55.1%	49.0%	10.2%	30.6%

N=49

25.8%), and sexual dreams (50.0% vs. 58.1%) than did those in the alone condition. The relative frequency of the various activities of both groups combined was similar to that of Study I; that is, spontaneous erections (85.7%), sexual dreams (55.1%) and masturbation (53.1%) were the most common, and coitus (26.5%) the least common sexual activities reported. As in Study I, these activities were also the ones for which the greatest change was reported. A greater proportion of subjects in the alone condition reported engaging in all activities except for spontaneous erection in the week following the experimental session compared to those in the audience condition, a smaller proportion of whom reported engaging in most activities, with the greatest decreases in sexual dreams and spontaneous erections.

Comparison of Study I and Study II change in activity data (see Tables 5 and 10) showed that there was considerably more change in Study II, particularly in masturbation (42.9% for Study II vs. 34.5% for Study I), coitus (32.7% vs. 22.4%), spontaneous erections (67.4% vs. 48.3%) and sex dreams (40.8% vs. 39.7%).

Semantic differential ratings

In an attempt to clarify the "meaning" of the subject's perception of pornography, 11 semantic differential scales were added to the pornographic-nonpornographic scale and ratings were obtained on these 12 scales using the standard seven-point scale and semantic differential instructions (Osgood, Suci, & Tannenbaum, 1957). The three basic dimensions found by Osgood et al. were represented by the four scales, pleasant-unpleasant, beneficial-harmful, clean-dirty, and good-bad for the evaluative factor; the three scales, stimulating-nonstimulating, active-passive, and hot-cold for the activity factor; and the three scales, heavy-light, strong-weak, and serious-humorous for the potency factor. One further scale, unusual-usual, was also used.

The 40 subjects rated each of the 15 slides on all 12 scales. Scores on the three dimensions—evaluation, activity, and potency—were obtained by summing the appropriate scales, specified above, in each case. Means and standard deviations were computed across subjects for each slide for the 12 scales, the three summed dimensions, and the looking time. (See section on *Looking time*, below, for a more detailed discussion of this variable.) A listing of the 16 variables is given in Appendix E. The means and standard deviations are found in Appendix F. The means on these 16 variables were intercorrelated across slides to give the 16 x 16 correlation matrix in Appendix G.

Inspection of the intercorrelations among the semantic differential scales indicated that the scales within each of the three factors clustered generally as expected, justifying the summing of scales to obtain the evaluation, activity, and potency dimensions. The unusual-usual scale appeared to add no information not accounted for by the factors, in particular the evaluative factor. On this basis Table 11 was abstracted from Appendix G.

Table 11

CORRELATIONS AMONG THE THREE SUMMED SEMANTIC DIFFERENTIAL DIMENSIONS, THE PORNOGRAPHY SCALE, AND LOOKING TIME

	Evaluation	Activity	Potency	Pornography	Looking time
Evaluation	1.00	-.30	-.75	-.94	-.43
Activity		1.00	.80	.57	.93
Potency			1.00	.91	.81
Pornography				1.00	.66
Looking Time					1.00

Table 11 shows the intercorrelations among the three factors, the pornography scale, and looking time. The evaluative and activity dimensions were relatively independent (r=-.30), but the potency dimension was highly related to both of the other dimensions (potency with evaluation, r=-.75, potency with activity, r=.80). This suggests that the potency dimension did not add information beyond that accounted for by evaluation and activity. (See the discussion of the factor analysis below for clarification of this result.)

The average ratings on degree of pornography correlated -.94 with the evaluative dimension and .57 with the activity dimension. The multiple correlation predicting the pornography rating from the evaluative and activity factors was .99 (p<.01). (In Study I where only the pleasant-unpleasant and stimulating-nonstimulating scales were used, the multiple correlation predicting the pornography scale from these two scales was .88.) Looking time correlated -.43 with evaluation and .93 with activity, with a multiple correlation predicting looking time from these two factors of .94 (p<.01). Thus, almost all of the variance in pornography ratings and in looking time is accounted for by the two semantic differential factors, evaluation and activity. However, the pornography ratings are largely a function of the evaluative rating and only moderately determined by activity ratings. On the other hand, the looking time was determined largely by the activity ratings (the more stimulating the slide, the longer subjects viewed it) and only moderately by the evaluative ratings. In both cases, pornography ratings and looking time, the direction of the relationship with the factors was the same (negative for evaluation and positive for activity), but the weight given to each factor differed. This tendency for slides, as they decrease in evaluation and increase in activity, to be perceived as more pornographic and to be viewed longer is seen in the correlation of .66 (p<.01) between the pornography ratings and looking time.

As mentioned above, the intercorrelations among the three dimensions evaluation, activity, and potency, suggested that in this domain of concepts (the slides) we did not find the usual three independent dimensions reported by Osgood et al. (1957) for more diverse concept domains. This change in factor structure for specific homogeneous concept domains has been referred to as a concept-scale interaction (Ware, 1959, and Osgood, Ware, & Morris, 1961). To investigate this possibility in the present data a factor analysis was run on the 16 variables (12

scales, three summed dimensions and looking time). A principal axes analysis with unities in the diagonals was computed. The first two factors (only these two had eigenvalues greater than one) accounted for 94% of the variance with less than 3% added by the third factor. These first two factors were rotated by Kaiser's normal varimax criterion (Harmon, 1967). The factor loadings and communalities are shown in Table 12.

Table 12

ROTATED FACTOR LOADINGS AND COMMUNALITIES FOR 16 VARIABLES CORRELATED OVER THE 15 SLIDES

	Variables [a]	Factor I	Factor II	Communality
1	Pleasant-unpleasant	.96	.23	.97
4	Unusual-usual	-.90	.40	.96
6	Beneficial-harmful	.96	-.22	.97
9	Clean-dirty	.92	-.36	.98
12	Good-bad	.95	-.23	.95
3	Stimulating-nonstimulating	-.11	.96	.93
7	Active-passive	-.17	.86	.82
10	Hot-cold	-.15	.97	.96
11	Serious-humorous	-.22	.79	.68
2	Heavy-light	-.78	.61	.98
5	Strong-weak	-.63	.76	.97
8	Pornographic-nonpornographic	-.88	.45	.98
	Evaluative dimension [b]	.99	-.15	1.00
	Activity dimension [b]	-.15	.98	.98
	Potency dimension [b]	-.65	.73	.97
	Looking time	-.29	.90	.89

a. Scales are rearranged to clarify the factor structure.

b. The evaluative dimension is the sum of scales 1, 6, 9, and 12; the activity dimension is the sum of scales 3, 7, and 10; the potency dimension is the sum of scales 2, 5, and 11.

The factor analysis results essentially confirm the above interpretations. Only two factors are required for this set of variables.[8] The first factor as shown by the scales with high loadings (the first set of scales in Table 12) and the loading of the summed evaluative dimension (.99) is clearly the evaluative factor. The second factor as shown by the scales with high loadings (the second set of scales in Table 12) and the loading of the summed activity dimension (.98) is clearly the activity factor. The usual potency scales (the third set of scales in Table 11) and the summed potency dimension are accounted for (almost equally) by the evaluative and activity factors and do not determine a third space as Osgood et al. (1957) found with less homogeneous concept domains.

The communalities (sum of squared loadings across the two factors) represent the proportions of variance for the variables accounted for by the two factors.

8. As a check to see if inclusion of the summed dimensions and looking time was distorting the factor structure among the scales, a separate factor analysis was computed for the 12 scales and identical factors appeared.

These extremely high communalities suggest that all of the variables are well explained by the two-space determined by evaluation and activity.

The loadings of the pornography scale and looking time confirm the above interpretations of the correlation matrix that pornographic ratings were largely a negative linear function of evaluation and moderately positively related to activity. For looking time, the relationship with activity was positive and quite high, with only a low negative relationship with evaluation.

Personality and demographic correlates

Table 13 presents the correlations of several personality and demographic variables with the ratings of the slides (averaged across slides) on the pornography, pleasantness, and stimulating dimensions.

Table 13

PERSONALITY AND DEMOGRAPHIC CORRELATES OF REACTIVITY FOR STUDY I AND STUDY II

	Pornographic		Pleasant		Stimulating	
	Study I	Study II	Study I	Study II	Study I	Study II
Neuroticism	.13 (60)	.08 (40)	-.18 (60)	-.07 (40)	.02 (60)	.12 (40)
Introversion-extraversion	.18 (60)	-.19 (40)	-.10 (60)	.51 ** (40)	.04 (60)	.04 (40)
Sensitization-repression	.08 (60)	.06 (40)	.01 (60)	-.08 (40)	.03 (60)	.20 (40)
External-internal locus of control	-.03 (60)	.28 (40)	-.01 (60)	-.18 (40)	-.11 (60)	.08 (40)
Social approval	-.12 (60)	-.17 (40)	-.16 (60)	-.11 (40)	.16 (60)	-.22 (40)
Lie scale	.01 (53)	.07 (40)	-.25 * (53)	-.33 * (40)	-.08 (53)	-.19 (40)
Sex attitude	-.30 * (60)	-.31 * (40)	.08 (60)	.17 (40)	-.14 (60)	-.06 (40)
Religious attitude	.04 (60)	.31 * (40)	-.04 (60)	-.03 (40)	.17 (60)	.30 (40)
General life satisfaction	-.04 (60)	-.28 (40)	.01 (60)	.26 (40)	.03 (60)	-.12 (40)
Birth order	.06 (60)	.26 (40)	-.12 (60)	.29 (40)	-.06 (60)	.30 (40)
Size of home town	.33 * (60)	.26 (39)	-.25 * (60)	-.01 (39)	.06 (60)	.48 ** (39)
Pleasant-unpleasant	-.32 * (60)	-.49 ** (40)	-	-	.16 (60)	.15 (40)
Stimulating	.42 ** (60)	.38 * (40)	.16 (60)	.15 (40)	-	-

*$p < .05$.
**$p < .01$.
Note: For the bipolar scales the high end of the scale is specified by the left-hand member.

Of these, very few correlations of any significance emerged. Introversion correlated significantly with the pleasantness rating of the slides in Study II (r=.51; p<.01). Also, as expected, there was a significant negative correlation between the pornographic rating and liberal sex attitudes (r=-.30 and r=-.31 for Study I and Study II, respectively, both ps<.05) and, in Study II, a positive relationship between pornography and religiosity (r=.31, p<.05).

Among the demographic variables only size of home town was related to the slide ratings. In Study I it correlated positively with pornography (r=.33, p<.05) and negatively with pleasantness (r=.25, p<.05); in Study II its correlation was with the stimulating dimension (r=.48; p<.01).

Discussion

Looking time

Several findings emerged from Study II. The first supported the expectation that the subjects would spend less time looking at the slides when observed by an audience than when alone. In fact, there was no overlap in the distributions of looking times in the two conditions. This finding is consistent with that of Martin (1964), who found that subjects spent more time sorting nude pictures in a permissive condition than in an inhibitory condition. In the present case, it can be assumed that the presence of an audience was indeed threatening and inhibitory. There was much less variability in the looking times of the audience condition than in the alone condition, suggesting perhaps that the subjects spent only as much time looking at the slides as was necessary to permit them to later rate the slides meaningfully. The subjects' behavior and their own reports following the session support this argument.

The expected, curvilinear relationship between looking time and pornography ratings was not found in either condition. With the exception of the two male alone slides—for which looking times were very low—the relationship between looking times and pornography ratings is essentially linear. It is not clear from the results why the curvilinear relationship was not found. One possibility is that none of the slides was seen as very pornographic. The highest pornographic rating was 7.70 (maximum possible 10) in Study I and 5.38 (maximum possible 7) in Study II. It appears, then, that there were few, if any, slides at the "hard core" end of the pornography continuum. This possibility is worth further investigation by the use of more "hard core" pornographic stimuli in subsequent studies.

As was found in Study I, the slides showing a male nude and male masturbation were seen by the subjects as unpleasant and distasteful. In Study II these slides had the lowest looking times in the audience condition and ranked second and fifth in the alone condition.

The finding that looking time tended to increase gradually when the slides were presented in the progressive order, and tended to be more variable in the mixed order is interesting. It may be that in the progressive order the individual slides were perceived as part of a sequence that became progressively more interesting

and arousing. In the mixed order, on the other hand, the slides were probably viewed as individual stimuli rather than as part of a series. This may also account for the generally longer looking times in the mixed order.

Meaning of pornography

The results of Study II cast additional light on the "meaning" of pornography to the subjects. The meaning structure of pornography involved only the evaluative and activity factors. The potency factor, usually found in other domains of concepts, collapsed into this two-space and provided no further information.

High ratings of pornography were closely associated with low evaluative ratings and high activity ratings. That is, very pornographic material was seen as bad, unpleasant, dirty, and harmful, and also as active, hot, and stimulating. The semantic differential data thus support and extend the data from Study I concerning the meaning of pornography.

Looking time was closely related to the activity factor ratings of the slides and moderately related to the evaluative ratings. Thus, the determinants of looking time were the same as those of the pornography ratings, but with their relative contributions reversed. The implication of this to the looking time/pornography relationship is not clear, but bears further investigation.

Effects on sexual behavior

The Study II subjects reported engaging in more sexual activity than did their Study I counterparts. The subjects in Study II also reported greater changes in sexual activity from the week preceding the viewing of the slides to the week following than did those of Study I. In both groups; the greatest effects of viewing the slides were upon sexual dreams, spontaneous erections, and masturbation. Least changed was the frequency of coitus. In general, it is clear that sexual behavior was affected little by the viewing of the slides, and that the behaviors affected were those the subjects tended to engage in most initially (*cf.* Schmidt, Sigusch, & Meyberg, 1969, p. 214). Moreover, these activities were all autoerotic; there was almost no change in heterosexual activity.

Studies I and II differed in two respects that might account for the above differences. First, in Study I the subjects reported their sexual activity during the weeks before and after viewing the slides *at the same time* (i.e., one week after the experimental session). In Study II, the baseline measure of sexual activity was obtained immediately after the experimental session, and the post measure one week later. Secondly, the studies differed in that Study I was completed early in the academic term and Study II quite late. The effects of these differences are not clear.

There were also differences in the reported sexual activity of the subjects in the alone and audience conditions of Study II. The subjects in the audience condition reported less sexual activity than did those in the alone condition. It is of note

that the subjects in the audience condition took part in the experiment after those in the alone condition; in fact, the audience condition was run very close to the university exam period. Again, the reason for these differences is not clear, and it is probably fruitless to engage in post hoc speculation in the absence of any clear data.

Personality and demographic variables

Few significant correlations were found between scores on the personality scales and the subjects' reactions to the sexual stimuli. There was a moderate negative correlation between sex attitude and overall pornography ratings and a positive correlation of the same magnitude between subjects' strength of religious beliefs and the overall pornography ratings. Thus, all the slides tended to be seen as more pornographic by the subjects having relatively conservative sex attitudes and reporting themselves to be highly religious.

The complete absence of any significant correlations involving personality variables is similar to the findings of Levitt and Brady (1965). However, Levitt and Brady used an omnibus personality inventory (the Edwards Personal Preference Schedule), while the present studies used only personality scales chosen on the basis of their assumed relevance to reactions to sexual material. The present negative results, then, are the more damaging to personality trait theory. There are wide individual differences in reactions to the slides, but these differences are not apparently related to any personality traits, at least not those used in the present studies.

Size of home town was one of the demographic variables investigated. Surprisingly, students coming from the larger home towns saw the slides as more pornographic and unpleasant than did the students coming from smaller towns. This seems to refute the common notion that the inhabitants of larger towns tend to be more experienced, open minded, and liberal in their sex attitudes and in what they consider to be pornographic.

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APPENDIX A

SLIDE RATING INSTRUCTIONS FOR STUDY I

You will be shown a series of slides. You will be asked to indicate your reactions to each of the slides by rating them on three dimensions:

1. How pleasant or unpleasant you found the slide.

2. How pornographic you think the slide is.
3. How sexually stimulating you found the slide.

Each scale has eleven (11) points, with the two ends of the scale labeled. Please indicate your reactions by circling the number that accurately represents your reactions. For example, if you found a slide unpleasant rather than pleasant, you would use the right-hand side of scale #1. The more unpleasant you found the slide the higher the number you would circle. Similarly, if you found a slide to be not very stimulating, you would probably circle a 3 or a 4 on scale #3. If not at all stimulating, you would circle the 1 on that scale. Try to make use of the entire scale in your ratings so as to make the ratings accurately reflect your reactions. In rating the slides consider each of the scales separately and independently. Try not to let the way you rated one thing affect the way you rate another.

APPENDIX B

RATING SCALE FOR STUDY I

CODE NUMBER:_____ SLIDE NUMBER:_____

1. How pleasant or unpleasant did you find the slide?

5 4 3 2 1 0 1 2 3 4 5

Extremely Pleasant — Extremely Unpleasant

2. How pornographic do you think the slide is?

0 1 2 3 4 5 6 7 8 9 10

Not At All — Extremely

3. How sexually stimulating did you find the slide?

0 1 2 3 4 5 6 7 8 9 10

Not At All — Extremely

APPENDIX C

SLIDE RATING INSTRUCTIONS FOR STUDY II

We would like you to rate the slides you will be shown on a series of descriptive scales. Please make your judgement on the basis of what the slides mean *to you*. Each slide will be rated on a separate page of the rating booklet.

Here is how you are to use these scales:

If you feel that the slide is *very closely related* to one end of the scale, you should place your check-mark as follows:

fair__X__:_____:_____:_____:_____:_____:_____unfair

OR

fair_____:_____:_____:_____:_____:_____:__X__unfair

If you feel that the slide is *quite closely related* to one or the other end of the scale (but not extremely), you should place your check-mark as follows:

strong___:__X__:_____:_____:_____:_____:_____weak

OR

strong___:_____:_____:_____:_____:__X__:_____weak

If the slide seems *only slightly related* to one side as opposed to the other side (but is not really neutral), then you should check as follows:

active___:_____:__X__:_____:_____:_____:_____passive

OR

active___:_____:_____:_____:__X__:_____:_____passive

The direction toward which you check, of course, depends upon which of the two ends of the scale seems most characteristic of the thing you're judging.

If you consider the slide to be *neutral* on the scale, or if both sides of the scale are *equally associated* with the slide, then you should place your check-mark in the middle space:

safe_____:_____:_____:__X__:_____:_____:_____dangerous

IMPORTANT

1. Put only one check-mark on each scale.
2. Please mark every scale. Do *not* omit any.
3. Make each item a separate and independent judgment.

Do not worry or puzzle over individual items. It is your first impressions, the immediate "feelings" about the items, that we want.

APPENDIX D

RATING SCALE FOR STUDY II

SLIDE NO. CODE NO.

Pleasant _____:_____:_____:_____:_____:_____:_____ Unpleasant

Heavy _____:_____:_____:_____:_____:_____:_____ Light

Stimulating_____:_____:_____:_____:_____:_____:_____ Nonstimulating

Usual _____:_____:_____:_____:_____:_____:_____ Unusual

Weak _____:_____:_____:_____:_____:_____:_____ Strong

Beneficial _____:_____:_____:_____:_____:_____:_____ Harmful

Active _____:_____:_____:_____:_____:_____:_____ Passive

SLIDE NO. CODE NO.

Pornographic	____:____:____:____:____:____:____	Nonpornographic
Dirty	____:____:____:____:____:____:____	Clean
Cold	____:____:____:____:____:____:____	Hot
Serious	____:____:____:____:____:____:____	Humorous
Bad	____:____:____:____:____:____:____	Good

APPENDIX E

LISTING OF THE VARIABLES FOR THE SEMANTIC DIFFERENTIAL RESULTS, STUDY II

Looking Time

1. Pleasant-Unpleasant
2. Heavy-Light
3. Stimulating-Nonstimulating
4. Unusual-Usual
5. Strong-Weak
6. Beneficial-Harmful
7. Active-Passive
8. Pornographic-Nonpornographic
9. Clean-Dirty
10. Hot-Cold
11. Serious-Humorous
12. Good-Bad

Evaluative Dimension (Sum of 1, 6, 9, and 12)

Activity Dimension (Sum of 3, 7 and 10)

Potency Dimension (Sum of 2, 5 and 11)

Note: For the bipolar scales the high end of the scale is specified by the left-hand member.

APPENDIX F

MEANS, STANDARD DEVIATIONS, AND RANK ORDER OF SLIDES FOR STUDY II

(See Table 1 for Description of Slides)

SLIDE		LOOK	PLEAS	HEAVY	STIM	UNUSUAL	STRONG	BENEF	ACTIVE	PORNO	CLEAN	HOT	SERIOUS	GOOD	EVALUAT	ACTIVITY	POTENCY
1	MEAN	11.80	5.82	1.97	2.77	1.92	2.75	5.07	3.72	1.32	6.55	3.37	4.05	5.85	23.30	9.87	8.77
	S.D.	6.59	1.03	1.10	1.82	1.21	1.55	1.21	1.77	0.73	0.88	1.55	1.32	1.17	3.29	3.80	1.98
	RANK	2	15	1	2	1	1	15	2	1	15	2	3	15	15	2	1
2	MEAN	13.94	5.15	3.00	3.52	2.75	3.35	4.80	4.70	2.40	5.60	3.95	3.57	4.85	20.40	12.17	9.92
	S.D.	8.00	1.39	1.69	1.68	1.60	1.67	0.97	1.57	1.35	1.32	1.26	1.30	1.17	3.93	3.65	3.60
	RANK	5	12	2	4	2	2	13	6	3	13	3	1	14	13	5	2
3	MEAN	14.67	5.16	3.85	4.35	3.15	3.90	4.52	4.92	2.85	5.05	4.62	4.47	4.67	19.35	13.90	12.22
	S.D.	8.60	1.13	1.31	1.48	1.42	1.66	1.04	1.23	1.37	1.28	1.10	1.18	1.05	3.83	2.92	2.57
	RANK	6	10	4	6	4	5	12	10	4	12	9	8	12	12	8	5
5	MEAN	14.93	5.12	4.10	4.57	3.15	3.97	4.52	3.90	3.35	4.77	4.47	4.72	4.35	18.77	12.95	12.80
	S.D.	10.95	1.14	1.41	1.45	1.33	1.58	1.04	1.37	1.49	1.31	1.28	0.96	0.98	3.50	3.49	3.01
	RANK	1	11	6	8	5	7	11	4	5	11	7	11	10	11	7	7
6	MEAN	16.70	4.67	4.00	4.45	3.70	3.90	4.22	3.82	3.80	4.20	4.17	3.82	4.12	17.22	12.45	11.72
	S.D.	11.00	1.25	1.66	1.72	1.40	1.61	0.83	1.66	1.42	1.20	1.60	1.06	1.14	3.53	4.38	3.62
	RANK	9	8	5	7	7	6	8	3	7	9	5	2	8	8	6	4
8	MEAN	17.55	3.50	5.72	4.92	5.70	5.42	3.65	4.85	5.37	3.00	4.50	4.35	3.35	13.50	14.27	15.50
	S.D.	13.52	1.85	1.06	1.70	1.30	1.41	1.21	1.51	1.79	1.62	1.54	1.44	1.37	5.14	3.48	2.93
	RANK	12	3	12	11	15	11	2	9	15	1	8	6	1	1	9	11
11	MEAN	11.27	3.25	4.47	2.37	4.05	3.90	3.80	3.13	4.22	3.67	3.32	4.25	3.67	14.40	8.82	12.62
	S.D.	7.92	1.17	1.38	1.60	2.04	1.91	0.94	1.36	1.82	1.49	1.44	1.15	1.07	3.76	3.49	2.95
	RANK	1	2	7	1	10	4	6	1	9	6	1	5	2	3	1	6
12	MEAN	13.80	3.07	5.40	3.07	4.87	4.50	3.60	4.72	4.75	3.37	4.00	4.17	3.70	13.75	11.80	14.07
	S.D.	10.70	1.31	1.08	1.77	1.80	1.84	1.17	1.52	1.74	1.39	1.40	1.65	1.18	4.32	3.69	3.44
	RANK	4	1	10	3	11	9	1	7	12	3	4	4	3	2	3	10
13	MEAN	16.91	4.72	4.60	4.92	3.55	4.22	4.35	5.20	3.72	4.35	4.80	4.45	4.27	17.70	14.92	13.27
	S.D.	11.89	1.15	1.30	1.14	1.38	1.40	0.86	0.97	1.36	1.08	0.88	1.08	0.91	3.20	2.09	2.64
	RANK	10	9	9	10	6	8	10	11	6	10	11	7	9	9	11	8
14	MEAN	16.07	4.55	4.55	4.72	4.05	4.52	4.10	4.80	4.12	4.00	4.75	4.67	4.12	16.77	14.27	13.75
	S.D.	11.88	1.20	1.41	1.66	1.58	1.80	1.08	1.38	1.65	1.50	1.41	1.23	1.18	3.93	3.46	3.39
	RANK	8	7	8	9	9	10	7	8	8	8	10	10	7	7	10	9
15	MEAN	13.50	5.22	3.45	3.70	2.75	3.37	5.02	3.97	2.25	5.60	4.30	4.52	4.77	20.62	11.97	11.35
	S.D.	7.64	1.14	1.66	1.68	1.51	1.76	1.19	1.72	1.26	1.24	1.44	1.06	1.05	3.73	3.88	3.23
	RANK	3	13	3	5	3	3	14	5	2	14	6	9	13	14	4	3
17	MEAN	18.88	5.52	5.60	5.95	3.82	5.52	4.30	5.85	4.57	3.95	5.47	5.12	4.40	18.17	17.27	16.25
	S.D.	14.75	1.11	0.98	0.85	1.95	1.15	1.16	1.03	1.78	1.47	1.13	1.07	1.17	3.89	2.10	2.37
	RANK	13	14	11	15	8	13	9	15	10	7	13	13	11	10	15	12
20	MEAN	20.17	4.32	6.12	5.85	5.35	6.05	3.80	5.80	5.05	3.20	5.50	5.22	3.70	15.02	17.15	17.40
	S.D.	16.43	1.87	0.88	0.98	1.44	0.93	1.16	1.30	1.84	1.52	1.55	1.40	1.34	4.86	2.61	2.62
	RANK	15	6	15	14	14	15	5	14	13	2	14	15	4	4	14	15
21	MEAN	17.37	4.20	5.87	5.10	5.15	5.87	3.70	5.65	5.05	3.47	5.55	4.95	3.72	15.10	16.30	16.70
	S.D.	13.36	1.59	0.82	1.65	1.59	0.94	1.24	1.37	1.74	1.62	1.15	1.45	1.38	4.86	2.52	2.29
	RANK	11	5	14	12	13	14	3	13	14	4	15	12	5	5	13	14
27	MEAN	19.32	4.10	5.75	5.17	4.90	5.45	3.72	5.55	4.70	3.52	4.92	5.20	3.77	15.12	15.65	16.40
	S.D.	14.22	1.52	1.28	1.39	1.65	1.13	1.32	1.36	1.81	1.57	1.47	1.20	1.40	4.94	2.59	2.81
	RANK	14	4	13	13	12	12	4	12	11	5	12	14	6	6	12	13

Note: For the bipolar scales the high end of the scale is specified by the left hand member (See Appendix E).

APPENDIX G

CORRELATIONS AMONG THE SEMANTIC DIFFERENTIAL VARIABLES AND LOOKING TIME FOR STUDY II

	LOOK	PLEAS	HEAVY	STIM	UNUSUAL	STRONG	BENEF	ACTIVE	PORNO	CLEAN	HOT	SERIOUS	GOOD	EVALUAT	ACTIVITY	POTENCY
LOOK	1.00	-0.05	0.75	0.95	0.63	0.84	-0.47	0.83	0.66	-0.60	0.88	0.68	-0.49	-0.43	0.93	0.81
PLEAS	-0.05	1.00	-0.61	0.14	-0.77	-0.42	0.87	-0.01	-0.72	0.78	0.07	-0.03	0.85	0.91	0.08	-0.46
HEAVY	0.75	-0.61	1.00	0.65	0.93	0.96	-0.87	0.68	0.96	-0.94	0.71	0.68	-0.87	-0.86	0.71	0.98
STIM	0.95	0.14	0.65	1.00	0.47	0.77	-0.30	0.81	0.54	-0.47	0.94	0.72	-0.36	-0.26	0.96	0.75
UNUSUAL	0.63	-0.77	0.93	0.47	1.00	0.88	-0.95	0.53	0.96	-0.96	0.51	0.48	-0.93	-0.94	0.53	0.87
STRONG	0.84	-0.42	0.96	0.77	0.88	1.00	-0.78	0.79	0.90	-0.85	0.82	0.75	-0.75	-0.73	0.82	0.98
BENEF	-0.47	0.87	-0.87	-0.30	-0.95	-0.78	1.00	-0.38	-0.94	0.96	-0.35	-0.38	0.93	0.98	-0.36	-0.79
ACTIVE	0.83	-0.01	0.68	0.81	0.53	0.79	-0.38	1.00	0.54	-0.46	0.88	0.64	-0.32	-0.31	0.93	0.75
PORNO	0.66	-0.72	0.96	0.54	0.96	0.90	-0.94	0.54	1.00	-0.99	0.57	0.52	-0.94	-0.94	0.57	0.91
CLEAN	-0.60	0.78	-0.94	-0.47	-0.96	-0.85	0.96	-0.46	-0.99	1.00	-0.49	-0.47	0.96	0.97	-0.49	-0.87
HOT	0.88	0.07	0.71	0.94	0.51	0.82	-0.35	0.88	0.57	-0.49	1.00	0.80	-0.38	-0.30	0.98	0.81
SERIOUS	0.68	-0.03	0.68	0.72	0.48	0.75	-0.38	0.64	0.52	-0.47	0.80	1.00	-0.36	-0.33	0.75	0.81
GOOD	-0.49	0.85	-0.87	-0.36	-0.93	-0.75	0.93	-0.32	-0.94	0.96	-0.38	-0.36	1.00	0.98	-0.37	-0.77
EVALUAT	-0.43	0.91	-0.86	-0.26	-0.94	-0.73	0.98	-0.31	-0.94	0.97	-0.30	-0.33	0.98	1.00	-0.30	-0.75
ACTIVITY	0.93	0.08	0.71	0.96	0.53	0.82	-0.36	0.93	0.57	-0.49	0.98	0.75	-0.37	-0.30	1.00	0.80
POTENCY	0.81	-0.46	0.98	0.75	0.87	0.98	-0.79	0.75	0.91	-0.87	0.81	0.81	-0.77	-0.75	0.80	1.00

Note: For the bipolar scales the high end of the scale is specified by the left hand member (See Appendix E).

The Effect of Erotic Stimuli on Sex Arousal, Evaluative Responses, and Subsequent Behavior

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INTRODUCTION

The paucity of detailed and systematic research knowledge about the behavioral effects of erotic stimuli has not proven to be a deterrent to the formation of strong opinions and persistent beliefs about such effects. These opinions and beliefs, in turn, are widely disseminated and are consequently reflected in social customs, child-rearing practices, and legal statutes.

In recent newspaper articles, erotic stimuli have been vehemently characterized as an evil poison to body and soul (letter to the St. Louis *Globe-Democrat*), as a means of brutalizing the populace so that they are not shocked by the sight of a Vietcong flag carried down the streets of Washington (Indiana congressman quoted by Tom Ochiltree in Lafayette *Journal and Courier*), as beneficial or at least harmless (psychiatrist quoted by a UPI newspaper release), as legally and sociologically justifiable but nevertheless shameful (William F. Buckley, Jr., in his syndicated column), as a tool to distract Czechoslovaks' attention away from politics and hence as a way to harm the cause of true communism (Soviet Young Communist League), and as an aphrodisiac used by males rendered semiplatonic and emasculated by alcohol and tobacco (George W. Crane in his syndicated column). Any phenomenon which elicits that variety of emotionally toned responses and that variety of hypothesized behavioral effects should be a matter of concentrated concern to behavioral scientists. As many have noted, however, the

research to date has been limited (Cairns, 1968; Cairns, Paul, & Wishner, 1962; Levitt, 1969). It might prove helpful to attempt to formulate a tentative framework within which to conceptualize the study of erotic stimuli and their effects.

The effects of erotic stimuli

One conceptualization of the starting point for any research paradigm is the base relationship (Byrne, in press). A base relationship is the function describing the effects of variations in a stimulus dimension on a response dimension. One potential such relationship is that between the sexual content of stimuli and sex arousal. An early goal of a research program, then, would be to scale erotic stimuli with respect to the dimension or dimensions which affect arousal (e.g., type of sexual act depicted, length of time subject is exposed to stimulus, realism of the stimulus mode, etc.). Such a scaling task assumes that investigators could reach at least arbitrary agreement with respect to a response measure which serves as the operational definition of arousal. Once a base relationship is firmly established, it then becomes meaningful to investigate its generality and to attempt to fit the erotica-arousal relationship into a more inclusive theoretical framework.

What might be the initial concerns, both theoretically and practically, regarding the effects of erotic stimuli on arousal? One could hypothesize that such stimuli are of importance to society (and to behavioral scientists) because (1) the sensations of sex arousal evoke evaluative responses which vary from strongly negative to strongly positive, and (2) because exposure to erotic stimuli may affect subsequent behavior. The behavioral effects could conceivably include drive or motivational factors (e.g., increased incidence of sexual behavior ranging from coital frequency in marriage to incidence of rape) and learning or modeling phenomena (e.g., specific sexual behavior would be learned and later elicited by appropriate stimuli). The latter possibility could range from sexual instruction for newly married couples to the instigation of homosexual or sadistic sexual acts.

In each of the examples given, it seems very likely that great individual variation will be found. Thus, it is expected that one focus of research would be on individual differences in arousal to sexual stimuli, in the evaluative response to such arousal, and in susceptibility to the hypothesized behavioral effects of erotic stimuli.

It might be noted that once such antecedent-consequent relationships are established, decisions about erotic stimuli still must rest on individual and societal values. The advantage of research knowledge, of course, is that such values can be expressed in relation to known consequences rather than to fantasized ones.

BACKGROUND

Though there has been continued interest in research on human sexual behavior, there has not as yet been a prolonged systematic program of experimentation. The research which has been conducted, however, is extremely promising.

Stimuli. The stimuli used to elicit sexual responses have primarily been in the form of photographic and written material, but the content, duration, context, and details of presentation have varied widely.

For example, experimenters have employed photographs and slides, most often depicting nudes and, in more recent research, various sexual acts (Brehm & Behar, 1966; Clark, 1952; Dean, Martin, & Streiner, 1968; Galbraith & Mosher, 1968; Mussen & Scodel, 1955; Schmidt, Sigusch, & Meyberg, 1969; Sigusch, Schmidt, Reinfeld, & Wiedemann-Sutor, 1970; Valle & Smith, 1967; Walters, Bowen, & Parke, 1964). Stories with sexual themes have been used in several experiments (Byrne, 1957; Byrne & Sheffield, 1965; Jakobovits, 1965; Paris & Goodstein, 1966; Picher, 1966) and musical selections were employed in one experiment (Beardslee & Fogelson, 1958). Relevant data are not available with respect to the comparative effects of such stimuli, and there are only minimal data concerning the effects of situational context (e.g., Clark, 1952; Mussen & Scodel, 1955).

A few experimenters have begun a more systematic attack on one or another aspect of sexual stimuli and these approaches offer hope that research on sexual behavior may be moving toward a paradigmatic science. The reliability with which varied sexual themes in photographs elicit sexual arousal has been the focus of research at the Indiana University School of Medicine (Brady & Levitt, 1965; Levitt & Brady, 1965). In addition these researchers have begun analytic research on the stimuli, dealing with such questions as the effect of clothing versus nudity in the pictures and the effect of drawings versus photographs (Levitt & Hinesley, 1967).

A second line of systematic research is being conducted at the University of Hamburg. Among the stimuli is a set of specially made movies of masturbation, petting, and coitus from which prints have been made in color and black and white plus slides in color and black and white (Schmidt & Sigusch, in press). Thus, the effects of the stimuli may be investigated with respect to content and the mode in which the content is presented.

A third line of systematic research is that of the Wiggins at the University of Illinois in which the stimuli are nude female silhouettes which are varied along three independent dimensions (size of breasts, buttocks, and legs) (Wiggins, Wiggins, & Conger, 1968; Wiggins & Wiggins, 1969). This technique of stimulus manipulation would seem to be an excellent potential model for use with more varied sexual stimuli.

Responses. As is true in many areas of psychological research, the most frequently used measures of sexual response are self-report verbal scales. Sexual arousal has been assessed on scales of varying length and design (Brady & Levitt, 1965; Byrne & Sheffield, 1965; Levitt & Brady, 1965; Paris & Goodstein, 1966; Schmidt & Sigusch, in press; Sigusch et al., 1970). A variation on this method is to ask specific questions about physiological responses (erection, vaginal lubrication, etc.) (Schmidt & Sigusch, in press; Schmidt et al., 1969; Sigusch et al.,

1970). Another measurement technique has been to require that subjects indicate a series of preferences concerning pairs of stimuli (Wiggins et al., 1968; Wiggins & Wiggins, 1969).

Somewhat less direct response measures have included time spent in viewing slides (Valle & Smith, 1967), time spent in sorting pictures (Martin, 1964), response to a word association test (Galbraith & Mosher, 1968), and content of TAT stories (Clark, 1952; Clark & Sensibar, 1955; Epstein & Smith, 1957; Leiman & Epstein, 1961; Lindzey & Goldberg, 1953; Mussen & Scodel, 1955).

A few investigators have measured nonverbal responses, including eye movements (Walters et al., 1964), pupil size (Valle & Smith, 1967), galvanic skin response (Dean et al., 1968; Sines, 1957; Walters et al., 1964), and a measure of the volume of the penis (Freund, 1967).

The only difficulty with this array of approaches to measurement is that, as Cairns (1968) observed, "It is mildly depressing to observe that systematic comparisons of these various measures have yet to be seriously pursued."

Subjects. One of the less satisfactory aspects of this research area to date has been the narrow range of subject populations employed in the experimental investigations. Most often, the subjects are male college students. The advantages of employing both males and females in the same experiment are obvious, and a few experimenters have done so (e.g., Brehm & Behar, 1966; Jakobovits, 1965; Paris & Goodstein, 1966; Schmidt & Sigusch, in press; Sigusch et al., 1970).

Emotional response to sexual stimuli

Beyond assessment of sexual arousal, little attention has been paid to other affective responses elicited by sexual stimuli. Two experiments have utilized a rating scale dealing with, in addition to sexual arousal, responses such as anxiety, disgust, anger, and curiosity (Byrne & Sheffield, 1965; Paris & Goodstein, 1966). Leiman and Epstein (1961) dealt with the problem of sex guilt and its detrimental effect on the presentation of sexual fantasies.

Perhaps the best design for the study of emotional responsiveness has been that of Schmidt and Sigusch (in press) in which a mood scale was administered before and after the sexual stimuli. They found that both males and females showed an increase in reporting themselves as feeling bored, aggressive, excited, shocked, repelled, restless, emotional, irritated, and pepped-up. In addition, men felt more gregarious and impulsive while females felt more driven, wild, disinhibited, jumpy, disgusted, angry, and benumbed.

Differential sex arousal

To date, little research has been concerned with stimulus components which yield differential arousal. Exceptions are three studies on the relative amount of arousal attributed to different sexual themes (Brady & Levitt, 1965; Levitt & Brady, 1965; Schmidt et al., 1969) and the findings that nude figures are more

arousing than clothed ones and that photographs are more arousing than drawings (Levitt & Hinesley, 1967).

The question of sex differences in arousal is of great potential interest, but the question has not been extensively investigated. Most sources quote the Kinsey, Pomeroy, Martin, and Gebhard (1953) survey data which indicated that males have a greater predisposition to arousal by external stimuli than do females. Schmidt and Sigusch (in press) suggested that the postulated hyposexuality of females does not represent a biological difference but rather a cultural desexualization. In their experimental research, no sex differences were found in response to four of their sexual films and only small differences ($p<.05$) were found on their two most arousing movies, with males reporting more arousal than females. Jakobovits (1965) found no sex differences in response to stories of erotic realism, and women were actually more aroused than men by stories characterized as hard-core pornography. In an experiment employing slides, Sigusch et al. (1970) found men more aroused than women primarily in response to the pictures showing solitary figures.

At this point, one could conclude that much is yet to be learned about male-female differences and similarities in response to sexual stimuli.

Judgments of pornography

Recent reviews have dealt with the general implications of research on sexual behavior for the question of the effects of pornography (Cairns, 1968; Cairns et al., 1962; Levitt, 1969). It is interesting to note, however, that almost no research has dealt directly with the subject's judgments of what is or is not pornographic; an exception is the work of Eliasberg and Stuart (1961) and that of Stuart and Eliasberg (1962).

Schmidt and Sigusch (in press) suggest that the label "pornography" and the issues revolving around this label are a matter of whether one approves of sexual activation and sexuality or whether one regards sex as shameful, evil, destructive, and antisocial. In much of their own research, subjects are asked to respond to the stimuli with respect to both sexual arousal and judgments of favorable-unfavorable (Schmidt et al., 1969; Sigusch et al., 1970).

Restrictiveness toward sexual material

Extending beyond the question of favorableness toward sexual stimuli or the application of the label "pornography" to it is the question of the relation of such responses to legal or moral restrictiveness concerning the availability of such material to other people. That is, one may dislike beets but not decide that they must be barred by law from the grocer's shelves. Thus, enjoyment or dislike of sexuality may or may not be related to one's permissiveness concerning the sexuality of others. At the moment, research is clearly needed on this question.

Personality and demographic variables influencing response to sexual stimuli

Personality variables. In the authoritarian syndrome as described by Adorno, Frenkel-Brunswik, Levinson, and Sanford (1950), there is postulated an exaggerated concern with sexual behavior, a tendency to punish those who violate sexual mores, a desire to censor sexual material, and the tendency to project sexual excesses onto others. Research on this topic has provided support for this formulation in that, compared to equalitarians, high authoritarians are found to repress (have difficulty perceiving) self-relevant sexual statements (Kogan, 1956), to see a film star as sexier (Rothstein, 1960), and to evaluate sexual stimuli as pornographic (Eliasberg & Stuart, 1961). The latter finding was not supported when the study was repeated in a Cuban sample (Stuart & Eliasberg, 1962). These findings plus other data on authoritarians suggest that scores on the California F Scale should be related to various negative evaluative and judgmental responses to sexual stimuli and to punitiveness and restrictiveness concerning the general availability of such stimuli.

Because there is abundant data that sexually arousing stimuli frequently evoke anxiety, Byrne and Sheffield (1965) proposed that individuals with different characteristic defenses would be differentially responsive. Repression-sensitization (Byrne, 1961) has been defined as a continuum of defensiveness ranging from denial and avoidance on one extreme to intellectualization and obsessiveness on the other. It was hypothesized that sensitizers respond to sexual stimuli with greater verbalized anxiety than do repressers. Male subjects representing extremes on the Repression-Sensitization (R-S) Scale (Byrne, 1961) were exposed to a series of literary passages with either sexual or neutral content. Self-rating scales indicated that the experimental group was significantly more aroused sexually than the control group. As predicted, sensitizers were more anxious than repressers in the sex arousal condition, and the two groups did not differ in the neutral condition. Sex arousal was associated with feelings of anxiety, entertainment, and lack of boredom among sensitizers and with disgust and anger among repressers. When Paris and Goodstein (1966) attempted a replication, the literary passages again led to heightened sex arousal, but the represser-sensitizer differences in anxiety did not occur. Because of a number of procedural and population differences in the two experiments, the effect of repression-sensitization on response to sexual stimuli is open to question.

Conservatives have been found to be less aroused than liberals with respect to such themes as petting, coitus from the rear, fellatio, and so on. They also tend to judge sexual pictures less favorably (Schmidt et al., 1969).

In two experiments (Levitt & Brady, 1965; Wiggins et al., 1968) several of the EPPS need scales were found related to arousal and to specific preferences.

Demographic variables. A few experiments have included data about background variables. Frequency of church attendance, for example, has been found

to be unrelated to sex arousal (Schmidt et al., 1969), negatively related to favorableness toward sexual stimuli (Schmidt et al., 1969), negatively related to arousal by the themes of fellatio and female masturbation (Levitt & Brady, 1965), and negatively related to permissiveness about premarital petting and coitus (Harrison, Bennett, & Globetti, 1969).

Also, arousal is not affected by religious preferences or marital status, and subjects from small towns are most aroused by homosexual fellatio and homosexual anal intercourse (Levitt & Brady, 1965).

Behavioral effects of sexual stimulation

Though most of the concern about the dangers of pornography focuses on behavioral effects, very little experimental work has dealt with this question.

The notable exception has been the work of the Hamburg group. A standard procedure has been to assess the subjects with respect to behavioral effects in the 24 hours after the experiment compared to the 24 hours before the experiment. It is clear that the most reliable behavioral effect is an increase in masturbation (Schmidt & Sigusch, in press; Schmidt et al., 1969; Sigusch et al., 1970). There also has been found an increase in the incidence of sexual fantasies and in talking about sex. To a much lesser degree is reported an increase in the incidence of petting and coitus.

These investigators make two points with respect to their findings that are of considerable importance. First, no one engaged in a sexual practice which he or she had not engaged in during the 12 months prior to the experiment. Second, the extent of the behavior changes brought about through the viewing of sexual pictures is quite small.

It would seem to be imperative to obtain much more data of this type in a wide array of subject populations in order to make meaningful decisions about the effects of sexual stimuli on overt behavior.

DESIGN OF THE PRESENT EXPERIMENT

The research described here was conceptualized as an initial step in instituting paradigmatic research on the determinants of sexual behavior. The experiment was not conceptualized as a test of hypotheses, but rather as an exploration of the effects of three stimulus conditions (each containing a variety of erotic stimuli) on a variety of responses (including arousal, evaluative responses, restrictiveness, and self-reports of subsequent behavior). In addition, the effects of two personality variables (authoritarianism and repression-sensitization) and several background variables were investigated.

The subjects were 42 married couples at Purdue University. They were selected through a bulletin which described the research as dealing with opinions about pornography. The subjects were run in groups of couples in the evening in a classroom setting. Subject anonymity was maintained throughout the experiment,

and only code numbers were used. The use of married couples permits the study of behavioral effects in a situation in which a sexual partner is available and in which there are minimal legal or moral restrictions against sexual intimacies.

Subjects first completed a Feelings Scale (Byrne & Sheffield, 1965) on which self-ratings were made on 11 dimensions, each presented on five-point scales. This measure provided a baseline of the subjects' emotional states at the beginning of the experiment. The dimensions are Sexually Aroused, Disgusted, Entertained, Anxious, Bored, Angry, Afraid, Curious, Nauseated, Depressed, and Excited. Then, a 22-item version of the California F Scale balanced for acquiescent response set and the 182-item Repression-Sensitization Scale (Byrne, Barry, & Nelson, 1963) were administered.

Following the tests, the experimental stimuli were presented, with the subjects randomly assigned to one of the three conditions. In the Photographic Stimuli Condition, the 19 pictures comprising Set A of Levitt and Brady (1965) were shown by means of a slide projector. The slides depict various heterosexual, homosexual, and autosexual acts. Each was shown for 20 seconds after which each was rated as to the degree to which it was arousing on a 0-5 scale designed by Levitt and Brady (1965). In the Literary Stimuli Condition, 19 short mimeographed passages from various books were read by the subjects. The passages were selected to match the pictures in the first condition. One minute and 15 seconds reading time was allowed for each passage, followed by a rating of each on the Arousal Scale. In the Imaginary Stimuli Condition, the subjects were told:

> Your task is somewhat difficult in that you will need to use your imagination. As you know, sexual material can appear in movies, books, still pictures, and, less frequently, in phonograph records. We are going to ask you to consider a series of themes or activities and imagine what they would be like in movies, books, etc. You will have 20 seconds to think about each and then to indicate on the rating scale the degree to which the depiction of that scene or activity is sexually arousing to you.

The descriptive phrases, one to a page, were designed to match the slides and passages. Specifically, they were: 1. Petting, two nude females. 2. Nude female with sadistic male. 3. Female wearing blouse and short skirt, thigh partially exposed. 4. Oral-genital contact, two males. 5. Heterosexual intercourse, face to face, female on bottom. 6. Group activity, two females and one male, oral-genital contacts. 7. Oral-genital contact, male on female. 8. Oral-genital contact, female on male. 9. Nude female masturbating. 10. Male wearing undershorts. 11. Petting, male and female in the nude. 12. Nude female. 13. Oral-genital contact, two females. 14. Anal intercourse, two males. 15. Nude male with sadistic female. 16. Nude male masturbating. 17. Heterosexual intercourse, face to back, female sitting on male. 18. Nude male. 19. Petting, male and female partially clad.

Following the presentation and rating of the 19 sexual themes, all subjects were exposed to all 19 stimuli once again, this time judging each as to whether it was pornographic or not pornographic. They were given a dictionary definition of

pornography as "obscene or licentious; foul, disgusting, or offensive; tending to produce lewd emotions."

At this point the Feelings Scale was administered a second time followed by an Opinion Questionnaire dealing with various reactions to the erotic stimuli. They were asked about what the authorities should do if the 19 items were owned by someone in the community and whether most of the items should be forbidden entirely, forbidden in public display and advertising, forbidden to unmarried individuals, to teenagers, and/or to children. With respect to specific items, subjects were asked which they would be most inclined to restrict from public display, which were most surprising, and which they would and would not consider buying. They were also asked whether they would volunteer to see movie versions of the same themes in another experiment. Background data were obtained with respect to religious preferences, frequency of church attendance, size of the community in which they were raised, and political preferences.

At the end of the experiment, each subject was given a stamped envelope, addressed to the experimenter. Each was asked to take it home, open it one week later, respond to it without consulting his or her spouse, and drop it in the mail. The Follow-up Questionnaire dealt with changes (if any) in the frequency of various types of sexual behavior: thoughts, talking, reading books, dreams, and overt sexual activity during the week following the experimental session. Two open-ended questions were also asked: "My own sexual behavior was different from my usual pattern during the past week with respect to . . . " and "If you would like to add any other comments or opinions regarding the experiment, please write them here . . . "

RESULTS

Emotional response to sexual stimuli

Effect of experimental conditions on emotional responses of males and females. One approach to determining the effect of the stimulus materials is to examine the responses to the 11 items of the Feelings Scale given before and after the presentation of the erotic stimuli. The mean responses of males and females in the three experimental conditions are given in Table 1.

A 2 x 3 x 2 between-within analysis of variance indicated that the erotic stimuli resulted in increased self-ratings of sexual arousal (F=38.86, df=1/78, p<.0001), disgust (F=38.09, df=1/78, p<.0001), and boredom (F=5.38, df=1/78, p<.03) and decreased self-ratings of anxiety (F=14.36, df=1/78, p<.001), fear (F=6.22, df=1/78, p<.02), and curiosity (F=35.62, df=1/78, p<.0001). The erotic stimuli did not significantly affect ratings of entertainment, anger, nausea, depression, or excitement.

Males and females did not differ on any of the ratings. The only differential effect of the three types of stimuli was with respect to ratings of disgust which were greatest in response to literary stimuli and least with the imaginary stimuli

Table 1

EMOTIONAL RESPONSES OF MALES AND FEMALES BEFORE AND AFTER EXPOSURE TO SEXUAL STIMULI IN THREE EXPERIMENTAL CONDITIONS

	Photographic stimuli		Literary stimuli		Imaginary stimuli	
	Before	After	Before	After	Before	After
Sexually aroused						
Males	1.29	2.41	1.73	2.60	1.60	1.90
Females	1.35	2.47	1.87	2.67	1.40	2.20
Disgusted						
Males	.94	1.71	1.07	2.07	1.00	1.10
Females	1.12	1.94	1.07	1.93	1.10	1.60
Entertained						
Males	2.00	2.18	2.07	2.80	2.30	2.10
Females	1.88	2.18	2.40	2.47	2.20	2.60
Anxious						
Males	1.94	1.76	2.07	1.40	2.20	1.30
Females	1.71	1.29	1.73	1.60	1,90	1.60
Bored						
Males	1.18	1.59	1.47	1.53	1.70	2.10
Females	1.41	1.59	1.07	1.93	1.80	1.60
Angry						
Males	1.00	1.06	1.07	1.53	1.00	1.00
Females	1.00	1.18	1.13	1.00	1.00	1.10
Afraid						
Males	1.06	.94	1.13	1.07	1.00	1.00
Females	1.12	1.00	1.07	1.00	1.30	1.10
Curious						
Males	3.53	2.82	3.80	2.80	3.70	2.40
Females	3.29	2.18	3.67	2.87	4.00	3.10
Nauseated						
Males	1.00	.94	1.00	1.27	1.10	1.00
Females	1.00	1.12	1.00	1.13	1.00	1.20
Depressed						
Males	1.12	1.06	1.07	1.07	1.10	1.00
Females	1.00	1.12	1.00	1.07	1.30	1.40
Excited						
Males	1.88	1.82	2.33	2.27	2.30	1.80
Females	1.59	1.59	2.13	2.27	2.00	2.10

(F=3.36, df=2/78, p<.04). There were two significant interactions. Males tended to rate themselves as angrier following exposure to the literary stimuli while females tended to rate themselves as less angry (F=3.13, df=2/78, p<.05). Also, females were more afraid than males only in the imaginary stimuli condition (F=3.21, df=2/78, p<.02).

Differential arousal of feelings. Even though the overall effect on feelings was relatively constant across conditions and for both males and females, it is still possible to examine differential emotional responses to the erotic stimuli and

their correlates. Those relationships dealing with opinions about pornography will be considered in a subsequent section.

The rating scales yield two general clusters of responses which may be seen as relatively positive (sexually aroused, entertained, curious, and excited) and relatively negative (disgusted, angry, nauseated, bored, afraid, and depressed). As in the Byrne and Sheffield (1965) experiment, feelings of sexual excitement were also accompanied by self-ratings of anxiety (for males, r=.52, p<.01; for females, r=.58, p<.01).

Of the personality variables, authoritarianism was found to correlate positively with self-ratings of disgust in both sexes (r=.32, p<.05 in each instance) and with ratings of depression among the females (r=.37, p<.05). Among males, sensitizers tended to rate themselves as more bored (r=.37, p<.05) and less depressed (r=-.32, p<.05) than did repressers. Female sensitizers tended to indicate that they were more sexually aroused (r=.59, p<.01), more entertained (r=.48, p<.01), and more excited (r=.33, p<.05) and also as more anxious (r=.46, p<.01) than female repressers.

The response of disgust was found to be related to religious preferences (F=6.77, df=3/71, p<.001) and to frequency of church attendance (F=7.52, df=3/74, p<.001). The subjects expressing the most disgust were Catholics and/or those who attend church weekly.

A somewhat more unusual set of findings are the relationships between responses on the arousal scale to specific themes and overall emotional responses. In Table 2 are shown the significant relationships for males and females. These relationships will be examined in the discussion section.

The demographic variables were also found to be related to differential arousal by specific themes. Protestants and Catholics were more aroused than atheists and agnostics by both of the torture themes. Those raised in middle-sized communities (26,000 to 100,000) were more aroused than those raised in smaller or larger communities by group sex, cunnilingus, a male in undershorts, and a nude male. Those who attend church six to 24 times per year were more aroused than those who attend either more or less frequently by cunnilingus, a female torturing a male, and a male masturbating.

Sexual arousal

Effect of experimental conditions on sexual arousal. On the Levitt and Brady (1965) Arousal Scale, responses were obtained for each of the 19 themes, as well as a total reactivity index. In Table 3 is shown the effect of the experimental manipulations on the total sexual arousal of the male and female subjects. Two findings are striking. The differences among the experimental conditions are highly significant (F=18.26, df=1/78, p<.0001), and there is no indication of a sex difference (F=.11, df=1/78, N.S.) or of an interaction between sex and stimulus conditions (F=.45, df=2/78, N.S.).

Table 2

CORRELATIONS BETWEEN SEXUAL AROUSAL TO SPECIFIC THEMES AND OVERALL POSITIVE OR NEGATIVE EMOTIONAL RESPONSES FOR MALES AND FEMALES

	Males	r	Females	r
Positive Emotional Responses plus Anxiety				
	Female masturbating:		Male masturbating:	
	Sexually aroused	.50**	Excited	.44**
	Excited	.44**	Curious	.36*
			Entertained	.34*
	Nude heterosexual petting:		Cunnilingus:	
	Excited	.50**	Excited	.43**
	Curious	.32*	Anxious	.35*
	Homosexual cunnilingus:		Ventral-ventral intercourse:	
	Excited	.47**	Excited	.41**
	Anxious	.39*	Entertained	.40**
	Nude female:			
	Excited	.47**	Partially clad heterosexual petting:	
			Excited	.40**
	Group oral sex:			
	Sexually aroused	.35*	Fellatio:	
			Curious	.38*
	Cunnilingus:		Anxious	.34*
	Sexually aroused	.35*	Excited	.33*
	Fellatio:			
	Excited	.34*	Nude heterosexual petting:	
			Curious	.35*
	Female torturing male:			
	Anxious	.31*		
	Partially clad heterosexual petting:			
	Anxious	.31*		
Negative Emotional Responses				
	Male masturbating:		Male masturbating:	
	Bored	.40**	Angry	.56**
			Nauseated	.45**
	Fellatio:		Disgusted	.44**
	Disgusted	-.38*		
			Male in undershorts:	
			Angry	.51**
			Depressed	.31*
			Nude male:	
			Angry	.44**
			Depressed	.43**
			Group oral sex:	
			Angry	.39*
			Dorsal-ventral intercourse:	
			Depressed	.37*
			Angry	.31*

*p < .05
**p < .01

Table 3

MEAN SEXUAL AROUSAL OF MALES AND FEMALES IN THREE EXPERIMENTAL CONDITIONS

	Males	Females	Total
Photographic stimuli	22.71	19.53	21.12
Literary stimuli	23.07	25.60	24.33
Imaginary stimuli	41.20	45.10	43.15
Total	28.99	30.08	

Those subjects most aroused by the stimuli were those who attend church six to 24 times a year while the least aroused were those who never attend (F=2.72, df=3/74, p<.05).

Even though there were no significant sex differences in overall arousal, response to specific themes yielded a number of such differences. Males were significantly more aroused than females in response to a clothed female (F=7.61, df=1/78, p<.01), group sex (F=6.13, df=1/78, p<.02), and a nude female (F=12.97, df=1/78, p<.001). Females, in contrast, were significantly more aroused than males in response to homosexual fellatio (F=6.82, df=1/78, p<.02), a male in undershorts (F=20.85, df=1/78, p<.001), a male masturbating (F=8.25, df=1/78, p<.01), and a nude male (F=45.36, df=1/78, p<.001).

On a majority of the themes, the experimental conditions yielded significant differences, with the imaginary stimuli being the most arousing. The only exceptions were with respect to the greatest arousal being engendered by the literary stimulus dealing with homosexual fellatio (F=8.32, df=2/78, p<.001). The significant interactions occurred in response to the male in undershorts (F=7.71, df=2/78, p<.002) and the nude male (F=19.16, df=2/78, p<.001). In each instance, the male-female difference was greatest in response to the imaginary stimulus and least in response to the literary stimulus.

Another approach to analyzing the sexual arousal qualities of the 19 themes is by comparing their rankings for males and females and across the three stimulus conditions. These rankings are shown in Table 4. By inspection, it may be seen that there is considerable similarity in the responses of males and females and that the relative erotic qualities of the themes are remarkably consistent across the three quite different stimulus conditions. Thus, regardless of the subject's sex or the experimental condition, the themes of female masturbation, cunnilingus, face to face intercourse, nude petting, fellatio, and group sex are sexually arousing. Similarly, the least arousing themes are male nudity, a female torturing a male, homosexual anal intercourse, a male in undershorts, and a clothed female.

The consistency may be shown statistically by means of rank order correlations (Spearman's rho). Thus, the rank order of the arousingness of the 19 themes by males and females correlates .74 ($p<.01$). Of the stimulus conditions, pictures correlated .64 ($p<.01$) with the literary stimuli, literary and imaginary stimuli correlated .66 ($p<.01$), and photographic and imaginary stimuli correlated .88 ($p<.01$). In addition, the Levitt and Brady (1965) sample of 68 male graduate students produced rankings across three sets of pictures which correlate .83 ($p<.01$), .62 ($p<.01$), and .80 ($p<.01$) with the present photographic, literary, and imaginary rankings of our combined males and females.

Table 4

RANK ORDER OF MEAN SEXUAL AROUSAL OF SPECIFIC SEXUAL THEMES FOR MALES AND FEMALES AND FOR THREE EXPERIMENTAL CONDITIONS

Theme	Subjects		Stimuli		
	Males	Females	Photographic	Literary	Imaginary
Nude females petting	10	13	14	5.5	9.5
Male torturing female	13	15	12.5	13	12.5
Clothed female	12	19	11	17	15
Homosexual fellatio	16	12	18.5	7	17
Ventral-ventral intercourse	3	2	2	3	1
Group oral sex	2	8	3	5.5	6.5
Cunnilingus	1	1	1	1	2
Fellatio	4	6	5.5	10	5
Female masturbating	5	7	5.5	2	8
Male in undershorts	19	16	17	19	18
Nude heterosexual petting	6	3	7.5	4	3
Nude female	8	1	9	8	14
Homosexual cunnilingus	11	9.5	10	9	11
Homosexual anal intercourse	17	18	18.5	15	19
Female torturing male	14	17	16	16	16
Male masturbating	15	9.5	12.5	14	9.5
Dorsal-ventral intercourse	7	5	7.5	11	4
Nude male	18	11	15	18	12.5
Partially clad heterosexual petting	9	4	4	12	6.5

Perception of erotic stimuli as pornographic

Differential perceptions of pornography. Since each of the 19 themes was judged to be pornographic or not pornographic, it was possible to assign each subject a score from 0 to 19 indicating the number of sexual themes he had judged to be "obscene, foul, offensive," etc. (and the actual range of obtained scores was from 0 to 19). The mean score was 6.28 with no significant differences between males and females or among the experimental conditions.

For both sexes, authoritarianism was positively related to the number of themes judged to be pornographic (for males, $r=.36$, $p<.05$; for females $r=.41$, $p<.01$). By far the largest total pornography score was that of the individuals who attend church weekly ($F=9.31$, $df=3/74$, $p<.001$) and/or Catholics

(F=7.04, df=3/71, $p<.001$). For both sexes, feelings of disgust were positively related to number of themes judged pornographic (for males, r=.62, $p<.01$; for females, r=.74, $p<.01$). For females, the number of themes judged pornographic was positively related to feelings of anger (r=.58, $p<.01$) and nausea (r=.45, $p<.01$). Female ratings of pornography were also correlated with their feelings of sexual arousal to the themes of group sex (r=.35, $p<.05$), male masturbation (r=.44, $p<.01$), dorsal-ventral intercourse (r=.36, $p<.05$), and a nude male (r=.34, $p<.05$).

Pornography judgments of specific sexual themes. As with the ratings of sexual arousal, it is possible to rank order the pornography judgments in relation to the specific themes. Table 5 presents the rankings based on the pornography judgments of males and females and for the three experimental conditions.

Table 5

RANK ORDER OF MEAN PORNOGRAPHIC JUDGMENTS OF SPECIFIC SEXUAL THEMES BY MALES AND FEMALES IN THREE EXPERIMENTAL CONDITIONS

Theme	Subjects		Stimuli		
	Males	Females	Photographic	Literary	Imaginary
Nude females petting	13	10	13	9.5	9
Male torturing female	4	4	10.5	4.5	4.5
Clothed female	17.5	18	17	18	18.5
Homosexual fellatio	2	2	2	2	2
Ventral-ventral intercourse	11	12.5	7.5	11	12
Group oral sex	3	5	3	9.5	4.5
Cunnilingus	6	6.5	5.5	3	12
Fellatio	7.5	9	7.5	4.5	12
Female masturbating	9	8	13	6.5	7
Male in undershorts	19	19	18.5	19	18.5
Nude heterosexual petting	14	12.5	9	8	15.5
Nude female	17.5	16	18.5	13.5	15.5
Homosexual cunnilingus	5	3	5.5	6.5	4.5
Homosexual anal intercourse	1	1	1	1	1
Female torturing male	7.5	6.5	13	12	4.5
Male masturbating	12	14	10.5	15	8
Dorsal-ventral intercourse	10	11	4	13.5	10
Nude male	16	17	16	16.5	15.5
Partially clad heterosexual petting	15	15	15	16.5	15.5

Once again, it is clear that these themes provide reliable differences in the judgments they elicit in that males and females respond similarly and that the three experimental conditions yield similar results. The most pornographic themes are seen as homosexual anal intercourse, homosexual fellatio, group sex, male torturing female, and homosexual cunnilingus. The least pornographic themes were a clothed female, a male in undershorts, a nude female, a nude male, and semiclothed petting. The rank order of the pornographic ratings of the 19 themes

by males and females correlates .97 ($p<.01$). Of the stimulus conditions, photographic stimuli correlated .73 ($p<.01$) with the literary stimuli, literary and imaginary stimuli correlate .69 ($p<.01$), and photographic and imaginary stimuli correlate .70 ($p<.01$).

A comparison of the sexual arousal qualities of the themes with the pornographic judgments indicates little or no relationship. Thus, the two sets of ratings correlate .14 (N.S.) for males, -.04 (N.S.) for females, .10 (N.S.) for the photographic stimuli, .49 ($p<.05$) for the literary stimuli, and -.39 ($p<.10$) for the imaginary stimuli. The latter two relationships are completely unexpected and suggest the possibility that literary material is seen as pornographic to the degree that it is arousing while the opposite is true with respect to one's own thoughts.

On the opinion questionnaire, subjects were asked to name the themes which they would be most inclined to restrict from public display, which surprised them the most, which they would consider buying, and which they would definitely not consider buying. In Table 6 are shown the rank order placement of the 19 themes with respect to these questions plus the composite rank order of males and females with respect to sexual arousal and pornography judgments.

Table 6

RANK ORDER OF SPECIFIC SEXUAL THEMES*

Theme	Restrict	Surprising	Purchase	Not purchase	Sex arousal	Pornographic
Nude females petting	4	8	13	5	11	11
Male torturing female	5	5	8.5	6	13.5	4
Clothed female	19	11.5	11	17	16.5	18
Homosexual fellatio	2	2	17.5	2	13.5	2
Ventral-ventral intercourse	11	17	1.5	15	2	12
Group oral sex	6	3	5	7.5	4.5	4
Cunnilingus	9.5	8	5	11	1	6
Fellatio	8	5	5	9	4.5	8
Female masturbating	12.5	11.5	15	13.5	6.5	9
Male in undershorts	15	11.5	17.5	7.5	18.5	19
Nude heterosexual petting	15	1	8.5	17	3	14
Nude female	17.5	17	3	19	10	17
Homosexual cunnilingus	3	5	13	3	9	4
Homosexual anal intercourse	1	1	17.5	1	18.5	1
Female torturing male	7	8	13	4	16.5	7
Male masturbating	12.5	11.5	17.5	11	12	13
Dorsal-ventral intercourse	9.5	17	1.5	11	6.5	10
Nude male	17.5	17	8.5	13.5	15	16
Partially clad heterosexual petting	13	17	8.5	17	8	15

*With respect to questions dealing with whether the theme should be restricted from public display, its surprisingness, whether or not subjects would consider its purchase, how sexually arousing it was, and the extent to which it was judged pornographic.

The rank order correlation between the composite ratings of sex arousal and the composite ratings of pornography is .10 (N.S.). Thus, all possible combinations of arousingness and pornography occur. With a division of the themes at

approximately the median on each dimension, it may be seen that some themes are seen as both arousing and pornographic: group sex, cunnilingus, fellatio, female masturbation, and homosexual cunnilingus. Others are seen as arousing but not pornographic: ventral-ventral intercourse, nude petting, dorsal-ventral intercourse, and semiclothed petting. Others are viewed as pornographic but not arousing: male torturing female, homosexual fellatio, homosexual anal intercourse, and female torturing male. The remaining themes were seen as neither pornographic nor arousing: nude females petting, clothed female, male in undershorts, nude female, male masturbation, and nude male.

Other significant relationships are between the composite arousal ranks and consideration of buying (.67, $p<.01$); those themes which are found to be most arousing are those which would be considered as purchases. Pornographic rankings and the decision to restrict from public display are highly related (.91, $p<.01$). Pornographic rankings are also highly related to the item asking for the most surprising themes (.81, $p<.01$). Pornographic rankings are unrelated to desire to purchase (-.12, N.S.) but highly related to desire not to purchase (.76, $p<.01$). Those themes which are seen to be most pornographic are surprising, would not be purchased, and would be the most likely candidates for legal restriction.

Restriction of sexual material

On the opinion questionnaire a series of questions dealt with the legalistic or moralistic response to the sexual stimuli. An open-ended question asked what the authorities should do if someone in the community owned the set of 19 items. The responses were scored on a restrictiveness dimension ranging from the notion that the authorities should go out of their way to protect one's freedom to own them to the idea that the material should be "seized and destroyed." In addition, subjects were asked on a yes-no scale whether the majority of the 19 items should be forbidden from production and sale, from public display or advertising, and from sale to unmarried individuals, to teenagers, and/or to children. A total restrictiveness score consisted of the number of yes responses to the latter five items.

Effect of experimental conditions on restrictiveness responses. There were no significant sex differences in restrictiveness, and the experimental conditions only affected responses to the item "Forbid their production and sale entirely" ($F=3.20$, $df=2/78$, $p<.05$); an affirmative response was given most frequently among subjects in the pictorial stimuli condition and least frequently in the imaginary stimuli condition. On the item "Forbid their public display or advertising," there was a significant interaction ($F=3.50$, $df=2/78$, $p<.04$) with females agreeing more than males in the pictorial stimuli condition and the reverse occurring in response to imaginary stimuli.

Differential restrictiveness responses. For both sexes, total restrictiveness was related to authoritarianism (for males, $r=.42$, $p<.01$; for females, $r=.64$, $p<.01$) and feelings of disgust (for males, $r=.40$, $p<.01$; for females, $r=.57$, $p<.01$). Total

restrictiveness was also related to religious preferences (F=5.50, df=3/71, p<.01) and frequency of church attendance (F=6.23, df=3/74, p<.002). The greatest restrictiveness was endorsed by Catholics, followed by Protestants, Agnostics, and Atheists in that order. That same pattern was also found on the item concerned with forbidding the material to teenagers (F=3.01, df=3/71, p<.04). With respect to church attendance, those who attend weekly expressed the most restrictiveness while the remaining groups were all less restrictive. Precisely that same pattern was also found in response to the item about forbidding production and sale (F=8.41, df=3/74, p<.0002), forbidding public display (F=3.20, df=3/74, p<.03), forbidding sale to unmarried individuals (F=6.57, df=3/74, p<.001), and forbidding it to children (F=3.05, df=3/74, p<.04). Republicans were more restrictive about the sale of the material to unmarried individuals than were Democrats (F=4.04, df=1/50, p<.05). In addition, males who were most restrictive also indicated feelings of nausea (r=.31, p<.05) and depression (r=.37, p<.05). Females who were most restrictive indicated feelings of anger (r=.42, p<.01).

For each of the specific questions, the general pattern was the same with significant relationships with authoritarianism, the total number of themes judged to be pornographic, and negative emotions aroused by the stimuli. In addition, there were a number of responses to specific themes which were related to restrictiveness, but the patterns were quite different for males and females. The most restrictive males *were not aroused* by a clothed female (r=-.35, p<.05), cunnilingus (r=-.31, p<.05), or fellatio (r=-.32, p<.05). The most restrictive females *were aroused* by group sex (r=.41, p<.01), fellatio (r=.37, p<.05), homosexual cunnilingus (r=.44, p<.01), female torturing male (r=.42, p<.01), dorsal-ventral intercourse (r=.39, p<.05), cunnilingus (r=.31, p<.05), fellatio (r=.38,p<.05) and *were not aroused* by female masturbation (r=-.32, p<.05).

Behavioral effects of sexual stimulation

Willingness to view additional erotic stimuli. One of the Opinion Questionnaire items dealt with the subject's willingness to return to view movie versions of the same 19 themes. The degree of willingness to do so was very high, regardless of positive or negative reactions to the stimuli, regardless of the extent to which the stimuli were arousing, and regardless of attitudes about restricting pornography. For both males (M=3.98) and females (M=3.74), the response indicated that they would "probably" volunteer to participate.

There were sex differences with respect to the arousingness of specific themes and willingness to participate in the movie version. For males, there was a positive relationship between volunteering and response to a clothed female (r=.35, p<.05); for females, willingness to volunteer was positively related to responses to homosexual fellatio (r=.32, p<.05) and to homosexual cunnilingus (r=.40, p<.01).

Effects of experimental conditions on subsequent sexual behavior. There were no effects attributable to the experimental conditions or to the sex of the subject on any of the items dealing with sexual behavior in the week following the

experimental session. The responses clustered around the scale point "about the same as usual."

Differential effects on subsequent sexual behavior. One finding of note is that the various items on the Follow-Up Questionnaire are positively intercorrelated, as shown in Table 7. The relative frequency of thinking, talking, reading, and dreaming about sex are found to positively co-vary with frequency of sexual behavior as reported on a simple rating scale and with differences in sexual behavior reported in an open-ended question. Correlates of response to the six questions about sex in the follow-up are relatively consistent and are summarized in Table 8. It may be seen that males and females reveal entirely different patterns. Males who report the greatest increase in frequency of various types of sexual behavior tend to have sensitizing defenses, not to be aroused by the nude female theme, to report low levels of sexual arousal and excitement after the experiment, and to be strongly against restricting pornography. Females who report the greatest increase in frequency of sexual behavior tend to report arousal to the themes of a male torturing a female and a female masturbating and a lack of arousal to a male in undershorts. They also felt sexually aroused and neither afraid nor depressed after the experiment.

Table 7

INTERCORRELATIONS OF BEHAVIORAL FREQUENCY ITEMS ON FOLLOW-UP QUESTIONNAIRE FOR MALES AND FEMALES

	Males					Females				
	(2)	(3)	(4)	(5)	(6)	(2)	(3)	(4)	(5)	(6)
(1) Thinking about sexual matters	.91	.79	.81	.85	.59	.77	.69	.83	.78	.54
(2) Talking about sexual matters		.80	.77	.76	.64		.75	.87	.85	.66
(3) Reading about sex			.90	.65	.40			.78	.77	.44
(4) Dreaming about sexual activity				.68	.31				.87	.60
(5) Engaging in sexual activity					.66					.64
(6) Sexual behavior different from usual pattern										

One other predictor of subsequent behavior was size of community. The least increase in the frequency of reading books about sex (F=4.22, df=2/73, p<.02) and of dreaming about sex (F=4.32, df=2/73, p<.02) was for individuals raised in a town of 26,000 to 100,000 population.

DISCUSSION

It should be strongly emphasized that any conclusions drawn from the present findings must be limited not only by the usual considerations of the possible

Table 8

CORRELATES OF REPORTED FREQUENCY OF SEXUAL BEHAVIOR OF MALES AND FEMALES DURING WEEK FOLLOWING EXPERIMENT

Males		Females	
Thinking about sexual matters			
Repression-sensitization	.32*	Aroused by male in undershorts	-.35*
Forbid sale to unmarried	-.38*	Afraid	-.37*
Forbid sale to teenagers	-.31*	Depressed	-.43**
Total restrictiveness	-.35*		
Talking about sexual matters			
Forbid sale to unmarried	-.38*		
Forbid sale to teenagers	-.38*		
Total restrictiveness	-.35*		
Reading books about sex			
Aroused by nude female	-.32*	Sexually aroused	.35*
Sexually aroused	-.38*		
Excited	-.34*		
Forbid sale to unmarried	-.32*		
Total restrictiveness	-.32*		
Dreaming about sexual activity			
Sexually aroused	-.40**	Aroused by male torturing female	.34*
Excited	-.34*	Aroused by female masturbating	.32*
		Depressed	-.30*
Engaging in sexual activity			
Repression-sensitization	.31*	Depressed	-.35*
Forbid production and sale	-.37*		
Forbid public display	-.35*		
Forbid sale to unmarried	-.47**		
Forbid sale to teenagers	-.41**		
Total restrictiveness	-.49**		
Sexual behavior different from usual pattern			
Forbid sale to unmarried	-.34*		
Forbid sale to teenagers	-.44**		
Total restrictiveness	-.34*		

*$p < .05$
**$p < .01$

nongeneralizability of the specific stimuli and responses employed but by two additional problems. Few samples in psychological experiments even approach the ideal of a random selection from the total population. When the sample consists of married couples (with at least one member of each a student at Purdue University) who have volunteered to participate in research dealing with pornography, the possible nonrepresentative qualities of the subjects must be a major concern. Second, many of the findings are based on a post hoc examination of the total array of data, and such an approach strongly risks capitalization on chance. That

is, an unknown proportion of such relationships will disappear if attempts are made to provide cross-validation. For this reason, one can be most confident of those relationships that hold for both sexes. In any event, the conclusions drawn below must be considered as tentative and must be evaluated cautiously.

Effects of sexual stimuli on emotional responses

Even a brief presentation of photographic, literary, or imaginary sexual stimuli elicits strong emotional reactions. Exposure to erotic stimuli results in increased sexual arousal, disgust, and boredom and in decreased anxiety, fear, and curiosity. Primarily, these effects are the same for males and females and they occur whether the erotic stimuli were in the form of photographs, selections from literature, or simply instructions to think about a series of sexual themes.

These general effects may be further analyzed by examining the wide individual differences in response. In general, those subjects who responded most positively to the erotic stimuli were those who were specifically aroused by themes of oral-genital contact, masturbation in the opposite sex, and heterosexual petting; females also responded, in addition to these themes, to ventral-ventral intercourse with the female beneath the male. It seems that those individuals who feel free to enjoy and be aroused by a variety of acts within the normal range of sexuality are those in whom sex elicits positive rather than negative emotions. This freedom includes a positive response to autosexuality in one's sexual partner.

Those who responded most negatively presented a somewhat different pattern of response to the sexual themes. These males were specifically unaroused by the fellatio theme. The negatively responding females indicated arousal to the nude male, the male in undershorts, and dorsal-ventral intercourse with the female above the male. Here is suggested a pattern for males involving a negative response to oral sexuality, and for females, arousal primarily by the stimulus of a solitary male or of a male playing a passive role in the sexual act. These reactions are accompanied by a generally negative feeling about sexual responses. For both sexes, the pattern of those who respond negatively seems to be less free and to involve a distance between males and females.

One theme presents an especially interesting pattern. Males who responded positively to the stimuli were aroused by the female masturbating; males who responded negatively were aroused by the male masturbating. The females who responded positively *and* those who responded negatively were each aroused by the nude male masturbating. Reponse to masturbation in either the same or the opposite sex appears to be an especially significant indicator of emotional responses to sexual material. One might speculate that what is involved is a general acceptance of human sexuality as a source of pleasure or its rejection as a source of guilt.

Effects of the 19 sexual themes on sexual arousal

As was suggested by Schmidt and Sigusch (in press), it appears that the long accepted Kinsey finding with respect to sex differences in response to erotic

material has either disappeared in the years following his study or that the survey method simply answers a different question than does the experimental method. That is, women are relatively less likely to purchase hard-core pornographic pictures or books, attend stag movies, and so forth because of social pressures and custom. When asked whether they are frequently stimulated by such material, they indicate that they are not—because they are seldom exposed to these stimuli. On the other hand, when they are presented with erotic stimuli, as in an experiment, they are as sexually aroused as are males. In fact, the females in the present experiment were significantly more aroused than were the males by the various masculine stimuli such as male nudity, male masturbation, and even homosexual fellatio. A somewhat separate aspect of male-female similarity was in their relatively high agreement (rho = .74) concerning the relative arousingness of the 19 sexual themes. It may well be that supposed sex differences in response to erotica are simply an artifact of cultural pressures with respect to exposure to erotica.

The consistent differences in reported arousal among the three experimental conditions may simply reflect negatively on the quality of the specific photographs and literary passages employed. The group given instructions to think about material dealing with the various themes reported a mean sexual arousal approximately twice as great as either of the other two groups. This finding has a number of implications. First, it may be that no commercially produced pornography is likely to be as erotic as one's own imagination. The latter, for example, can be much more personally involving, can involve whomever one wishes as the imagined participants, and can be completely hidden from public scrutiny. Second, it seems possible that the advertising of erotic books, photographs, movies, and so forth is effective to the extent that it elicits imagined responses among potential customers. Our limited findings suggest that the open display of sexual stimuli would be considerably less arousing than brief and not very explicit cues about the material to be sold. Third, if imagination is a powerful and easily evoked sexual stimulant, it seems possible that individual differences in sexuality (drive, frequency preference, etc.) may be in large part a function of differential learning with respect to engaging in sexual imagery. Fourth, a possible therapeutic technique for the treatment of sexual problems such as impotence and frigidity could involve training and practice in producing sexual fantasy. At the very least, this appears to be a promising lead for further research.

Judgments of pornography and the restriction of pornography

In making the determination that a given sexual stimulus is pornographic and that it should be subject to legal restrictions of varying severity and generality, an individual is making an evaluative judgment. The major question is the basis on which that judgment is made. If it were known that exposure to stimulus X, for example, increased the probability of rape, mental illness, or even acne, most individuals would decide that stimulus X should not be on public display. In the

absence of such knowledge (see, for example, Gebhard, Gagnon, Pomeroy, & Christenson, 1965), evaluative judgments tend to be based on whether the stimulus elicits positive or negative affect in the individual making the judgment (Byrne & Clore, in press). With respect to erotic stimuli, it could be surmised that the generation of positive or negative affect is a function of past experience with such stimuli (familiarity), general attitudes or values regarding human sexuality, and the association of positive or negative reinforcements with sexual stimuli.

In the present study it was found that the number of stimuli perceived as pornographic increases as the authoritarianism of the subject increases. On the basis of repeated findings with the California F Scale (e.g., Byrne, 1966), it may be inferred that sexual stimuli are most likely to be judged as pornographic by those individuals whose parents were punitive and restrictive and who themselves tend to be racially prejudiced, hostile, politically and economically conservative, conforming, and rigid. Authoritarianism is also related to religious preferences: Catholics = 71.52, Protestants = 62.58, Atheists = 53.22, and Agnostics = 52.42 ($F = 6.07$, $df = 3/71$, $p < .002$). Authoritarianism is also related to frequency of church attendance: weekly = 76.57, six to 24 times per year = 60.20, seldom = 58.15, and never = 50.04 ($F = 14.03$, $df = 3/74$, $p < .001$). Thus, it may be that this personality variable is the underlying reason for the relationship between religious behavior and response to sexual stimuli.

For those individuals who reported negative feelings (disgust, anger, nausea) in response to the sexual stimuli, the amount of perceived pornography was greatest. It is proposed here that the negative affective responses are the basic determinant of judgments about pornography. It should be noted also that such judgments are independent of sexual arousal. Pornography is not perceived as that which is sexually arousing but as that which "makes me feel bad." In the present study, pornography (and not sexual arousal) was most generally seen in the themes of homosexuality and sadomasochism. Quite possibly, had our subjects been homosexuals or sadomasochists, such themes would have been judged as much more arousing and much less pornographic. Those themes which were seen as sexually arousing but not pornographic involve heterosexual activity which is high in frequency and familiarity (petting and intercourse). Those themes which were arousing but pornographic involved primarily oral-genital activity, which survey research suggests to be a less frequent sexual outlet than is petting and intercourse (e.g., Podell & Perkins, 1957). There is a strong suggestion, then, that the negative reactions to specific themes is in part a function of their familiarity (either in behavior or in symbolic form) and that such reactions are independent of whether or not the theme is sexually arousing. If increased frequency of exposure to a stimulus leads to a more positive evaluation of it (e.g., Zajonc, 1968), it is reasonable to assume that judgments about what is pornographic can be altered by repeated presentations of a given theme. Anecdotally, "shocking" books of a few decades back, such as *A Tree Grows in Brooklyn* or *Forever Amber*, would be unlikely to elicit pornographic labels today. It is not unlikely that the contents of

books, plays, poems, movies, and magazines in the intervening period acted to change affective responses to a wide variety of sexual words, images, and themes.

It might also be noted that our subjects indicate the desire to purchase that which they consider sexually arousing but not that which they consider pornographic. The difficulty arises with respect to differences in judgment as to what is pornographic. When person A, for example, responds to a given book as sexually arousing and decides to purchase it, he can be condemned by person B who finds the same book arousing and disgusting. Since both individuals are responding to well learned emotional responses, communication is difficult and can easily deteriorate to evaluational characterizations such as "depraved" and "neurotically repressed."

The most socially important component of negative affective responses and judgments of pornographic quality is that of decisions concerning legal restrictions to be imposed with respect to the stimuli. It should be noted that there was general agreement that the stimuli should not be sold to children; 85% of our subjects endorsed this particular restriction. There was much less agreement about restrictions involving their production and sale, public display or advertising, or their sale to unmarried individuals or teenagers. With respect to the latter four types of restriction, these findings are straightforward however; those individuals who respond to the stimuli with negative affect judge them to be pornographic and would impose legal restrictions on their dissemination to others. Those who respond to the stimuli with positive affect judge them not to be pornographic and would not impose legal restrictions. It would seem to be these personal reactions rather than any evidence about the effects of "pornography" which are the determinants of one's position on this issue.

Behavioral Effects of Sexual Stimuli

The effects of a brief exposure to the 19 themes on subsequent reported sexual behavior was quite minimal. Most of the subjects reported no changes in the week following the experiment compared to the week before the experiment. The males who tended to report increases in sexual activity tended to be those who use intellectualizing defenses, who were not aroused by the stimuli, and who were not legally restrictive about sexual themes. The women who reported increases were those who were aroused by the themes and who did not report a negative emotional response to them. Tentatively, it may be hypothesized that women's sexual behavior is affected by erotic stimuli for emotional reasons while men are affected by cognitive-intellective variables. In any event, there was little reported effect on frequency of behavior and the very few reports concerning qualitative differences were positive ones: increased love, increased willingness to experiment, and increased feeling of closeness.

CONCLUSION

Within the very real limits of the present experiment, it may be seen that brief exposure to sexual stimuli elicits strong and quite divergent emotional responses,

including sexual arousal, and that specific sexual themes are reliably different in their arousal qualities. Males and females do not differ in their overall sexual response to such stimuli but there are specific themes which members of each sex find more arousing than do members of the opposite sex. Among the more unusual findings was that instructions to imagine the activities of each theme led to much greater arousal than exposure to either pictorial or prose presentations of the themes. Sexual arousal and judgments of pornography appear to be independent dimensions. Judgments concerning what is and is not pornographic appear to be based on a negative affective response to the stimuli and to be related to the desire to impose legal restrictions on such stimuli. Despite the effects on emotional reactions and the wide range of beliefs concerning the necessity of legal restrictions against sexual stimuli, the effects of the stimuli of the present experiment on the reported sexual behavior of this particular group of subjects was negligible. It is possible that the emotional reactions to erotic stimuli are of greater interest and importance than the behavioral consequences of exposure to such stimuli.

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Reactions to Viewing Films of Erotically Realistic Heterosexual Behavior

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ABSTRACT

The impact of viewing films of erotically realistic heterosexual behavior on sexual arousal, physiological arousal, sexual behavior, sexual thoughts or discussions, emotional tension, judgments about availability of such films, and beliefs about the effects of pornography on oneself were evaluated using a pre-test, post-test, no control group design. Both immediate and 24-hour post-exposure effects were reported by subjects, and the results were quite consistent with earlier German research. Increases in arousal, erections, fantasies, desires, and masturbation were observed. Subjects most likely to engage in heterosexual activity after viewing were found to have had already established heterosexual relationships. Individual differences in reaction were found to be related to differences in prior sexual history. Those subjects most highly aroused by the films were persons either with little recent heterosexual experience or a history of some homosexual experience. The judgments that such erotically realistic material should be restricted in public availability increased after viewing the films, and the tendency to restrict availability was related to a rejection of oral-genital sexual practices in one's personal sex life.

INTRODUCTION

The aim of this research project was to distinguish types of reactions to erotically realistic films and predict reactions on the basis of a comprehensive survey of life history, attitudes, behavior, and character.

In the case of reactions to viewing films of heterosexual behavior, we distinguished seven classes of reactions: (1) *sexual arousal*, as a self-reported psychological state; (2) *physiological arousal*; (3) changes in *sexual behavior* (masturbation, petting, or intercourse); (4) changes in *thoughts, fantasies, dreams*, or *discussions* of sex; (5) changes in *emotional tension* and sense of well being; (6) changes in *judgments about the acceptability* of making such realistic films available to the general public; and (7) changes in *beliefs about the impact of pornography on oneself.*

Our research has built to a considerable degree on the work of the German investigators, Schmidt, Sigusch, and their associates (Schmidt, Sigusch, & Meyberg, 1969; Sigusch, Schmidt, Reinfeld, & Wiedemann-Sutor, 1970; Schmidt & Sigusch, 1970). They have engaged in pioneering work in the study of how different kinds of sexually realistic stimuli affect the first five classes of variables listed above and of how men and women respond to such visual stimulation. With the exception of the liberal-conservative attitudes (religious, political, and sexual), they have as yet devoted little attention to the issue of individual differences in arousal. The description of data collected (Schmidt et al., 1969) suggests that they will be in a position to examine this question at a later time.

In our work, we have the good fortune to have access to a set of six films made for the Institute of Sex Research at Hamburg University. Schmidt and Sigusch (1970) have described the films briefly and have used each film singly in complex experiments where each subject sees only one stimuli. We selected films three, four, and six from their series for our work and showed all three films (in the fixed order three, four, and six) to our subjects. These films have an attractive man and woman as the actors and begin and end with a standard sequence. Film three portrays "light petting with manual-genital contact, without orgasm; both partners undress down to underwear." Film four portrays "heavy petting with manual-genital contact, cunnilingus, and fellatio until orgasm; both partners are naked." Film six portrays "coitus in various positions with foreplay, cunnilingus, and fellatio; both partners are naked."

In general, the research of Schmidt and Sigusch has established that such erotically realistic films have the capacity to arouse both men and women emotionally and physiologically. Both tend to judge the more sexually arousing stimuli as less favorable. While sexual desire, fantasies, and masturbation were significantly increased in the 24 hours following exposure, heterosexual behavior was increased only moderately (nonsignificantly for men in the study using film stimuli), and the kinds of sexual activities engaged in were ones that the person had performed at least once, typically more often, in the previous 12 months. While film three produced no difference in arousal between men and women,

films four and six produced a greater degree of arousal for men. Part of the basis of our decision to use films four and six in our research was to ensure an arousal for almost all subjects. Schmidt and Sigusch found that, as a set, including straightforward heterosexual intercourse (film five), these films made men feel more bored, aggressive, repelled, excited, shocked, irritated, restless, and impulsive immediately after viewing. Thus, even though sexually arousing, the films' general emotional impact was to increase emotional level primarily by increasing negative feelings.

In the Schmidt and Sigusch studies, 86% of the men experienced erections, and 20% masturbated, 4% to ejaculation, while watching the films. During the 24 hours following the film, 30% of the men masturbated more than before, and 11% decreased their masturbation. All three studies from the Institute of Sex Research fail to support a sexual disinhibition hypotheses (namely that viewing erotically realistic or pornographic materials would cause a dramatic increase in sexual behavior and would lead people to engage in new and perhaps perverse sexual practices).

In our research, we have omitted some of the instruments used by Schmidt and Sigusch, but we have also added two additional topics. One of these is the question of whether the material seen should be freely available to or restricted from the general public and the age at which viewing should be allowed for men and women. We were particularly concerned to get the subjects away from the issue of their like or dislike of the films to the publicly relevant judgment about their availability and the conditions of such. This distinction is important because people may be turned on by films, yet believe that such opportunities for sexual arousal should not be freely available to themselves or anyone else. In addition, it is of theoretical interest to psychologists to know how sexual arousal and judgments of restrictiveness-permissiveness towards availability relate. Several possibilities exist: (1) The more sexually aroused the person, the more permissive he is; (2) The more sexually aroused the person, the more restrictive he is; or (3) (perhaps more likely than either of these) The relationship between immediate sexual arousal and restrictiveness of judgments is mediated by life history and personality variables such as a history of deviant sexual behavior.

A second difference between our research and that of Schmidt and Sigusch is that we examined the impact of exposure on beliefs about the effects of pornography upon oneself. A scale was created to index a variety of fears and concerns about pornography, such as the fear of becoming too attracted to the material, a sense of evilness for watching, being disgusted with oneself for watching (see the descriptions of the Becker Scale in Davis & Braucht, 1971). In view of the mixed emotional impact reported by Schmidt and Sigusch, it seemed wise to determine whether fears and guilts were generally increased or decreased by the experience of exposure.

Another area of difference between our work and that of the German investigators is subject sample. While our population from which volunteers were

solicited was entirely college students, we had a considerably heavier representation of religious and conservative subjects, a heterogeneous ethnic composition (Anglo, Negro, and Hispan), but no women.

Hypotheses and issues

In view of our findings in the retrospective research (Davis & Braucht, 1971) that amount of exposure to pornography and sexual deviance were associated, it seemed wise to examine the possibility that those persons with high levels of prior exposure and/or histories of sexual deviance would react to the films with greater sexual arousal, and to be more likely to engage in sexual behavior following exposure. The rationale for these predictions is that, if one has a history of using pornographic materials to stimulate onself, then their impact ought to be greater than if one has no such learning history.

In contrast, among those subjects with little history of prior exposure, the emotional impact of the (novel) films should be the greatest. They would thus show greater tension in the 24 hour period following the film, be more inclined to restrict the availability of such films, and be more concerned about the negative impact of viewing pornography.

While hypotheses could be developed for several other topics, we have been inclined to treat the results as exploratory and descriptive in view of the very limited amount of prior research that we have upon which to build.

METHOD

Subjects

Of the 365 subjects with complete data in the retrospective questionnaire study, 109 were actually incarcerated in the Denver City and County Jail. It was not possible to solicit volunteers from this prisoner group because of a decision made by the warden. From the remaining 256 subjects, however, volunteers were solicited to participate in the present experiment. Following their participation in the initial retrospective questionnaire study, each subject was presented with the informed consent form presented below.

Participation in Research on the Viewing of Erotically
Realistic Films and Pictures

I, voluntarily, agree to participate in research that will require me to complete a short questionnaire about my personal feelings about sexually realistic and arousing films and/or photographs. I understand that this research will require no more than one and one-half hours and that I shall be paid $5.00 for participation. The information that I give will be confidential and anonymous.

Signed_____
Printed Name_____
Number_____
Address_____
Phone_____

From the pool of 256 subjects, 175 volunteered for the experiment and 81 did not. Approximately two weeks after the retrospective questionnaire session, and about one week prior to the experimental session, each subject who had volunteered received a letter stating the time and place of the experimental session.

Of the 175 who had initially volunteered, 121 showed up for the experimental session. Thus, of the original pool of 256 subjects, 81 did not volunteer, 54 volunteered but did not appear at the experimental session, and 121 subjects volunteered and actually participated in the experiment.

Procedure

Experimental sessions, usually at the same location as the retrospective questionnaire session, were conducted with natural groups of subjects (usually about 25 subjects). These group sessions were conducted as follows. First, subjects were given a questionnaire on viewing erotic films (Appendix A) and another questionnaire relevant to their thoughts and actions during the 24 hour periods before and after viewing the films (Appendix B). This latter questionnaire was given to each subject in a sealed envelope. To assure anonymity, subjects' names did not appear on either questionnaire.

Prior to viewing any of the films, subjects completed only the first page of the questionnaire on viewing erotic films. At that point, subjects were told that three 10-minute silent color films would be presented, with breaks between films of approximately three minutes. After each film, subjects completed one page of the in-session questionnaire. After the last film, the remaining portion of the questionnaire was completed. Before being dismissed, subjects were given a questionnaire in a sealed envelope and were asked not to look at it for 24 hours, at which time they were to complete it and mail it to the research staff in the enclosed preaddressed, stamped envelope. Subjects were promised an additional $2.00 payment for returning this questionnaire if they also returned an address slip.

Instruments

The two instruments mentioned above (Appendices A and B), together with data from the subjects' participation in the retrospective questionnaire study, comprised the sources of data for this experiment.

In particular, the 10 major variable scores in the earlier retrospective study were available for each subject, together with a number of more specific measures: frequency of homosexual behavior, group sex, number of homosexual partners, and so forth. All of these measures were anonymous self-reports. For information regarding these items and scales from the Institute Research Questionnaire (IRQ), refer to the appropriate sections of Davis and Braucht (1971).

Criterion measures. Two classes of criterion variables were assessed: (1) immediate changes (upon viewing the films), and (2) changes in the 24-hour period following the viewing of the films (relative to the 24-hour period prior to viewing the films).

Immediate criteria. Seven immediate effects were measured using items from the questionnaire on the viewing of erotic films (Appendix A). These seven effects included: (1) whether an erection occurred (item 26); (2) whether semen emission without climax occurred (item 27); (3) whether climax occurred (item 28); (4) whether masturbation occurred (item 30); (5) immediate changes in felt sexual arousal; (6) immediate changes in tendency to label oneself as deviant for watching pornography; and (7) immediate changes in judgments as to whether pornographic films should be available to the general public or restricted.

A measure of change in felt sexual arousal was constructed by taking the mean of the *changes* (each relative to the subject's status before exposure to any film) in (1) degree of being "turned on"; (2) degree of sexual arousal after the first film; (3) sexual arousal after the second film; (4) sexual arousal after the third film; and (5) felt urge to masturbate while watching the films (this technically is not a change score). Thus, change scores greater than zero indicate an immediate change to greater sexual arousal upon viewing the films.

Immediate change in tendency to label oneself as deviant for watching pornography was assessed by subtracting the five items which comprised the Becker Scale in the earlier report from identical items measured immediately after exposure to the films (items 34, 35, 36, 37, and 41). Thus, change scores greater than zero indicate *more* of a tendency to label oneself as deviant following exposure to the films.

Immediate change in judgments as to whether such films should be made available to the general public (or restricted) was made by subtracting the subject's judgment prior to viewing (item 11) from his judgment following each of the three films (items 15, 19, and 23). The mean of these three change scores was calculated so that mean change scores greater than zero indicate changes to more restrictive judgments following viewing of the films.

Changes over the 24-hour period following exposure to the films. Eight changes in the 24-hour period following exposure to the films (relative to the 24-hour period prior to exposure) were measured using items from the 24-hour questionnaire (Appendix B). Seven of the eight changes were assessed by first subtracting each of the 13 items relating to the subject's status during the 24 hours *before* seeing the films (items 1 through 13) from corresponding items relating to the 24-hour period after exposure (items 14 through 26). The eighth change (change

in general tension level) was calculated directly by taking the mean of items 27 through 32 (reversing items 27, 31 and 32). Thus, mean 24-hour tension change scores greater than zero indicate changes toward a higher level of felt tension the day after exposure.

Four of the 24-hour changes involve single item changes—changes in frequency of (1) masturbation (items 1 and 14); (2) petting (items 2 and 15); (3) sexual intercourse (items 3 and 16); and (4) number of orgasms (items 4 and 17).

A measure of substitute (for sex) behavior was obtained by taking the mean of changes in: (1) number of sex dreams; (2) amount of sex fantasy without sex behavior; (3) amount of discussion about sex with other guys; and (4) amount of discussion about sex with girls. Thus, change means greater than zero indicate more substitute behavior after seeing the films.

A measure of change in felt sexual desire was obtained by taking the mean of changes in: (1) sexual tension and (2) sexual desire (items 9, 10, 22, and 23). Thus, mean change scores greater than zero indicate greater sexual desire during the 24 hours after exposure to the films.

A measure of pornography-stimulated behavior was obtained by taking the mean of changes in: (1) amount of masturbation while thinking of pornography (difference between item 11 and item 24); (2) amount of sexual intercourse while thinking of pornography (difference between item 12 and item 25); and (3) change to use of novel intercourse techniques or positions (difference between item 13 and item 26). Thus, change scores greater than zero indicate changes in the direction of more pornography-stimulated behavior during the 24 hours after viewing the films.

RESULTS

Characteristics of those volunteering to view films

Of considerable interest is the question of who (what kind of person) would voluntarily expose himself to pornography. In order to answer this question, one-way analyses of variance were performed on the 10 major variables gathered in the retrospective questionnaire study: (1) degree of prior exposure to pornography; (2) drug deviance; (3) deviance in the home; (4) deviance in the neighborhood and peer group; (5) liberalism of sexual attitudes and behavior; (6) sexual deviance; (7) general deviance; (8) moral and interpersonal character; (9) tendency to label oneself as deviant for watching pornography; and (10) age of earliest exposure to pornography. The reader should refer to Davis and Braucht (1971) for more detailed descriptions of these variables. In each one-way analysis of variance, there were three levels of the independent variable: (1) subjects who did not volunteer; (2) subjects who volunteered initially but who did not actually appear; and (3) subjects who initially volunteered and did appear to watch the films.

Of the 10 analyses of variance, only two produced significant *F*-ratios. On the prior exposure to pornography dependent variable, there was a significant *F*-ratio, $F(2,253)=4.92$, $p<.01$. The cell means for this analysis are presented in Table 1.

Table 1

MEANS AND STANDARD DEVIATIONS OF PRIOR EXPOSURE TO PORNOGRAPHY MEASURES BY VOLUNTEER STATUS

Volunteer Status	N	Mean	S.D.
Did not volunteer	81	4.74	0.65
Volunteered but not exposed	54	4.89	0.58
Volunteered and exposed	121	5.06	0.79

Table 1 shows that those who did not volunteer had the least prior exposure to pornography, that those who volunteered but who did not show up had more, and that those who came to the session had had the greatest prior exposure to pornography.

The second significant *F*-ratio was produced for the dependent variable of moral and interpersonal character, $F(2,253)=6.78$, $p<.01$. The table of means for this significant effect are presented in Table 2.

Table 2

MEANS AND STANDARD DEVIATIONS OF MORAL AND INTERPERSONAL CHARACTER BY VOLUNTEER STATUS

Volunteer Status	N	Mean	S.D.
Did not volunteer	81	5.05	0.61
Volunteered but not exposed	54	5.08	0.64
Volunteered and exposed	121	5.33	0.54

Table 2 shows that those who actually exposed themselves to the pornography were of higher character than either those who did not volunteer ($t=3.33$, $p<.01$, $df=200$) or those who did volunteer but who did not actually expose themselves to the pornographic films ($t=2.76$, $p<.01$, $df=173$).

These two results suggest that two different kinds of people were prone to volunteer—those who had seen considerable pornography before and wanted to see some more and those with high character scores who would probably be prone to respond to the appeal to study the topic of pornography scientifically.

Effects of films

A major question is the question of whether subjects were affected by viewing the films. In order to answer this question, repeated measures *t*-tests were performed on 11 of the 15 criterion measures. Effects on four of the measures—erection, semen emission, climax, and masturbation—were assessed by testing the significance of the obtained percentage of subjects reporting these effects.

The percentage of subjects in our sample who reported erections was 75% (91 subjects out of 120). The standard error of this percentage (N=120) is 3.9%, so that with $p > .99$, the true (population) percentage reporting erections lies in the range between 65% to 87%.

The percentage of subjects who reported semen emission without ejaculation was 7.5% (nine subjects out of 120). The standard error of this percentage is 2.4%, so that with $p > .95$, the true (population) percentage lies in the range of 2.7% to 12.3%.

Only two of 120 subjects reported a climax—too few to appropriately test the significance of this percentage (1.7%).

The percentage of subjects reporting a felt urge to masturbate was 72% (86 subjects out of 120). The standard error of this percentage is 4.1%, so that with $p > .99$, the true (population) percentage having a felt urge to masturbate lies in the range of 61% to 83%.

Table 3 presents the results of the repeated measures *t*-tests on the remaining 11 criterion measures, means of these measures, and their standard deviations.

Table 3

MEANS, STANDARD DEVIATIONS, AND PAIRED COMPARISON t-TESTS CRITERION (CHANGE) MEASURES

Change measure	Mean	S.D.	N	t
(Immediate) felt sexual arousal	2.97	2.68	119	10.41***
(Immediate) labeling self as deviant	-0.25	0.32	119	8.56***
(Immediate) availability-restriction	0.45	0.92	119	5.30***
(24-hour) tension	1.37	2.79	98	4.86***
(24-hour) substitute behavior	0.20	0.33	101	6.12***
(24-hour) sexual desire	0.37	0.65	101	5.73***
(24-hour) pornography-stimulated sex	0.20	0.26	10	2.33*
(24-hour) masturbation	0.40	0.75	101	5.31**
(24-hour) petting	-0.14	1.15	101	1.21
(24-hour) coitus	-0.16	1.05	101	1.52
(24-hour) number of orgasms	0.12	1.22	101	0.98

*** $p < .001$
** $p < .01$
* $p < .05$

Table 3 shows that the films did have marked effects, both immediately and during the 24 hours after the exposure session. To summarize Table 3, *immediately* upon watching the films, subjects became more sexually aroused, less likely to label themselves as deviant for watching pornography, and more likely to recommend that the availability of such films be restricted. The immediate change to greater sexual arousal is in keeping with the finding that 76% of the subjects had erections, and 75% felt the urge to masturbate.

Relative to the 24-hour period prior to seeing the films, Table 3 shows that, during the 24 hours *after* seeing the films, subjects became more tense, engaged in more substitute (for sex) behavior, felt more desire for sex, engaged in more pornography-stimulated or pornography-aided sex, masturbated more (t=5.31, $p<.001$) but engaged in no more petting or coitus than prior to the film.

Interrelations among outcome variables

Before examining predictor-outcome relationships for the seven classes of outcome variables, it is useful to describe their interrelations. To the degree that immediate sexual arousal and physiological arousal are highly correlated, one would expect highly redundant patterns of relations between predictors and outcomes. Table 4 contains the relevant correlations. There it can be seen that immediate arousal and physiological arousal, while positively related (r=+.45, $p<.0005$), do not share as much as 25% common variance. Thus, it is quite appropriate to study their differential relations to other variables. Judgments of restrictiveness were unrelated to the other outcome variables. Immediate sexual arousal was strongly related to increase in masturbation (r=+.33, $p<.005$) but not to petting or coitus.

Because the sexual behavior changes were not strongly related to each other, they will be examined separately. As can be seen in Table 4, increases in any one of the behaviors of masturbation, petting, or coitus was strongly associated with increases in the number of orgasms. However, it is the case that increase in masturbation is unrelated to increase in petting or coitus. (This same pattern holds for the level of these behaviors in the 24 hours prior to the film.) And increases in petting and coitus were quite strongly related (r=+.84, $p<.0001$).

The increase in masturbation was strongly related to immediate sexual arousal (r=+.33, $p<.005$) and to physiological arousal (r=+.18, $p<.05$) and also to increases in sexual fantasy (r=+.21, $p<.025$), sexual tension (r=+.19, $p<.05$), and sexual desire (r=+.34, $p<.0005$). In contrast, increases in petting and coitus had a different pattern of correlates. An increase in petting was not related to immediate sexual arousal, barely related to having an erection while viewing the film (r=+.18, $p<.05$), but strongly related to discussions of sex after the films with men (r=+.36, $p<.0005$) and women (r=+.27, $p<.005$). As might be expected from the strong correlation between increases in petting and coitus, increased coitus

Table 4

INTERCORRELATIONS AMONG OUTCOME VARIABLES

	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	N
1. Erection	.21	.31	.81	-.21	.25	.26	-.10	.29	.24	.18	.21	.11	120
2. Urge to masturbate		.93	.35	-.14	.15	.10	-.03	.11	.22	.04	.05	.12	119
3. Immediate sexual arousal			.45	-.17	.16	.10	00	.18	.33	.03	.06	.13	119
4. Physiological arousal	-.15	.17	.26	-.02	.24	.18	.14	.17	.08				120
5. Becker scale change		-.33	-.13	.08	-.10	-.22	-.07	-.07	-.11				119
6. Increase in emotional tension			.36	-.20	.39	.19	.26	.25	-.01				98
7. Increase in substitute sexual behavior				-.09	.48	.22	.25	.27	.25				99
8. Increase in restrictiveness					-.05	.05	-.16	-.13	-.11				119
9. Increase in sexual desire						.34	.10	.10	.25				101
10. Increase in masturbation							.05	.08	.42				101
11. Increase in petting							.84	.59					101
12. Increase in coitus								.43					101
13. Increase in orgasms													101

NOTE: For N = 100; r = ± .20, p <.05, two-tailed test.

showed the same pattern of relations as increased petting: not related to immediate sexual arousal, slightly related to having an erection (r=+.21, p<.025), moderately correlated with sexual discussions (with men, r=+.29; with women, r=+.23, p<.025); and slightly related to increased sexual desire (r=+.19, p<.05).

An increase in emotional tension for 24 hours following the films was related to a decline in the fear of pornography's effects (r=-.33, p<.0005), to engaging in substitute sex behavior (r=+.36, p<.0005), to increased sexual desire during the 24 hours (r=+.39, p<.0005), and to increased heterosexual behavior (petting r=+.26, p<.01 and coitus r=+.25, p<.01).

Pornography-aided behavior refers to thinking about images or feelings generated by the films while engaging in masturbation or intercourse. While only 10 subjects reported any increase in thinking about pornography-stimulated ideas while engaging either in masturbation or intercourse, the greater the increase in such behavior the more likely the subject was to have had frequent homosexual

experience (r=+.57, p<.05), several homosexual partners (r=+.41, ns), to have used pornography to stimulate himself in masturbation at other times (r=+.41, ns), to have engaged in violent sexual deviance (r=+.36, ns), and to have had his first heterosexual experience at a late age (r=+.49, ns).

Overall, the relationships among outcome variables, while substantial in some cases, are modest enough to make it worthwhile to examine each major outcome variable separately in relation to the predictors.

Individual differences in the impact of the films

Immediate sexual arousal. A history of prior exposure to pornography was not very strongly related to degree of sexual arousal. For the composite sexual arousal scale, no significant correlation exists; however, the dichotomous items "Turn On" and increase in arousal to film four had significant correlations with exposure, r=+.17, p<.05, and r=+.16, p<.05 respectively.

The large composite scale (LIBSEX) of sexual liberalism and heterosexual experience was not strongly related to immediate arousal but early sex history was quite strongly related to degree of immediate arousal. In the case of heterosexual experience, the less experience the person had and the older the age of first petting or intercourse, the greater the arousal. In the case of homosexual experience, the more partners (r=+.25, p<.005) and the more frequently engaged in (r=+.22, p<.01), the greater the arousal.

Neither history of general sexual deviance, character scores, nor beliefs in the detrimental impact of pornography were related to self-reported arousal. Those subjects who were exposed to pornography late were more sexually aroused by the film depicting light petting (film three) than were subjects exposed to pornography at earlier ages.

Physiological arousal. The greater the exposure to pornography, the higher was the physiological arousal (r=+.18, p<.05). The higher the character scores, the greater was the physiological arousal (r=+.28, p<.005). The greater the prior belief in the detrimental impact of pornography, the greater was the physiological arousal (r=+.19, p<.025). Physiological arousal, while positively correlated with age of first heterosexual experience, did not relate significantly to frequency of heterosexual experience (except for the number of partners not loved, where r=-.24, p<.01). But it related positively both to frequency of masturbation in high school (r=+.20, p<.025) and number of homosexual partners (r=+.16, p<.05).

Change in fears of pornography's detrimental effects. The general trend was toward a decreased fear of pornography's effects and the degree of change was associated with not having any history of sexual deviance (r=+.22, p<.01) or *not* having been introduced to heterosexuality early or frequently in high school. The relevant correlations range between .18 (p<.05) and .38 (p<.0005). The greater the sexual tension after the films, the less the fear (r=-.34, p<.0005).

Changes in emotional tension. Schmidt and Sigusch (1970) observed a general increase in emotional level, due largely to increased negative affects (aggression,

restlessness, shock, repulsion). In our study, we combined five items (ability to concentrate, aggression, activity level, uneasiness, quality of sleep) into an index of emotional tension. In general, tension was increased by the experience of watching the films. Emotional tension was greater the higher the character score (r=+.18, p<.05), and the greater the fear of pornography's ill effects (r=+.26, p<.005). While tension was marginally related to immediate arousal (r=+.16, p<.10) and physiological arousal (r=+.17, p<.05), it was more strongly related to increase in sexual desire (r=+.34, p<.0005), engaging in substitute sexual behaviors (r=+.36, p<.0005), decrease in restrictive judgments about exposure of pornography, frequency of masturbation in high school (r=+.20, p<.05) and to not having been sexually deviant (r=-.19, p<.05).

Changes in substitute sexual behaviors. These included sexual dreams, daydreams or fantasies, and discussions of sex. In general, the films increased such behavior. High character scores were positively related to increases in substitute behaviors (r=+.27, p<.005), as was the frequency of high school masturbation (r=+.28, p<.005). Increases in substitute behaviors were also associated positively with increase in sexual desires (r=+.48, p<.0005) and with an increase in masturbation (r=+.22, p<.025).

Changes in judgments of the availability of pornography. In general, subjects were less willing, after viewing these films, to have them be freely available to the public. The degree of change, while related to initial opinion (r=-.34, p<.005), is not strongly related to initial position. The greater the sexual tension after the films, the greater the change toward restrictiveness (r=+.19, p<.05). No other variable contributed much to the prediction of changes in restrictiveness-permissiveness. For example, the frequency of recent heterosexual experience was not related, nor was sexual satisfaction, nor were any of the other variables examined except, of course, increase in the age at which to allow men or women to see such materials.

Changes in sexual behavior. As we have seen, increases in masturbation, petting, and coitus were not strongly interrelated. An increase in masturbation was positively related to frequency of masturbation in high school (r=+.22, p<.025) and to the frequency of masturbation while or after reading pornography (r=+.19, p<.05), and quite strongly related to the frequency of masturbation in the last six months (r=+.60, p<.0005).

An increase in masturbation was associated with a later age of initiation into heterosexual behavior (Age of First Petting, r=+.35, p<.005; Age of First Coitus, r=+.28, p<.025) and also with the frequency of homosexual experience (r=+.39, p<.0005). Those who masturbated more also tended to be among those without serious heterosexual relationships (r=+.18, p<.05).

Because increases in petting and coitus are so highly interrelated (r=+.84), we shall discuss only the correlates of coitus here. Very few correlates existed. And those that did were of quite modest magnitudes. Those who engaged in coitus more following the films had higher character scores (r=+.18, p<.05), were older

(r=+.20, p<.025), and had been more restrictive in their judgments of pornography prior to exposure (r=+.20, p<.05). They had had slightly less coitus in the previous six months (r=-.18, p<.05), less experience with group sex (r=-.26, p<.01), and had a somewhat greater increase in sexual desire (r=+.20, p<.025) than those who did not engage in more coitus following the films.

The pattern of interrelationships is complex and varied enough to suggest the need for a descriptive procedure for reducing the complexity within these measures. We chose the BCTRY system of cluster analysis described by Tyron and Bailey (1970).

Cluster analysis of life history and response to exposure variables

Of the 74 variables entered into the BCTRY analysis, 43 had substantial enough loadings to be part of at least one of the eight clusters extracted. In general, a factor loading of .40 and an average of correlation with the cluster definers of .30 was required to consider an item as part of a cluster. A few items loaded significantly on more than one cluster. Table 5 presents the clusters, the factor loadings of items (in order of size), and the cluster reliability (or internal consistency).

Table 5

CLUSTERS FROM LIFE HISTORY AND REACTIONS TO PORNOGRAPHY VARIABLES

		Factor loadings
1.	Immediate sexual arousal (Reliability = .89)	
D 1.	Summed change scored for self-reported arousal	.96
D 2.	Degree of arousal after film 4	.78
D 3.	Degree of arousal after film 6	.76
D 4.	Urge to masturbate immediately after films	.76
5.	Level of sexual tension during 24 hours after films	.51
6.	History of masturbation in past 6 months	.47
7.	Masturbation in 24 hours after films	.47
8.	Number of sexual fantasies after films	.39
9.	Strength of sexual desire in 24 hours after films	.38
2.	Restrictiveness of judgments about availability of pornography (Reliability = .93)	
D 1.	Restrictiveness after film 4	.95
D 2.	Restrictiveness after film 6	.92
D 3.	Restrictiveness after film 3	.84
D 4.	Restrictiveness prior to seeing any films	.77
3.	Current sexual behavior (Reliability = .80)	
D 1.	Frequency of petting in 24 hours prior to films	.90
D 2.	Frequency of coitus in 24 hours prior to films	.84
3.	Number of orgasms in 24 hours prior to films	.54
4.	Frequency of petting in 24 hours after films	.53
5.	Sleep well in 24 hours after films	.40

Table 5 (Continued)

		Factor loadings
4.	Extent of recent sexual experience (Reliability = .92)	
D 1.*	Rejection of and lack of experience with fellatio	.89
D 2.*	Rejection of and lack of experience with cunnilingus	.89
3.	Reluctance to engage in oral-genital sex	.58
4.*	Frequency of coitus in past six months	-.55
5.*	Frequency of sexual urges in past six months	-.47
6.	Not being in a regular heterosexual relationship	.46
7.	Strength of sexual desire in 24 hours prior to films	-.46
8.	Amount of exposure to pornography	-.34
* For these four items, originally in the IRQ, test-retest reliability items were repeated in the questionnaire after exposure. All four repeated items had very similar loadings.		
5.	Extent of homosexual experience (Reliability = .75)	
D 1.	Frequency of homosexual intercourse	.98
D 2.	Number of homosexual partners	.52
6.	Tendency to discuss sexual matters (Reliability = .85)	
D 1.	Discussions with men in 24 hours after films	.72
D 2.	Discussions with women in 24 hours after films	.71
D 3.	Discussions with women in 24 hours before the films	.71
D 4.	Discussions with men in 24 hours before the films	.70
7.	Physiological arousal (Reliability = .91)	
D 1.	Total index of all physiological changes	.96
D 2.	Having an erection while watching	.85
8.	Late initiation into heterosexual behavior (Reliability = .83)	
D 1.	Age of first heterosexual coitus	.84
D 2.	Age of first petting	.83
D 3.	Age of exposure to pornography	.51
D 4.	Frequency of coitus in high school	-.50
5.	Experience with group sexual activity	-.51
6.	Number of sexual partners not loved	-.48
7.	Fears of pornography's effects (Becker)	.45
8.	Years of schooling completed	.44

Table 6 contains the intercorrelation among oblique factor coefficients. Most of our interpretation will be based on Table 6 with occasional reference to the correlation of specific items with these clusters.

Four of the seven classes of outcome variables formed separate clusters, and in another case (cluster three) sexual behavior before and after the films formed a cluster.

Immediate sexual arousal. The cluster results show that both amount of increase in arousal and the strength (or level) of arousal after the films are highly related. All but one of the components of this latter cluster are items of immediate arousal or of strength of arousal during the subsequent 24 hours. The only life history variables to load heavily are recent frequency of masturbation and frequency of sexual arousal by something read or seen (r=+.42 with the cluster),

Table 6

CORRELATIONS AMONG OBLIQUE CLUSTERS

	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1. Immediate sexual arousal	.03	-.20	.00	.37	.01	.46	.27
2. Restrictiveness of judgments		-.22	.36	-.11	-.35	.08	.18
3. Current sexual behavior			.27	-.09	.23	-.32	-.11
4. Extent of recent sexual experience				-.09	-.30	.10	.16
5. Extent of homosexual experience					.01	.12	.09
6. Tendency to discuss sexual matters						-.03	-.26
7. Physiological arousal							.31
8. Early initiation into heterosexual behavior							

Note: Any r ± .18 or larger is significant at p <.05, two-tailed test.
N = 121.

and it is significant that masturbation in the 24 hours after the film is the only behavioral item to load on this cluster.

The patterns of intercorrelation among clusters reveals that those who were most aroused had more extensive homosexual experience (r=+.37, p<.0005) and a late initiation into heterosexual behavior (r=+.27, p<.01). Additional items relating strongly to immediate arousal were the frequency of coitus in the past six months (r=-.32, p<.001) and self-reported sexual satisfaction (r=-.27, p<.01).

This analysis is both somewhat clearer and stronger than that based entirely on changes in arousal. Here we see that two types of subjects are probably most aroused: those with little heterosexual experience (N=34 virgins), particularly of coitus, who rely on masturbation for sexual release, and those heavily into homosexuality—a much smaller subgroup (N=4 using "several times" as a criterion, or N=8 using more than two different partners as a criterion), who probably respond strongly to the fellatio content of films four and six.

Physiological arousal. While strongly correlated with self-reported arousal, this cluster has a somewhat different pattern of relations. It is more strongly related to late heterosexual initiation (r=.31, p<.001) and to a lack of heterosexual activity in the immediate past (Cluster three, r=-.32, p<.001). Erections were more likely if the persons had not petted or had intercourse in the immediately preceding 24 hours.

Restrictiveness of judgments. Again the cluster analytic patterns were stronger and more revealing than in the analysis of change scores. First, judgments prior to the films were strongly correlated with after-the-film judgments despite the increase in restrictiveness that occurred for most participants. After film six, 51% were more restrictive than they had been at the start. The films were judged to be unacceptable by 57% of the subjects, whereas only 24% had made that judgment prior to seeing the films. Restrictiveness of judgment is strongly related (r=+.36,

$p<.0005$) to cluster four (which had as its definers a rejection of and lack of experience with oral-genital sexual practices). Since one of the popular themes of pornography is just such practices, it is perhaps not surprising that those who reject such practices want to restrict their public availability. A rejection of group sex also correlates highly ($r=+.46$, $p<.0005$) with restrictiveness. In checking the item referring to frequency of coitus in the past six months, one finds it negatively related to restrictiveness ($r=-.35$, $p<.0005$) but self-reported sexual satisfaction is not negatively related but nonsignificantly related in a positive ($r=.13$) direction. Thus, while those subjects most experienced in coitus and most likely to have tried oral-genital practices were the least restrictive in their judgments, those people satisified with their sex lives (or lack of same) tended to be more restrictive.

Because our sample of 121 subjects contained 24 men who were in a Catholic seminary and were almost to the stage of taking a formal vow of sexual abstinence, we decided to redo our major data analysis omitting this group of subjects. The primary reason for this was that a religiously based decision to abstain from heterosexual relations might constitute a strong moderator variable on the relations among life-history, personality, and sexual feelings and behavior variables. Such a possibility is particularly relevant to the last finding reported; namely that restrictiveness of judgments about exposure to pornography was unrelated (tending toward positively related) to satisfaction with one's sexual life. One stereotype of the opponents of pornography is that they are really "hung up" on sex themselves and inclined to project their own repressed sexual fantasies on those who are not so concerned about the availability of sexually realistic and pornographic materials. The finding that sexual dissatisfaction is not part of the fuel for anti-pornography fires is a bit of data that goes contrary to the stereotype. But because one could suppose this result to be due to the seminarians who were both moderately satisfied with their (lack of) sexual life and fairly restrictive in their judgments, the analysis deleting the seminarians is important. In general, that reanalysis yields the same pattern of results for all variables (with 95% of the statistical relationships reported above continuing to be significant and all continuing to have the same general magnitude). In the case of the correlation between sexual satisfaction and restrictiveness, that was exactly the same as in the total sample ($r=+.13$).

Stability of sexual behavior and feelings before and after the films. In most cases, there was moderate stability of behavior prior to and after the films. Those persons who masturbated before tended to do so after with about the same frequency ($r=.50$); likewise for petting ($r=.64$) and coitus ($r=.43$). The same kind of trend held for sexual fantasies ($r=.56$), tension ($r=.40$) and desire ($r=.39$). The pattern is even stronger in the case of talking with a man or woman about sex ($r=.65$ and .66, respectively). It is interesting to note that frequency of coitus after the films did not fall into one cluster. Rather it correlated strongly with some components of clusters three and six. In the case of cluster three, it was discussing sex with women that was predictive of coitus ($r=.37$) and not discussing

it with men (r=.17). Those who engaged in coitus after the films tended very strongly to be those involved in a regular heterosexual relationship (r=.48, $p<.0005$) and who had had frequent coitus in the last six months (r=.55, $p<.0005$).

General issues. A number of issues were raised in our introduction which have not been dealt with explicitly. One issue concerned the relationship between sexual arousal and the restrictiveness of judgments about pornography. No simple linear relationships existed in our data, nor have our initial use of moderator variables yielded anything of interest.

Schmidt and Sigusch (1970) showed that a variety of emotional feelings or moods were altered by exposure to these films when the baseline period was an earlier group testing session. In our work, where our method differed, we found the same kind of pattern. Emotional changes as recalled by the subjects (24 hours after exposure) were primarily negative. They became more uneasy, more aggressive, and less able to concentrate. It is interesting to note, however, that these changes cannot be attributed to increased fears of pornography's ill-effects or to increased guilt over viewing the films. There were no significant relations between decrease in the Becker scale responses and increases in these negative feelings.

We had hypothesized that (1) those persons with a greater amount of prior exposure to pornography and (2) greater experience in sexual deviance would be aroused more (both psychologically and physiologically) and more likely to act on their sexual arousal either through masturbation or heterosexual activity. The first part of the hypothesis was not supported. Amount of prior exposure was unrelated either to arousal or to increased sexual behavior after the films. In the case of sexual deviance, only the homosexuality cluster showed a strong and consistent relation to arousal and to increased masturbation. Violent sexual deviance (rape and child molesting) was not related to either, and precocious heterosexual experience was negatively related to arousal (either psychological or physical) and to increased coitus after the films. In view of the small number of cases with any homosexual experience (N=19) and the much smaller number (N=4 or 8, depending on the criterion) with much experience, the conclusion that homosexual experience and a variety of sexual arousal and masturbation indices are related should be treated as tentative.

Discussion and implications

Because our research design is a pre-test, post-test design with no control group, we cannot be completely confident that the measured arousal was due to the erotically realistic films. But, in view of the work done on these films and similar materials, it seems appropriate to place some confidence in the general pattern of post-test increases in sexual arousal, erections, fantasies, sexual desire, tension, and masturbation as reflecting the impact of film exposure.

When one turns to the question of individual differences in reactions, it seems appropriate to note that those subjects who were most restrictive in their judgments had less contact with women in relationships that might lead to heterosexual behavior, less recent sexual experience, a later age of initiation into heterosexual experience, and a strongly negative attitude to oral-genital sexual practices. They were not, however, less satisfied with their sexual lives. Those with a history of sexual deviance were somewhat prone to permissive judgments (r=-.20, p<.05).

Those subjects most likely to engage in heterosexual activity after the films were those who, for the most part, already had established heterosexual relations and histories of petting and coitus. Those without such relations were more likely to be (1) highly aroused and (2) to engage in masturbation. A small subgroup of those who were active in homosexual practices was highly aroused and perhaps prone to (we did not assess this) repeat their homosexual practices. Those who were highly aroused tended to be (1) less experienced heterosexually, *or* (2) experienced in homosexual behavior. But, interestingly, a history of unusual heterosexual experience such as fellatio, cunnilingus, or group sex was little related to arousal.

In general, our results have been consistent with those of Sigusch and Schmidt. The immediate impact of exposure is sexual arousal, but also an unfavorable reaction consisting of negative feelings and a judgment that such materials should not be readily available to the general public. The films stimulated some subjects to engage in more masturbation, but it is not clear that they produced an increase in other forms of sexual behavior; most of those who engaged in heterosexual behavior afterwards were persons already involved in significant relationships (married or dating) or who had some history of recent heterosexual coitus. Homosexual behaviors and other forms of deviance after the films were not assessed. If homosexual behaviors had been assessed, perhaps there would have been a stimulation effect, but it seems likely that such an effect would hold only for those already into homosexual practices.

Limitations. Two of the most important limitations both of this study and those reported thus far by Schmidt and Sigusch are short duration of the follow-up (24 hours) and the limited range of behaviors assessed. Neither set of studies assessed homosexual or highly deviant heterosexual behaviors. Neither study followed subjects to determine whether initial exposure leads one to seek further exposure and thus subsequently to become involved in a sexually precocious or deviant subculture. Finally, the target samples (college-educated and reasonably mature, 18 years or older) is not the target population of popular concern. One wonders what would happen in the case of younger persons of both sexes and from all socioeconomic strata.

In one sense, our data and that reported by Schmidt and Sigusch are a source of consolation. Some of the worst public fears and concerns are not justified. In another sense, however, our data are inadequate to deal with more subtle concerns having to do with age of exposure and context of exposure (repeated and

socially reinforced, for example). Nothing short of carefully designed, comprehensive, longitudinal work is going to be satisfactory.

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APPENDIX A

QUESTIONNAIRE ON THE VIEWING OF EROTIC FILMS (SPRING 1970)

You are aware that you will be seeing films that will contain explicit pictures of sexual relations. We want to know what you expect from these films.

I expect to be (circle the appropriate answer):

1.	indifferent to them	1. Yes	2. No	
2.	sexually turned on by them	1. Not at all	2. Somewhat	3. Very much
3.	disgusted at what I see	1. Not at all	2. Somewhat	3. Very much
4.	disgusted at myself for looking at them	1. Not at all	2. Somewhat	3. Very much
5.	worried that I might like the films too much	1. Not at all	2. Somewhat	3. Very much
6.	afraid seeing the films might make me sexually abnormal or queer	1. Not at all	2. Somewhat	3. Very much
7.	eager to have other guys see the films	1. Not at all	2. Somewhat	3. Very much
8.	eager to have girls see the films	1. Not at all	2. Somewhat	3. Very much
9.	I expect to feel like a bad person if I enjoy the films	1. Not at all	2. Somewhat	3. Very much

10. At this point in time, how sexually aroused are you? (Circle the appropriate number.)

1	2	3	4	5	6	7	8	9
Not at all		Slightly aroused		Moderately aroused		Strongly aroused		Extremely aroused

11. In general, do you think that films showing explicit sexual relations should be available to the public for viewing or that they should be restricted?

1	2	3	4	5
Definitely available	Probably available	Depends on the film	Probably restricted	Definitely restricted

12. If such films should be restricted, at what age should men be allowed to view them? (Fill in the age; if you think no one should ever be able to see them, write "never"): _____

13. At what age should women be allowed to view such films? _____

DO NOT TURN THE PAGE UNTIL YOU ARE TOLD TO DO SO

14. At this point in time, how sexually aroused are you?

1	2	3	4	5	6	7	8	9
Not at all		Slightly aroused		Moderately aroused		Strongly aroused		Extremely aroused

15. Should this kind of film be available to the public for viewing or should it be restricted?

1	2	3	4	5
Definitely available	Probably available	Uncertain	Probably restricted	Definitely restricted

16. At what age should men be allowed to see this kind of film? _____

17. At what age should women be allowed to see this kind of film? _____

DO NOT TURN THE PAGE UNTIL YOU ARE TOLD TO DO SO

18. At this point in time, how sexually aroused are you?

1	2	3	4	5	6	7	8	9
Not at all		Slightly aroused		Moderately aroused		Strongly aroused		Extremely aroused

19. Should this kind of film be available to the public for viewing or should it be restricted?

1	2	3	4	5
Definitely available	Probably available	Uncertain	Probably restricted	Definitely restricted

20. At what age should men be allowed to see this kind of film? _____

21. At what age should women be allowed to see this kind of film? _____

DO NOT TURN THE PAGE UNTIL YOU ARE TOLD TO DO SO

22. At this point in time, how sexually aroused are you?

1	2	3	4	5	6	7	8	9
Not at all		Slightly aroused		Moderately aroused		Strongly aroused		Extremely aroused

23. Should this kind of film be available to the public for viewing or should it be restricted?

1	2	3	4	5
Definitely available	Probably available	Uncertain	Probably restricted	Definitely restricted

24. At what age should men be allowed to see this kind of film? _____

25. At what age should women be allowed to see this kind of film? _____

Now complete all the questions in this form

26. While watching these films, did you have a complete or partial erection?

1. No 2. Yes

27. While watching these films, did you have semen emission *without* ejaculation or climax?

1. No 2. Yes

28. Did you have an ejaculation or climax?

1. No 2. Yes

29. Did you feel the urge to masturbate or stimulate yourself sexually?

1. Not at all 2. Slightly 3. Moderately 4. Much 5. Very much

30. Did you masturbate or stimulate yourself while watching these films?

1. No 2. Yes

31. From your experience and observation, consider each set of statements below and circle one answer in each set that describes what is *most* likely to happen as a result of high school students seeing movies, photographs or reading material which includes nudity or sexual activity.

A. 1. They learn useful things about sex.
2. They learn some useful and some harmful things about sex.
3. They learn harmful things about sex.

B. 1. They are more likely to get into trouble.
2. They are less likely to get into trouble.

C. 1. They get sexually turned on.
2. They get sexually turned off.

D. 1. They are more likely to gain friends.
2. They are less likely to gain friends.

E. 1. They will want to see less material.
2. They will want to see more material.

How did you personally react to the films you have seen? (Answer each item by circling *one* alternative which best describes your reaction.)

32.	Indifferent	1. Yes	2. No	
33.	Sexually turned on	1. Not at all	2. Somewhat	3. Very much
34.	Disgusted at what I saw	1. Not at all	2. Somewhat	3. Very much
35.	Disgusted at myself for looking at the films	1. Not at all	2. Somewhat	3. Very much
36.	Worried that I liked the films too much	1. Not at all	2. Somewhat	3. Very much
37.	Afraid they would make me queer or sexually abnormal	1. Not at all	2. Somewhat	3. Very much
38.	Eager to have other guys see the films	1. Not at all	2. Somewhat	3. Very much
39.	Eager to have girls see the films	1. Not at all	2. Somewhat	3. Very much
40.	Got some good ideas about what to do myself	1. Not at all	2. Somewhat	3. Very much
41.	Felt I was a bad person for liking the films	1. Not at all	2. Somewhat	3. Very much

42. What is your opinion about premarital sexual intercourse for women? (Circle the most liberal or least restrictive statement with which you agree.)

1. It is all right for women after 16 years of age.
2. It is all right for women after 20.
3. It is all right for women who feel affection for their partners.
4. It is all right for women who are in love.
5. It is all right for women who are engaged.
6. It is wrong; women should wait until they are married.

43. I would be reluctant to engage in oral-genital sex.

1. Strongly disagree.
2. Moderately disagree.
3. Slightly disagree.
4. Slightly agree.
5. Moderately agree.
6. Strongly agree.

44. In the past six months, how often, on the average, did you engage in sexual intercourse?

1. Not at all.
2. A few times.
3. Once or twice a month.
4. Once or twice a week.
5. Three or four times a week.
6. Five or more times a week.
7. Daily or more often.

45. How would you rate your sex life?

1. Very *un*satisfactory.
2. *Un*satisfactory.
3. Somewhat *un*satisfactory.
4. Somewhat satisfactory.
5. Satisfactory.
6. Very satisfactory.

46. I am sexually aroused by something I see or read about once every

1. Never.
2. Month.
3. Two weeks.
4. Week.
5. Two or three days.
6. Day.

47. I feel the urge to engage in some kind of sexual activity about once every

1. Never.
2. Month.
3. Two weeks.
4. Week.
5. Two or three days.
6. Day.

48. Over the past six months, how often have you masturbated?

1. Several times a day.
2. Daily.
3. Three or four times a week.
4. Once or twice a week.
5. Three or four times a month.
6. Once or twice a month.
7. Not at all.

49. Has your sexual partner stimulated your sex organ with her mouth or lips?

1. Frequently.
2. Several times.
3. Once or twice.
4. Never, but I would like it.
5. Never, and I wouldn't permit it.

50. Have you stimulated your sex partner's genitals with your mouth or lips?

1. Frequently.
2. Several times.
3. Once or twice.
4. Never, but I've wanted to.
5. Never, and it is unlikely that I ever would.

51. Now, we would like you to use your imagination and complete the story which is started below.

James Jones is a person who took part in this research study earlier and saw exactly the same films that you have just seen. On his way home, he was driving along the Valley Highway late at night and saw a car stopped by the road with the hood up. He stopped to offer his help, and discovered that the driver was an attractive 20 year old woman.

Tell us what you think would happen between James and the woman. In composing your story, answer the questions: What happened and what was the outcome? How do they feel about what they did? Use the back of this page if necessary.

APPENDIX B

Answer the following questions about the 24-hour period *before* you saw the films. (If you did not do it, put a zero in the blank. For each answer fill in a *number*.)

1. How many times did you masturbate?_____ (Fill in a *number*.)

2. How many times did you engage in petting?_____

3. How many times did you have sexual intercourse?_____

4. How many orgasms did you have?_____

5. Did you have sexual dreams during the 24 hours *before* seeing the films?

   1. None I can recall 2. Yes

6. Did you have sexual daydreams or fantasies that occurred at times when you were *not* doing something sexual?

   1. No, none 2. Yes, one or two 3. Yes, several 4. Yes, many

7. How much talk or discussion about sexual topics did you participate in *with another guy or guys*?

   1. None 2. A little 3. Quite a bit 4. A great deal

8. How much talk or discussion about sexual topics did you participate in *with a girl or girls*?

   1. None 2. A little 3. Quite a bit 4. A great deal

9. How much sexual tension did you experience during the 24-hour period *prior to* seeing the films?

   1. None 2. A little 3. Quite a bit 4. A great deal

10. How much desire for sexual activity did you have during the 24 hours *prior to* seeing the films?

    1. None 2. A little 3. Quite a bit 4. A great deal

Answer the following question only if you masturbated during the 24-hour period *prior to* seeing the films.

11. While you were masturbating, did you think or fantasize about sexual material (stories, pictures, films, etc.)?

    1. No 2. Yes

Answer the following two questions only if you had sexual intercourse during the 24-hour period *prior to* seeing the films.

12. During intercourse, did you have thoughts or fantasies about sexual material (stories, pictures, films, etc.)?

    1. No 2. Yes

13. Did you use techniques or positions which were new or novel to you?

    1. No 2. Yes

Answer the following questions about the 24-hour period *after* you saw the films.

14. How many times did you masturbate? _____ (Fill in a *number*.)

15. How many times did you engage in petting? _____

16. How many times did you have sexual intercourse? _____

17. How many orgasms did you have? _____

18. Did you have sexual dreams during the 24 hours *after* seeing the films?

    1. None I can recall 2. Yes

19. Did you have sexual daydreams or fantasies that occurred at times when you were *not* doing something sexual?

    1. No, none 2. Yes, one or two 3. Yes, several 4. Yes, many

20. How much talk or discussion about sexual topics did you participate in *with another guy or guys*?

    1. None 2. A little 3. Quite a bit 4. A great deal

21. How much talk or discussion about sexual topics did you participate in *with a girl or girls*?

    1. None 2. A little 3. Quite a bit 4. A great deal

22. How much sexual tension did you experience during the 24-hour period *after* seeing the films?

    1. None 2. A little 3. Quite a bit 4. A great deal

23. How much desire for sexual activity did you have during the 24 hours *after* seeing the films?

    1. None 2. A little 3. Quite a bit 4. A great deal

Answer the following question only if you masturbated during the 24-hour period *after* seeing the films.

24. While you were masturbating, did you think or fantasize about sexual material (stories, pictures, films, etc.)?

1. No 2. Yes

Answer the following two questions only if you had sexual intercourse during the 24-hour period *after* seeing the films.

25. During intercourse, did you have thoughts or fantasies about sexual material (stories, pictures, films, etc.)?

1. No 2. Yes

26. Did you use techniques or positions which were new or novel to you?

1. No 2. Yes

With respect to the following emotional and physical states, did you notice any change between the day before you saw the films and the day (the 24 hours) after you saw it?

27. The ability to concentrate on what you were doing

1	2	3	4	5
Greatly decreased in the 24 hours after the films	Somewhat decreased in the 24 hours after the films	No change in the 24 hours after the films	Somewhat increased in the 24 hours after the films	Greatly increased in the 24 hours after the films

28. Having unusual thoughts or peculiar feelings or any sense of uneasiness

1	2	3	4	5
Greatly decreased in the 24 hours after the films	Somewhat decreased in the 24 hours after the films	No change in the 24 hours after the films	Somewhat increased in the 24 hours after the films	Greatly increased in the 24 hours after the films

29. General activity

1	2	3	4	5
Greatly decreased in the 24 hours after the films	Somewhat decreased in the 24 hours after the films	No change in the 24 hours after the films	Somewhat increased in the 24 hours after the films	Greatly increased in the 24 hours after the films

30. Aggressiveness

1	2	3	4	5
Greatly decreased in the 24 hours after the films	Somewhat decreased in the 24 hours after the films	No change in the 24 hours after the films	Somewhat increased in the 24 hours after the films	Greatly increased in the 24 hours after the films

31. Sleep

1	2	3	4	5
Much less restful after seeing films	Less restful after seeing films	No change after seeing films	More restful after seeing films	Much more restful after seeing films

32. General physical condition

1	2	3	4	5
Much worse in the 24 hours after the films	Worse in the 24 hours after the films	No change in the 24 hours after the films	Better in the 24 hours after the films	Much better in the 24 hours after the films

Effects of Exposure to Pornography

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ABSTRACT

Twenty-three experimental and nine control subjects (young adult college males) were studied to evaluate the hypotheses that repeated exposure to pornography causes decreased interest in it, less response to it, and no lasting effect from it. All subjects had an initial battery of tests and saw the first movie; the experimental subjects were then exposed to pornography for 90 minutes per day for 15 days; all subjects then were retested and saw a second movie. Physiological measures included penile erection, acid phosphatase secretion and heart rate. Psychological measures included self-report, standardized tests and psychiatric interviews. Results confirmed the hypotheses and it was concluded that exposure to pornography was a relatively innocuous stimulus without lasting or detrimental effect on the individual or his behavior.

INTRODUCTION

"The frustration of the pornographic promise results not in continued excitement, but in boredom" (Sonenschein, 1969). This statement concisely expresses one strong opinion regarding the possible effects of pornography—that it does not have, in fact, any lasting effect. The results of the experience in Denmark where restrictions on the sale of pornographic books, magazines, and movies have been progressively lifted provide support for this position. Ben-Veniste (1968) found that satiation was rapid to each new class of material that was placed on the market. It appeared that the novelty of each more pornographic item being available caused an immediate increase in consumption of it which was quickly followed by a decrease to a level below that found during the time of prohibition. The results of the Danish experience give some indication of the effect that free

access to pornography has on group behavior, but the question of the applicability of the findings to individuals and to this country remains unclear.

Schmidt and Sigusch (1970) exposed a large number of men and women to an explicitly pornographic movie and found that both sexes showed a moderate increase of sexual activity, sexual fantasy, and sexual drive over the next 24 hours as compared to normal. The minimal amount of change led the authors to conclude, however, that no one need fear that detrimental changes will be brought about by exposure to pornography. Another line of evidence which points to the innocuousness of pornographic materials is that most categories of male sex offenders report little sexual arousal in response to pornography (Gebhard, Gagnon, Pomeroy, & Christensen, 1965).

Even though there are lines of evidence which point to pornography being boring and having little effect, there are many individuals and groups which believe that it is harmful and oppose the freeing of restrictions on its sale. In part this opposition to pornography is not based on any evidence bearing directly on the question of whether pornography has a detrimental or lasting effect on an individual regardless of the amount of usage. Although there is a vast literature relating to sex,[1] there are relatively few studies which are concerned with the issue of the effect of visual stimulation by pornography on human attitudes, personality, or behavior. The studies which have been done suffer from one or more of the following deficiencies: the use of materials which have a limited amount of sexual stimulus value (e.g., Davis & Buchwald, 1957), the confounding of sexual response measures with muscular effort (e.g., Bartlett, 1956; Masters & Johnson, 1966), or the use of response measures which do not explicitly measure sexual arousal (see Zuckerman, 1969, for a discussion of this area). Furthermore, all the studies which have utilized pornography as a stimulus have employed it as a "one-shot," unitary exposure, and no experiments have studied the effects of prolonged or repeated exposure to pornography. The experiments which have used a longitudinal approach have concentrated on repeated measurements over time in response to a single stimulus (Cartwright, Bernick, Borowitz, & Kling, 1969).

The problem of measuring sexual arousal is a complex one since changes could conceivably occur in any of a large number of physiological and psychological measures. Wenger, Averill, and Smith (1968), in studying male subjects' responses to reading erotic material, measured blood pressure, skin conductance, heart rate, respiration, blood volume pulse and finger temperature. A number of investigators have measured penile erection utilizing different techniques (Fisher, Gross, & Zuch, 1965; Freund, 1965; Jovanovic, 1967; McConaghy, 1967). The relation between sexual stimulation and the presence of specific secretions, such as the enzyme acid phosphatase, in the urine has been investigated (Clark & Treichler, 1950; Gustafson, Winokur, & Reichlin, 1963). The reliability and validity of all these physiological techniques for measuring sexual response are open to question

1. Much of the literature on sexual behavior does not help in the question of the legalization of pornography either because it is concerned with animal behavior (e.g., Beach, 1965), or because it is concerned with the genetic, endocrine, and central nervous system mechanisms underlying behavior (e.g., Money, 1965).

(Zuckerman, 1969), but are all that are available at the present time. By using a number of these measures, it should be possible to show any change which might occur as a result of repeated exposure to pornography over a period of time. In addition to these physiological measures, evaluations of behavioral and attitudinal change are possible by means of observation, self-report, and standardized tests.

This study focused on the effect of pornography presented over a period of time. It was predicted that repeated exposure to pornography would reduce both an individual's interest in it and response to it. It was also hypothesized that pornography would have minimal immediate effect and no lasting effect on either attitudes or behavior. Several kinds of measurement instruments were used to increase the probability that the effects of pornography would be adequately assessed.

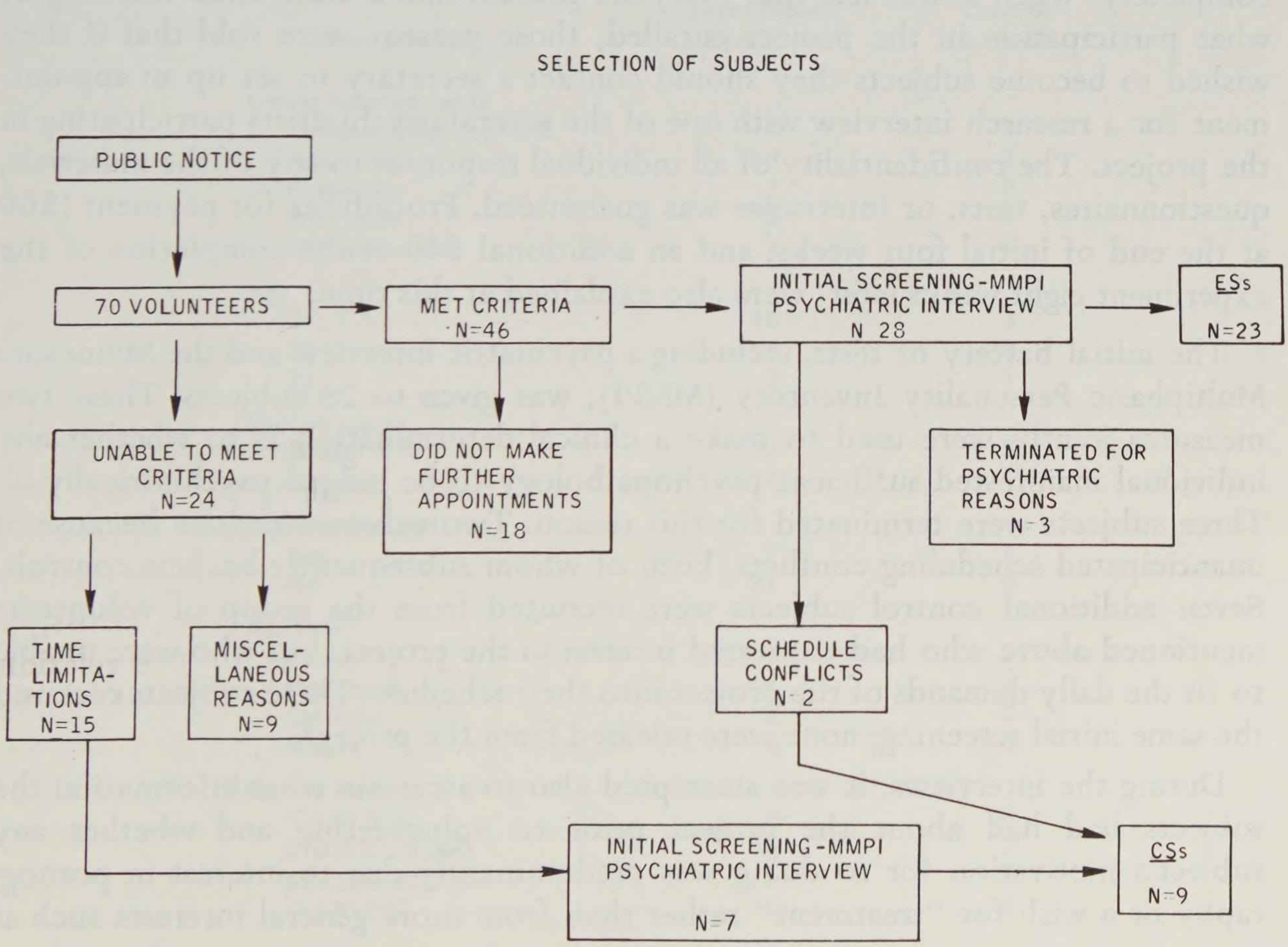
METHOD

Subjects

Research subjects numbered 23 in the experimental group and nine in the control group. Research subjects were solicited (see Figure 1) by means of notices placed on bulletin boards in prominent places on several college campuses and

Figure 1

DIAGRAM OF SUBJECT SELECTION PROCEDURES



elsewhere. Subjects were invited to participate in a "psychophysiological experiment" if they were males between the ages of 21 and 23, and would be available 90 minutes a day at the same time each day for four weeks and once again eight weeks later. The name and phone number of one of the investigators was given, and the figure of $100 was prominently displayed as the amount subjects could earn.

Seventy volunteers responded to this notice. They were seen in preliminary group interviews where their eligibility according to the above critiera was verified. Despite attempts to determine eligibility prior to this interview, nine volunteers were outside of the age range specified and at least 15 declined specifically because they could not fit the project as outlined into their schedule. Control subjects were subsequently solicited from this group.

Volunteers were fully informed of the subject of the study and of the experimental procedures involved. They were urged not to sign up for further participation if they felt that either the content or the procedures of the project would be distasteful to them, or if they were doubtful of their ability to fully cooperate with either the time commitments or the necessity for full, frank, and honest disclosure of details concerning their personal (especially sexual) lives. Immediate decisions were discouraged since it was felt that the group situation might put pressure on some individuals to respond differently than they might under other circumstances. All questions about the project were answered completely. When it was felt that everyone present had a clear understanding of what participation in the project entailed, those present were told that if they wished to become subjects they should contact a secretary to set up an appointment for a research interview with one of the several psychiatrists participating in the project. The confidentiality of all individual responses to any of the materials, questionnaires, tests, or interviews was guaranteed. Procedures for payment ($60 at the end of initial four weeks, and an additional $40 at the completion of the experiment eight weeks later) were also explained at this time.

The initial battery of tests, including a psychiatric interview and the Minnesota Multiphasic Personality Inventory (MMPI), was given to 28 subjects. These two measures jointly were used to make a clinical determination as to whether any individual manifested sufficient psychopathology to be judged psychiatrically ill. Three subjects were terminated for this reason. Two others withdrew because of unanticipated scheduling conflicts, both of whom subsequently became controls. Seven additional control subjects were recruited from the group of volunteers mentioned above who had expressed interest in the project, but who were unable to fit the daily demands of the project into their schedule. These subjects received the same initial screening; none were released from the project.

During the interviews, it was attempted also to ascertain what information the subjects had had about the project prior to volunteering and whether any subject's motivation for so doing was predominantly due to interest in pornography or a wish for "treatment" rather than from more general interests such as

wanting to contribute to science, vary an unexciting routine, satisfy their curiosity or (as was most common) "earn a buck."

No attempt was made to select subjects with respect to marital status, prior exposure to pornography, or previous sexual experience, except that it was decided in advance not to take as subjects any volunteers whose experience with pornography was "extensive" or whose sexual preferences were homosexual. A history of past consultation or therapy with a psychiatrist was not in itself an excluding factor if the volunteer's current functioning was within the range of normal as assessed by psychiatric interview and MMPI. There was no attempt at selection by student status, educational level, political attitudes or any other criteria; consequently, representation of all these characteristics was fairly broad, except for the biases associated with the project's criteria about age and scheduling requirements, and the artifacts related to soliciting for volunteers in universities and their immediate environs. Not all subjects were currently students, although all had had at least two years of college and a few had completed one year of graduate school. Some characteristics of the subject population are presented in Table 1.

TABLE 1

CHARACTERISTICS OF THE SUBJECT POPULATION

Characteristic	Experimental subjects	Control subjects
Living Arrangements		
Campus residence halls	4	1
Apartment	13	7
Fraternity	2	0
With wife	3	1
With parents	1	0
Age		
21	10	3
22	11	5
23	2	1
Marital status		
Single	19	8
Married	4	1
Parents divorced		
Yes	2	1
No	21	8
Religion		
Jewish	1	2
Protestant	14	7
Catholic	2	0
None	6	0
Family income		
<$10,000	3	0
$10,000-20,000	15	3
$20,000-30,000	5	2
>$30,000	0	4

TABLE 1 (Continued)

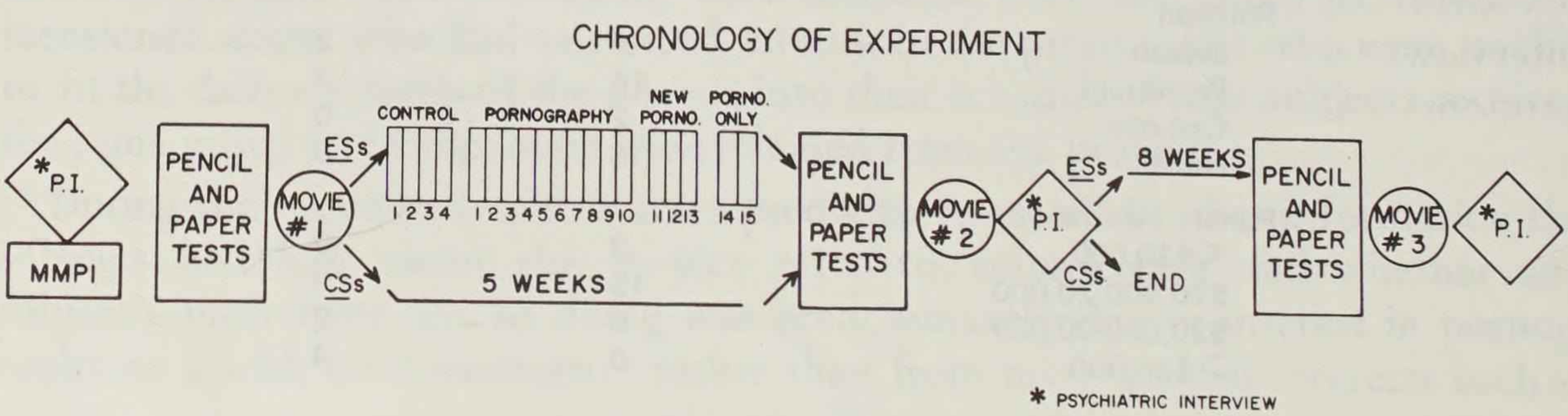
Characteristic	Experimental subjects	Control subjects
Number of siblings		
0	3	0
1	9	3
2	8	4
3	2	0
4	1	1
5	0	1
Position among siblings		
Oldest	14	7
Middle	2	1
Youngest	7	1
Educational level completed		
College 2	1	1
College 3	6	1
College 4	11	4
1 or more graduate	5	3
Working at time of study		
Yes	10	8
No	13	1

General design and procedure

Following the initial screening (see Figure 2) subjects were given additional paper and pencil tests and were then shown the first of three 22-23 minute "stag" movies (M1; M2 occurred approximately five weeks after M1, and M3 approximately eight weeks after M2). During this and subsequent movies, physiological measures were taken, including heart rate (HR), respiration (RESP), blood volume pulse (BVP), penile circumference (PC), skin temperature (TEMP), acid phosphatase (AP), body movement and strength of cardiac contraction. During these movies the subject was alone. The week after M1 the daily 90-minute sessions began with three experimental subjects being run simultaneously in three individual separate but similar rooms. These sessions continued for the next four weeks.

Figure 2

CHRONOLOGY OF EVENTS IN THE STUDY



The first week was a control week during which no pornography was available to the experimental subjects so that baseline measures of AP secretion and Clyde Mood Scale norms could be gathered. The next three weeks, these subjects had available (*a*) pornographic movies which they could show themselves on self-load projectors, (*b*) still photographs and glossy magazines, (*c*) novels, and (*d*) non-pornographic materials. Subjects were scheduled in a different room on successive days. Additional material was added during the third week and all non-pornographic materials were removed for the last two days. During these daily sessions subjects recorded the nature of their activity for each 10-minute period. M2 was given immediately after the third week of pornography and at this time the subjects filled out additional questionnaires and had a second psychiatric interview. Eight weeks later they returned for a third and final movie, before which they again had tests to fill out and after which they had a final interview and a debriefing session.

Control subjects were shown "before" and "after" movies (M1 and M2) at approximately the same interval, but without the exposure to pornography on a daily basis intervening.

Psychological instruments

Screening tests. The initial psychiatric interview, with particular emphasis on sexual history, and an MMPI (Dahlstrom & Welsh, 1960) were used as basic instruments to screen out marked psychological and sexual deviance as well as to gather baseline data. The interview was open-ended and semistructured in the sense that a check list of topics was utilized to be certain particular areas of history were not omitted. Interviews were performed by three faculty psychiatrists of similar age, sex, and theoretical orientation. No further analysis of these data was attempted other than using several scales of the MMPI to dichotomize subjects into subgroups for testing of specific hypotheses.

Pre- and post-tests. Four additional paper-and-pencil tests[2] were administered before and after the experimental procedure to evaluate the presence of attitudinal or personality changes associated with repeated exposure to pornography. The Gough Adjective Check List (Gough & Heibrun, 1965) and the Thorne Sex Inventory (Thorne, 1966; Thorne & Haupt, 1966) were given before M1 and again before M2. A 275-item questionnaire was adapted from multiple sources and used for the assessment of attitudes, information, and previous behavior, particularly sex knowledge and practices, including pornography. Finally, directed psychiatric interviews were utilized after M2 and M3. These focused upon the subject's perceptions and subjective evaluation of changes within himself which might be related to his exposure to pornographic materials.

The National Survey Instrument developed by the Commission was received too late to include in the body of the experimental design; however, selected items from this test were administered to subjects after M3. The data from the

2. Examples of most of the written tests used in this study are given in Appendix B.

instrument will not be dealt with further, but the tabulated results are given in Appendix A.

Daily tests. Two tests were administered to the subjects each day before they began their 90-minute session. The first was the daily questionnaire (DQ) which was developed for this project and was designed to measure day-by-day changes in 13 important areas of function including sexual, personal, and social behavior since the last session. After completing the DQ, the subjects filled out a Clyde Mood Scale (Clyde, 1963).

Measures during the 90-minute session

Prior to entering the experimental room, subjects voided completely, put on a condom (used only to prevent loss of AP from drippage or ejaculation), and drank 500 cc. of water so that they could void at the end of the session without straining. At the time of the initial void the subject started a stopwatch so that a precise measure of the time interval until next emptying of the bladder could be obtained. In the rooms, pornographic movies, stills, photo magazines, novels, and nonpornographic materials were available to the subjects. They were free to choose any of these materials with which to occupy themselves during the session. The only requirement was that they indicate on a log sheet each 10 minutes the activities they had engaged in and how it had affected them. One measure, therefore, was the number of 10-minute periods during which a subject chose to engage in viewing or reading pornographic materials. The subjects' reliability in reporting this was checked by occasional monitoring of their behavior through a one-way mirror. Following the session the subject removed the condom and placed it in a container into which he then emptied his bladder completely. The stopwatch was stopped, and the watch, urine, and activity sheet were returned to the experimenter. The handling of the timed urine sample is discussed below.

Procedure for the three movies

Three pornographic movies ("stag films") of approximately 22-23 minutes duration were obtained from the Institute for Sex Research[3] for presentation as standard stimuli in this study. The films were comparable in terms of age and cinematographic quality of the film, the relative youth and attractiveness of the participants, and the absence of zooerotic, group, male homosexual or other activity or themes which might have low erotic likelihood for the subjects. In order to control for the possibility that these films might be different in their ability to arouse the subjects, subjects were randomly assigned to one of three

3. Part of the "smorgasbord" of pornography used in this project was purchased on the open market, especially the novels. The films used as standard stimuli during M1, M2, and M3 were obtained from the Institute for Sex Research, Bloomington, Indiana, and, in this regard, we would like to thank Dr. Gebhard, Director of the Institute, for the permission to copy some of his films. The assistance of Mr. Dilenbach, Film Curator of the Institute, was instrumental in the selection of the stimulus films from the mammoth footage of film it was necessary to go through in order to select three which were approximately comparable. The majority of the pornographic material used in this project, however, was obtained from the New York Office of the U.S. Treasury Department Bureau of Customs. We thank them for passing on to us some of the material which they had confiscated as contraband.

groups in which the order of presentation of the three films (ABC) was either ABC, BCA, CAB. The first and third sequences were seen by eight experimental and three control subjects, and the second sequence by seven experimental and three control subjects.

Each of the experimental and control subjects saw two movies and in addition 20 of the 23 experimental subjects saw a third movie. Movies were shown to each subject on an individual basis by appointment arranged so that any one subject was shown each of the movies at approximately the same time of day. The first two movies (M1 and M2) were separated by approximately five weeks and the third (M3) came about eight weeks after M2. The procedure for each of the movies was identical. Upon entering the laboratory the subject was given questionnaires to fill out. After completing these forms he emptied his bladder and discarded the specimen; the time of the voiding was noted. He was then left alone in the room in which he was to be shown the movie. He was instructed to undress completely (except for shoes and socks) and dress himself in a large loose-fitting robe which was supplied. He then put on the penile strain gauge and a condom and called for the experimenter who returned to the room. The subject was connected to the various measuring devices (for specifics on these transducers, see below), was given 500 cc. of water to drink, and was told that there would be 5-10 minutes of rest followed by a 20-25 minute movie and another short rest. He was also asked to notify the experimenter when he finished the water so that the lights could be turned off.

The room was completely darkened during the entire course of the measurements except for the period of time when the movie was shown, during which there was reflected light from the movie screen. The projector was located on the experimenter's side of a one-way screen. The subject's room was electrically shielded and extraneous noise was severely attenuated. Room temperature was maintained at a constant comfortable level. The experimenter was always available to the subject via an intercom system.

Following the movie the experimenter entered the room, detached the subject from the transducers, instructed him to get dressed and then to urinate, without undue straining, completely emptying his bladder into the bottle(s) provided, and to notify the experimenter when he finished so that the time elapsed since the initial voiding could be ascertained. When he had completed dressing and voiding, the subject was released.

Physiological measures during the three movies

Blood volume pulse. BVP was obtained from a photoplethysmograph attached to the subject's left earlobe. Light from a "grain of wheat" bulb was shown through the earlobe and picked up by a photocell which was itself part of a bridge circuit. As the amount of blood in the ear varied due to the cardiac cycle and vasoconstriction or dilation, the amount of light passing through the ear varied and in turn varied the output from the photocell. The resulting signal was fed to an Offner-Beckman Dynagraph to be amplified, and recorded, as were all the

measures which follow. The slope of the ascending limb of the BVP was obtained from an electronic differentiating circuit and recorded on another channel. This slope measure has been used in animals as an index of the contractile state of the heart which is almost entirely under the control of the sympathetic nervous system. (For a fuller discussion of the rationale and technique see Obrist, Sutterer & Howard, 1970; Howard, Obrist, Martin, Smithson & Sutterer, 1969.)

Earlobe temperature. The temperature of the right earlobe was obtained from a thermocouple clipped to the earlobe. The sensitivity of the device enabled discrimination of temperature changes of the order of 0.1°F.

Penile circumference. The PC was measured by a strain gauge around the penis approximately one inch from the base. The gauge was a silastic rubber tube filled with mercury and capped with electrodes at each end. As the tube is stretched, its resistance varies; and using a bridge circuit, changes in circumference can be measured. No attempt to convert to absolute units was made but each subject used the same gauge each time a measurement was made, and there was no apparent drift. The device was applied by the subject following detailed instructions and the lead was taped to the thigh to prevent twisting and pulling. The subjects were instructed to try to duplicate the way they had applied it previously each time they applied it subsequent to M1.

Other somatic measures. The subject's respiration was measured by connecting a bellows across his chest which was led to a Statham pressure transducer. The subject's movements during the movie were measured by connecting the pneumatic chair in which he was sitting to another Statham strain gauge. Subjects were instructed to avoid unnecessary movements.

Data quantification. The physiological measures were quantified for one minute during a rest period immediately prior to the beginning of the movie. These measurements were then used as a baseline. Following the onset of the film, 30 seconds of data were quantified every two minutes for the first 20 minutes (giving 10 measures) and for a period of 30 seconds starting two minutes following the end of the film. HR is simply twice the counted number of beats during the period except for the first minute. RESP is likewise the number of breaths during the period on a breaths-per-minute basis. TEMP and PC are quantified as the number of millimeters of channel width above the baseline at the beginning of the period (TEMP was subsequently converted to degrees Fahrenheit). Slope of BVP is the average value in mm. of the first 10 beats in the period. Subject movements were counted but so few occurred, that is, the subjects were so quiet, that the measure was not further analyzed.

Determinations of urinary acid phosphatase

Timed urine specimens were collected during each daily exposure and at each physiological recording session. From these specimens aliquots were taken to be analyzed by the method of Huggins and Talalay (1945) for the amount of phenophthalein derived AP. This method measures the amount of phenophthalein (othal) unbound from a substrate of othal-phosphate. The amount of prostatic AP

activity can then inferentially be expressed in terms of mgm. of othal. As there are no established standard units for expressing this activity, and because of wide variations in volumes as well as somewhat irregular time periods, this measure is expressed in terms of activity per unit of time. Additionally, determinations of urinary creatinine were done in order to have the alternative of expressing our results in terms of activity per unit creatinine. This would be another means of establishing internal standards with respect to the relationship among an individual's own serial determinations.

Unfortunately, an inordinate amount of difficulty was experienced with the AP determinations. The degree of unreliability of our initial values was not discovered until after the experimental design was altered on the basis of these data[4] and almost all specimens analyzed. The method and procedures were reviewed until repeatable results could once again be obtained. AP determinations were repeated using an aliquot of the original urine specimen which had been stored with toluene (to prevent bacterial growth) in the refrigerator at a temperature of 40°F.

Although reliable results were finally obtained, there are several difficulties with the data. AP determinations on urines collected during M3 were performed after no more than a few days storage while all others were stored from at least two months (M2) up to three and one-half months (M1) with the storage of the daily specimens being intermediate. In this regard, Barclay,[5] who has done extensive work with urinary AP, has found that while AP values of "unstimulated" (i.e., control) urines are reasonably stable at room temperature and without special preparation, AP values of "aroused" urines show "much faster decay." This is presumably due to an unknown substance associated with arousal that acts as an enzyme inhibitor. It is not known whether the rate of decay of AP activity is related to the initial level of that activity, but after the initial decay, remaining activity is reported by Barclay to be stable at room temperature for long periods of time. If this is indeed the case, AP activity of all our urine samples (with the possible exception of those collected in association with M3) might very well have achieved a stable level with little additional decrease in activity over the six weeks involved. Further, any additional decrease that occurred in this period of time would tend to lower the values of the earlier samples relative to the later ones.

Data analysis. Most of the data has been analyzed by the use of nonparametric statistics (Siegal, 1956). The Mann-Whitney *U* (M-WU) test was used to make comparison between experimental and control subjects. The Wilcoxon Matched-Pairs Signed-Ranks (WR) test was used to compare experimental subjects at different times during the experiment. The Friedman Two-way Analysis of Variance by Ranks (FANOVA) was used to assess changes over time in the experimental subjects. In some instances the parametric statistic corresponding to the

4. The initial determinations of AP activity in the urine seemed to indicate that after a week of daily exposure to pornography the amount of AP secreted by the subjects had rapidly subsided from high values during the first days of exposure to levels indistinguishable from that of the unstimulated control period. Subjects' reports and ratings supported the interpretation that a marked degree of satiation had occurred. Consequently, the original design was altered by the introduction of fresh pornography and fresh nonpornography consisting of current best selling books and popular magazines to test that complete satiation had not indeed occurred at this point in the experiment.

5. Barclay, A. M. Personal communication by telephone, August 1969.

nonparametric statistic was also calculated, and in none of these instances was one significant that the other was not. Two-tailed tests of significance were used unless otherwise indicated and a value of $p<.05$ was taken as significant although the actual probability value achieved is often reported.

RESULTS

Pre- and post-tests

In general, there was little or no difference between the test results obtained from the subjects prior to the exposure of pornography and those obtained after. It would seem that even extensive and repeated exposure to pornography has no lasting effect on any of the measures used. Although certain trends in the data will be pointed out, it must again be emphasized that the changes, when they do occur, are small and only in very few cases are they statistically significant.

ACL. The mean group scores on 24 scales derived from the ACL are presented in Table 2 for the experimental subjects on M1 and M2 and the controls on M1.

TABLE 2

MEAN GROUP SCORES ON ADJECTIVE CHECK LIST FOR THE EXPERIMENTAL SUBJECTS BEFORE AND AFTER DAILY EXPOSURE AND THE CONTROL SUBJECTS PRIOR TO M1

Scale	Control subjects	Experimental subjects before	Experimental subjects after
Total number of adjectives checked	51.7	50.3	48.6
Number of favorable adjectives checked	53.7	45.2	48.9
Number of unfavorable adjectives checked	49.2	52.3	50.0
Self-confidence	54.2	50.0	51.4
Self-control	46.3	42.8	45.2
Lability	57.0	56.6	55.8
Personal adjustment	49.3	45.1	46.5
Achievement	56.0	49.8	53.6
Dominance	59.7	50.9	54.1
Endurance	50.3	46.6	48.1
Order	47.7	45.2	47.0
Intraception	51.9	51.5	52.3
Nurturance	49.1	44.0	47.2
Affiliation	50.6	46.3	48.7
Heterosexuality	58.6	48.6	53.2
Exhibition	55.6	52.1	53.0
Autonomy	57.1	57.6	54.6
Aggression	52.8	53.7	53.3
Change	58.8	51.8	55.2
Succorance	39.4	47.3	46.2
Abasement	39.6	45.4	44.8
Deference	39.1	42.4	42.5
Counseling readiness	43.6	49.2	47.3
Defensiveness	51.3	47.7	48.9

There is no significant difference on any of the individual scales between control subjects and experimental subjects or between before and after.

This test is designed to characterize various personality attributes on the basis of self-report as to which of 300 adjectives are seen as appropriate descriptors of the individual. Scale scores are standardized to norms which have a mean of 50 and a standard deviation of 10. It can be seen from Table 2 that the mean scores of all the scales are close to the norm values; and that there is no significant difference between experimental and control subjects prior to the experiment. None of the mean scale scores for the experimental subjects changed significantly from M1 to M2. It is interesting that the largest change from M1 to M2 is on the heterosexuality scale (+4.6) with the subjects becoming more positive in their perception of themselves as having heterosexual interests. Although none of the differences between means of the individual scales are significant, the overall change from M1 to M2 is in the direction of reporting an increasingly positive image of self. A change in this direction occurred in a highly significant number (21/23; $X^2=15.70$; $p<.001$) of the scales which can be categorized in this manner.

SI. The SI is a questionnaire designed to elicit sex interests, attitudes, and conflicts. The 10 scales derived from the 200 items are presented in Table 3. There are no significant differences using the M-WU test between the mean values

TABLE 3

SEX INVENTORY SCALES FOR EXPERIMENTAL SUBJECTS BEFORE AND AFTER DAILY EXPOSURE AND FOR CONTROL SUBJECTS BEFORE M1

Scale name and number of items	Control subjects pre, mean score	Experimental subjects, pre, mean score	Experimental subjects, post, mean score	Experimental subjects increasing	Experimental subjects decreasing	Experimental subjects not changing
Sex drive and interest (21)	18.7	16.2	17.1	6	6	8
Sexual maladjustment and frustration (21)	2.3	3.8	3.3	3	11	6
Neurotic conflict associated with sex (21)	4.0	4.5	4.6	7	8	5
Repression of sexuality (10)	1.7	2.6	3.4*	10	3	7
Conservative attitudes toward sexuality (9)	0.3	0.5	0.6	5	3	12
Loss of sex controls (17)	1.5	1.8	1.5	5	10	5
Admission of homosexual tendencies (9)	0,5	1.0	0.8	4	7	9
Denial of homosexuality (10)	7.0	6.4	6.5	7	4	9
Sex role confidence (12)	9.0	8.0	8.1	5	7	8
Promiscuity and sociopathic tendency (18)	6.3	6.0	6.7*	9	2	9

*Significant difference ($p < 0.05$) between pre and post values using the Wilcoxon matched-pair signed-ranks test

of the experimental and those of the control subjects. In eight of the 10 scales there was no significant change found using the WR following extended exposure to pornography and this included scales intended to measure sex interest and drive, conservative attitudes toward sex, sexual frustration and maladjustment, neurotic conflict associated with sex, control of sexual impulses, admission and denial of homosexuality, and sex role confidence. There was an increase on the scales purporting to measure repression of sexuality (T=10.5, N=13, $p<.02$) and promiscuity (T=6.5, N=10, $p<.05$). The significant increase on the repression scale seems to be related to an increase in the experimental subjects' disapproval of certain sexual activities. Paradoxically, the number of these subjects with an increased score on the "promiscuity scale" (measuring liberal/radical attitudes toward sexual behavior) also went up. A detailed look at the individual items making up these scales did not clarify the meaning of this pattern of results.

275 Q. The 275 Q, which was given three times, showed excellent test-retest-retest reliability on almost all of the items. There was no significant change in the subjects' responses on items of an historical or demographic nature. Experimental subjects' attitudes toward petting or sexual intercourse prior to marriage did not change over the course of the experiments. They did not change their attitudes towards school, politics, work, friends (male or female) or generally about themselves. There was a small tendency to classify themselves as being more attractive to the opposite sex after the study and they reported that they tended to worry about how they were viewed by the opposite sex to a lesser extent. Both these findings are consistent with the data from the ACL. There was a small but consistent shift ~~toward~~ seeing other students on their campus as *less* sexually active than before.

One section of the questionnaire was borrowed from a study done by the University of Chicago surveying opinions held by psychiatrists of the effect of exposure to pornography on three types of individuals: an adult, a stable adolescent, an unstable adolescent. The first question asked the subjects was whether they felt that a person exposed to pornography was more likely to engage in antisocial acts than a person not exposed. The subjects did not feel that adults or stable adolescents would be affected at all according to their answers on the first administration of the 275 Q and this feeling did not change over the experiment. However, whereas they initially thought an unstable adolescent might be adversely affected, after becoming extensively acquainted with the material, they moved strongly toward feeling that it would not adversely affect such an individual. They agreed slightly more after the experiment with a statement that for all three types of individuals pornography tends to act as a safety valve, thus decreasing the chance of an antisocial act. They moved toward feeling that if censorship was eliminated and pornographic materials became easy to get there would be little interest left in seeing them because they would no longer be taboo. They also became more positive in their opinion that those who try vigorously to suppress pornography are often motivated by unresolved sexual problems in their own personalities.

Psychiatric interviews. After M2, all subjects were interviewed, and all experimental subjects were interviewed again at the end of the study after M3. No comparisons with controls have been made and no interviews with third parties (such as wives or roommates) were attempted.

For single men the frequency and intensity of sexual interest and activity prior to the project was quite variable. Several of them had never engaged in coitus prior to the study; several were highly active, some with numerous partners. Only one-fourth of the experimental subjects reported some change in sexual behavior, in sexual interest, and feelings about themselves following exposure to pornography. For most, this was during the initial part of the project and without lasting effect. One subject stated that the exposure to pornography "had destroyed some of the guilt feelings I had regarding sexual relations," but did not report increased desire or frequency of sexual activity. Another subject who had recently broken off with his fiancée sought out a girl "by reputation" for mutual sexual gratification—at least partly due to the stimulating effect of the pornography. A married subject reported a stronger urge to have intercourse and a more intense orgasm during the first week of daily exposure. This did not persist beyond that time, and he said that it was not noted by his wife, with whom he had discussed it. Two other subjects reported some transitory *decrease* in sexual activity. One of these experienced concomitantly a vivid preoccupation with sexual thoughts which he thought was probably related to the exposure to pornography. The remaining three-fourths of the subjects were unable to identify any noticeable effect from the project beyond the time of actual exposure when all of them reported arousal.

The range of prior exposure to pornography on the part of our subjects was also quite varied. Less than one-fifth had never seen a "stag" film. Most had flipped through "night stand readers." One subject believed "hard-core" material was currently readily available and not against the law to sell.

All subjects reported being initially stimulated to varying degrees, and *all* reported a marked decrease in interest in pornography as a result of the exposure. Three subjects reported learning useful information. This included the subject who expressed decreased guilt feelings; another who learned about the mechanics of sex positions and felt eager to try out new experiences; a third who had never seen female genitals, had never had intercourse, and had limited knowledge about such topics as sexual physiology, found the movies and subsequent discussions with his fiancée very informative. This last individual reported a decided lack of interest in pornography and did not spend much time with it. He was "struck by the impersonality of the visual pornography. It's the whole person that's important."

There was, initially, moderate spread among subjects on the question of legal controls of pornography. Only the two subjects who started the project favoring the most rigid control and censorship reported that they became even more conservative. Subjects whose conservative attitudes were less extreme and those who had more liberal attitudes reported that they felt pornography for adults was less in need of restriction and control than they did previously. Only four subjects

were categorically against any restrictions. Most expressed a concern for young people (less than age 14) and for "unstable" individuals. Only four subjects, however, felt strongly that the risk of some damage to these supposed vulnerable individuals warranted strict repressive measures. The subjects were almost unanimous in their opinion that pornography is one of the least important problems facing our society today. None of the participants reported any permanent change in their health, attitudes or behavior as a result of their participation in the project and none thought that any transient changes they experienced were detrimental to them in any way.

The only behavioral effects of note were not reported by an individual but rather noted by the experimenter. These comprised two episodes of theft on the part of the subjects. The first incident was actually observed, and, when this was discussed with the subject, he explained that he had just borrowed the magazines to corroborate his description of the project to his roommate. The magazines were immediately returned. At the end of the last day of the project three reels of film were also noted to be missing. Despite discussion of this with each subject, delaying final checks, and appealing to the conscience of the individuals both in terms of fairness and in terms of possible consequences (i.e., investigation, etc.), the films were not returned. One subject who denied taking them said that if he had, "they'd be long since sold" and consequently unreturnable even if he wanted to do so.

Daily tests

In addition to AP determinations two additional measures were obtained every day from the experimental subjects during the course of the project: Clyde Mood Scales (CM) and the DQ.

Clyde Mood Scales. The CM scale originally was designed to measure changes in human emotions and behavior produced by drugs. It has been used widely for other purposes and seemed to be well adapted for measuring day-to-day changes produced by any cause. The average values on the six scales obtained from the CM are presented in Table 4. The mean values and standard deviations obtained during the control days agree very well with the norms reported by Clyde (1963). (Clyde points out that the norms he reports are very unsystematically gathered and are based on only 100 subjects gathered by seven experimenters from different locations in the United States. Therefore, the discrepancy on the scale labeled "clear-thinking" does not seem to be important.) The only scale to show significant changes was that labeled "unhappy." According to this, the subjects expressed less unhappiness (i.e., were happier) on nine of the 15 experimental days than on the control days. There were no significant changes over the course of the experiments in subjects being "clear-thinking," "dizzy" (i.e., anxious), "sleepy," "aggressive," or "friendly."

Daily Questionnaire. The DQ covered 10 areas of the subject's daily functioning. They were asked to rate themselves as to how they felt in the interval

TABLE 4
CLYDE MOOD SCALE MEANS OVER DAILY SESSIONS[1]

	Unhappy	Clear-thinking	Dizzy	Sleepy	Aggressive	Friendly
Normative values	42.32 ± 4.14	55.03 ± 8.14	46.66 ± 5.69	50.26 ± 8.05	50.40 ± 7.70	53.03 ± 8.85
Control-day values	41.53 ± 6.62	49.18 ± 7.82	46.55 ± 5.15	48.89 ± 7.38	50.10 ± 7.38	48.27 ± 11.06
Pornography						
1	39.57**[2] (15)[3]	47.35 (13)	46.35 (11)	49.87 (13)	49.65 (12)	46.57 (10)
2	40.22 (15)	48.96 (10)	48.35 (9)	47.09 (12)	48.13 (13)	48.30 (15)
3	39.30** (15)	48.26 (13)	47.39 (8)	45.22* (18)	48.91 (12)	49.26 (12)
4	39.22** (19)	47.70 (14)	48.04 (7)	44.70** (19)	48.61 (15)	48.96 (11)
5	39.43* (16)	47.35 (15)	47.57 (6)	46.09 (17)	48.52 (12)	48.74 (10)
6	40.00 (14)	48.43 (12)	47.17 (11)	48.35 (13)	48.57 (12)	47.04 (12)
7	41.39 (13)	48.78 (14)	46.39 (8)	47.48 (16)	48.52 (12)	46.83 (14)
8	39.65** (15)	48.57 (12)	46.78 (9)	46.65 (17)	47.43 (16)	48.91 (11)
9	39.18* (15)	48.17 (14)	47.05 (10)	44.48 (15)	47.39 (12)	49.59 (10)
10	39.17* (14)	48.22 (10)	47.28 (7)	44.28 (14)	48.78 (8)	50.56 (6)
11	39.83 (12)	47.70 (15)	47.04 (12)	48.22 (14)	48.78 (16)	48.39 (10)
12	38.91* (16)	47.96 (13)	47.83 (10)	48.78 (16)	49.61 (12)	44.56 (10)
13	39.70* (12)	47.78 (15)	47.22 (10)	47.43 (14)	49.13 (17)	47.30 (13)
14	40.61 (14)	49.61 (12)	47.43 (8)	44.96* (18)	49.65 (13)	50.00 (10)
15	40.57 (13)	47.00 (16)	46.74 (11)	46.16 (15)	49.04 (11)	50.35 (11)
M3	40.68 (12)	49.42 (14)	46.11 (8)	48.16 (12)	48.53 (12)	50.37 (7)

[1]Table also includes means and standard deviations for normative group and control day values for experimental subjects.

[2]Wilcoxon matched-pair signed-ranks test between value and control.

[3]Number in parentheses is the number of subjects out of 23 whose scores decreased from control values.

*$p < 0.05$.

**$p < 0.01$.

since the last session compared to how they usually felt. The scale range was from -3 (much less) to +3 (much more). Table 5 displays the results of these ratings week by week. Experimental subjects' sexual behavior and degree of interest remaining in the project are also in Table 5 and constitute items 11-15. The first area of inquiry was the amount of sexual content in the subject's thoughts and daydreams. During the first five days of exposure to pornography, the subjects spent more time thinking about sex than they did during the control period (T=16, N=20, $p<.005$), but during the second five days of pornography this value returned to the level obtained during control days (T=17.5, N=20, $p<.005$). The values obtained from the follow-up questionnaire given at the time of M3 were not different from the values obtained on the control days.

The second area the subjects were questioned on was their ability to concentrate, and no change from the control values were noted at any time during the study.

The third set of scales dealt with sexual feelings such as arousability, satisfaction, intensity, and so forth. During the first week of exposure to pornography, subjects increased their average rating of sexual feelings from −0.21 to +1.58 (T=8.5, N=16, $p<.005$). This value then declined to −0.30 for the second week of exposure (T=8.5, N=19, $p<.005$). and remained low the third week

TABLE 5

MEAN RATINGS[1] FOR TEN AREAS OF FUNCTIONING AND MEAN VALUES FOR FIVE ADDITIONAL MEASURES[2]

Item	Weeks 1 (Control)		2		3	4	M3
1. Thoughts and day-dreams of sex	−0.21	*	+1.65	*	−0.70	−0.67	+0.15
2. Ability to concentrate	−0.16		−0.24		−0.25	+0.33	+1.42
3. Sexual feelings	−0.21	*	+1.58	*	−0.30	−0.50	+0.14
4. Difficulty in sleeping	−0.36		+0.20		+0.11	+0.30	+0.35
5. Amount of dreaming	−0.03		+0.10		+0.01	+0.05	−0.35
6. Appetite and eating	+0.03		+0.04		+0.03	+0.01	+0.10
7. Exercise	+0.16		+0.07		+0.16	+0.16	+0.15
8. Arousal in anticipation of today's session	−0.28	*	+0.21	*	−0.47†	−0.66†	−0.10
9. Anxiety in anticipation of today's session	−0.40	*	+0.01	*	−0.34	−0.55	−0.35
10. Boredom in anticipation of today's session	+0.49	*	−0.14	*	+0.69	+0.98	+0.45
11. Percent of interest in remainder of project	81%		84%	*	70%†	65%†	——
12. Sexual behavior	3.41		3.41		3.28	3.38	——
13. Mean number of orgasms by masturbation per day	0.35		0.42		0.34	0.40	
14. Mean number of orgasms by intercourse per day	0.57		0.49		0.60	0.57	
15. Mean number of orgasms	0.94		0.90		0.93	0.97	

1. Ratings are on a scale of −3 to +3.
2. Means are for four weeks of daily sessions and the follow-up at the time of M3.

*An asterisk between the values for two periods denotes a difference between them at a probability value < 0.05.

†A dagger next to a number denotes a difference between that value and the control week at a probability value < 0.05.

(−0.50). These results would seem to indicate, in conjunction with the first area (thoughts and daydreams about sex), that intensive exposure does affect subjects' established level of sexual thoughts and feelings for a short while, but that continuing or forced exposure actually depresses it.

Questions 8, 9, and 10 asked about three aspects of the subject's anticipation of the daily session: arousal, anxiety, and indifference or boredom respectively.

During the first week of exposure to pornography, subjects reported arousal in anticipation of the daily session with respect to the control period (T=17, N=18, $p<.005$), but the second week showed much less arousal than the first (T=3, N=16, $p<.005$); in fact, the subjects reported that they were less aroused than they were during the control week (T=18.5, N=12, $p<.05$). The value for the third experimental week was also less than during the control period (T=18.5, N=12, $p<.05$), and at the time of M3 there was no difference from the control values.

Subjects reported an overall increase in anxiety in anticipation of the first week's sessions compared to control values (T=6.5, N=12, $p<.005$). Anxiety during the second and third week of pornography returned to values comparable to those obtained during the control week, as did the values obtained when the subjects returned for the third movie.

Subjects were asked to rate the boredom and indifference they felt in anticipation of the day's session. There was significantly decreased boredom from the control week to the first week (T=38.5, N=19, $p<.05$) and from the first week to the second week (T=52, N=20, $p<.05$). The third week was not significantly different than the control week, but the mean value would indicate that boredom had increased. Subjects apparently became progressively bored and indifferent by the third week of the experimental period and, as the mean value for the third movie would indicate, they apparently did not recover much in their anticipation of seeing pornography over an eight-week period.

Question 11 asked subjects to indicate the degree of interest that they had in the remainder of the project. The mean response on this measure showed no significant change from the control week to the first week of pornography. The decrease in interest from the second to third week was significant (T=3.5, N=13, $p<.005$) and the value for the third week was also below the control value (T=3, N=13, $p<.005$). The third week of pornography almost had significantly less interest shown in it than the second (T=10.5, N=10, $p<.10$) and it was different than the control week (T=0, N=15, $p<.005$). This series of results reinforces the interview data which showed that if it had not been for the money involved, subjects would have stopped coming to the daily sessions.

Examination of the mean scores for total sexual behavior in Table 5 indicates that there was no significant difference in *amount* of sexual behavior engaged in by the subjects over the experimental period. The question relating to sexual behavior was also analyzed for the mean number of orgasms per day over the control week and the three weeks of pornography. Table 5 shows that there was no significant difference between these periods in terms of number of orgasms by masturbation, by heterosexual contact, or in total.

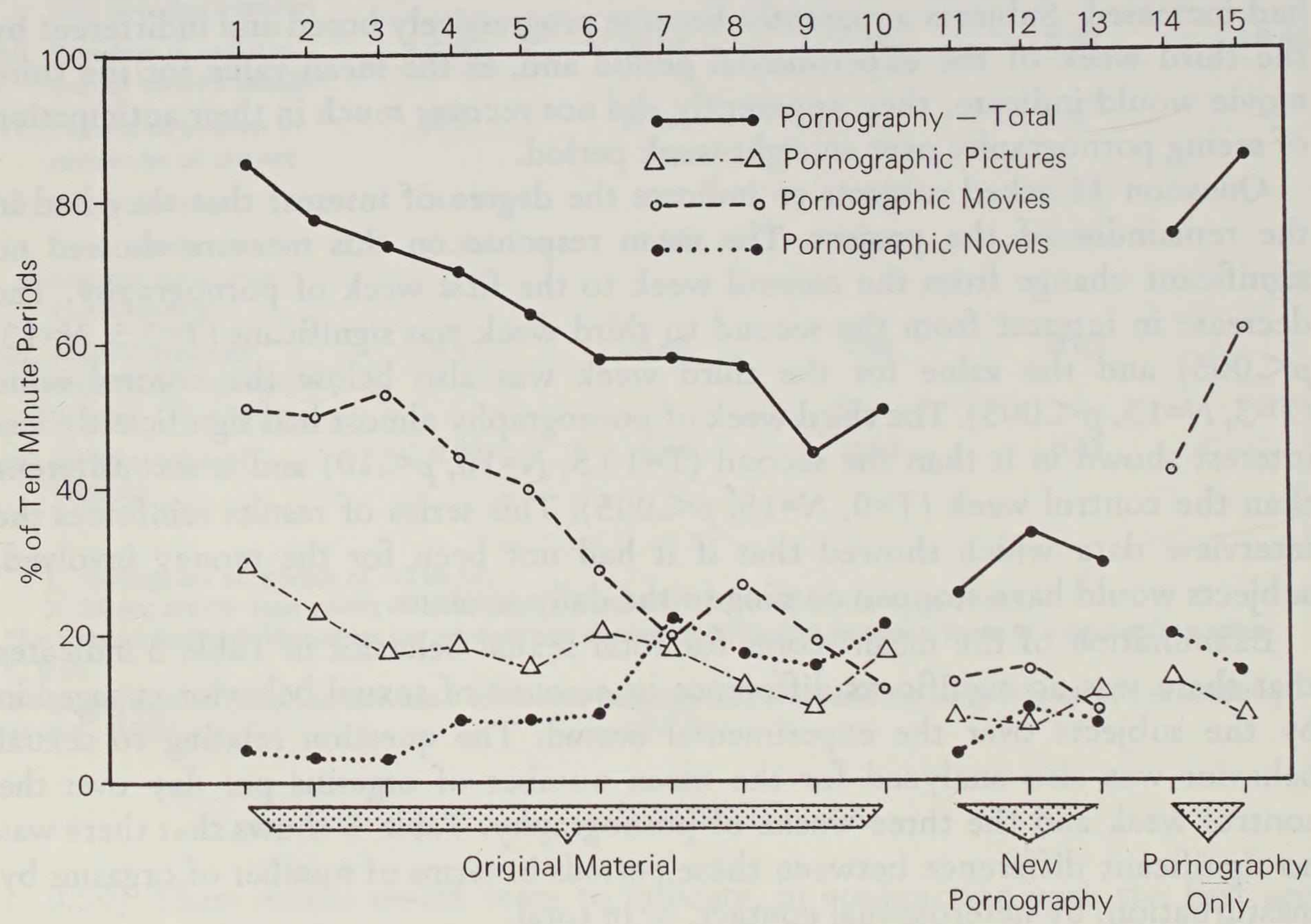
Daily measures other than tests. The subjects filled out the DQ and the CM scale before beginning their exposure to pornography each day. During the period of exposure they recorded their activity every 10 minutes on a log sheet and during this same period a timed urine specimen was gathered.

Activity data. The subjects categorized their activity into time spent in one of the following five areas: pornographic movies, still photographs, pornographic novels, nonpornographic materials, and other activities including resting, filling out forms, leaving early and arriving late. The subjects' accuracy was checked by visually monitoring their behavior through a one-way screen approximately 15-20% of the time, and they were judged to be accurate in reporting their activities. One a posteriori change was made in the ratings of the subjects. Several novels which the subjects were originally told would be classified as pornographic were moved to the nonpornographic category because no subjects reported them as being sexually arousing. The type of book involved in this change is exemplified by *Candy*, *Miracle of the Rose*, and *Myra Breckinridge*.

Figure 3 displays the trend over the experimental sessions in percent of 10-minute periods spent on pornography. Values for each subcategory are also

Figure 3

DAILY EXPOSURE TO PORNOGRAPHY: PERCENT TIME SPENT IN EACH CATEGORY AND TOTAL



included. The overall downward trend over the sessions, from a high of 85% of the periods being spent on pornography to a low of 26% at the end of the experiment, was tested using FANOVA. Only the first 10 sessions were included since other manipulations were introduced beginning with session 11. The highly

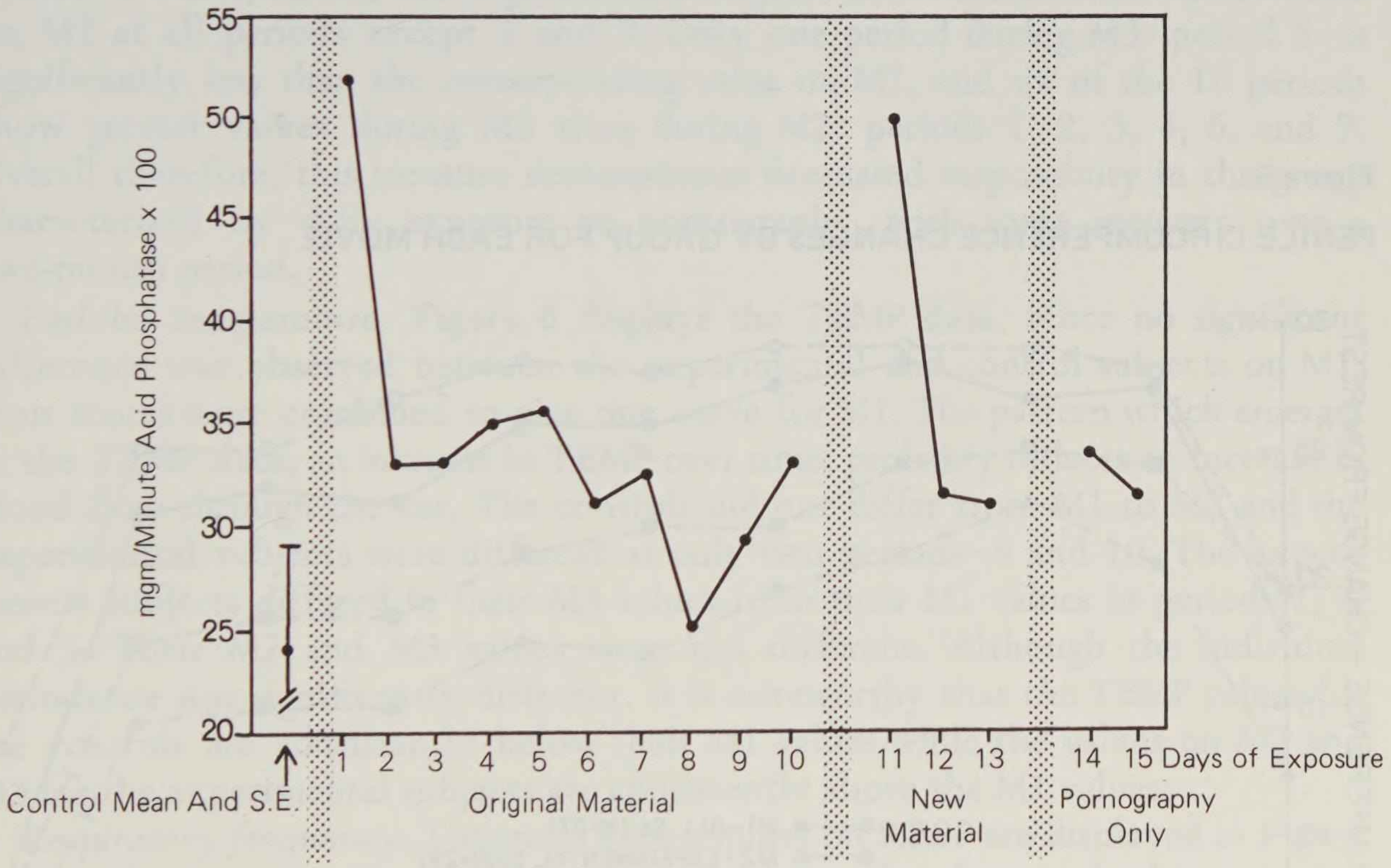
significant downward trend (X^2_r=786.41, *df*=9, $p<.001$) indicated that the subjects were less interested in pornographic materials after exposure to them. Although complete satiation in the sense of complete cessation of all interest in pornography did not occur, the trend is evident.

Acid phosphatase. As was discussed previously, the measurement of AP activity in the urine was beset with technical difficulties. Interpretation of these data, therefore, will have to be cautious since the final values were obtained from specimens stored for periods of time ranging from five days to four months.

Figure 4 shows the average daily level of AP activity during each experimental day as compared to baseline conditions. For no experimental day is the mean AP level lower than the baseline. AP levels (except for session 3) are significantly higher than control values through session 7. Sessions 8 and 9 are not significantly different from control values and sessions 8-10 are all significantly lower than session 1. New pornography was introduced on session 11 which resulted in

Figure 4

DAILY MEAN LEVELS OF URINARY ACID PHOSPHATASE ACTIVITY EXPRESSED AS MGM PHENOLPHTHALEIN PER MINUTE OF EXPOSURE



significantly higher AP values for that one day as compared to the control mean. Activity levels on sessions 12 and 13 then returned to control levels. For sessions 14 and 15 all nonpornographic materials were removed from the room. This resulted initially in an elevated AP activity level which on session 15 was again not significantly different from baseline values.

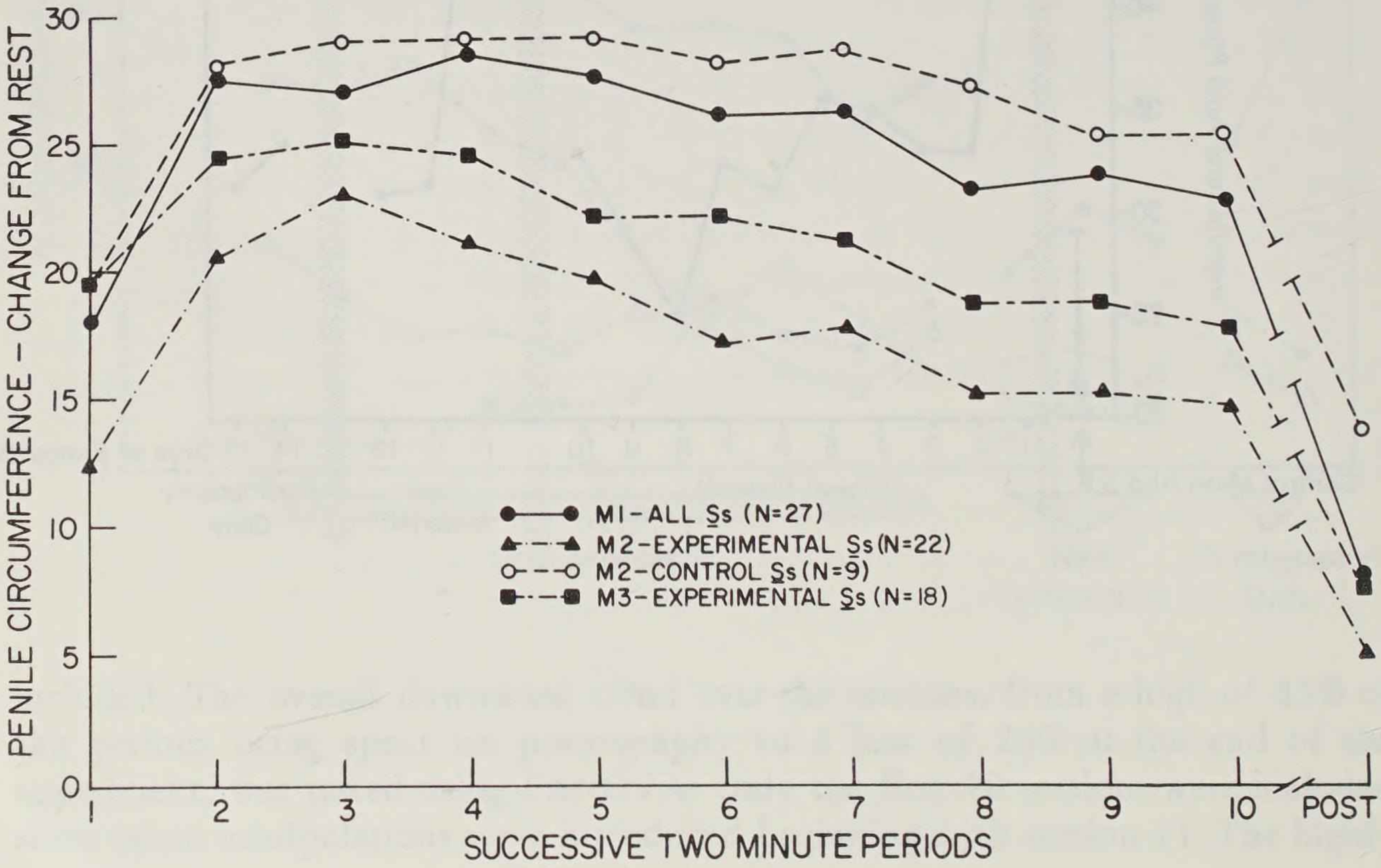
In obtaining the mean values for each day during the four weeks, the value for any subject who ejaculated was excluded for that day. Ejaculation produced values of AP which were several orders of magnitude larger than the other values. Since the number of ejaculations per day fell off over the sessions, if these values had been included the curve would have shown a much higher initial peak and a steeper descending slope.

Data obtained during the movies. Five continuous measures were obtained over the course of the movies: penile circumference, earlobe temperature, heart rate, slope of blood volume pulse, and respiration. An AP value was also obtained which represents the total time over the movie. The same cautions apply to the interpretation of the movie AP values as were mentioned in regard to the daily AP values.

All significance values mentioned in this section are either for values obtained from M-WU tests or WR tests.

Figure 5

PENILE CIRCUMFERENCE CHANGES BY GROUP FOR EACH MOVIE



Penile circumference. Preliminary examination confirmed that PC is the most sensitive and discriminating measure of sexual arousal that is currently available. Erection in response to a sexual stimulus is very rapid, occurring in some subjects within seconds, and, particularly in an unexperienced subject, is maintained approximately constant throughout an explicitly sexual movie. In general, detumescence occurs rapidly after the end of the movie. Markedly decreased response ("satiation") after repeated exposure to pornography is indicated by this measure. In response to M2, experimental subjects showed less initial increase in PC, less constant maintenance of whatever level of erection was first reached, and generally decreased penis size over the course of the movie. These same trends are apparent (although less so) in the measurements made during M3. Figure 5 gives the data obtained from the penile strain gauge. The M1 values for experimental and control subjects have been combined since they are not different except on period 8. The curves in Figure 3 show that relative to their scores on M1, the controls increased their PC on M2 and although the increase is not significant at any of the periods, it is consistent. Conversely, the experimental subjects on M2 were consistently below their M1 values on all 10 periods and the post-period. The difference between the values on M1 and M2 are significant in periods 2, 4, 5, 6, and 7. Furthermore, the experimental subjects are different than the controls on M2 at all periods except 2 and 3. Only one period during M3—period 5—is significantly less than the corresponding value on M1, and six of the 10 periods show greater values during M3 than during M2: periods 1, 2, 3, 4, 6, and 7. Overall therefore, this measure demonstrates decreased responsivity in the group characterized by daily exposure to pornography, with some recovery over a two-month period.

Earlobe temperature. Figure 6 displays the TEMP data. Since no significant difference was observed between the experimental and control subjects on M1, their scores were combined to give one curve for M1. The pattern which emerges in the TEMP data, an increase in TEMP over time, probably reflects an increase in blood flow through the ear. The controls did not differ from M1 to M2 and the experimental subjects were different at only two periods—9 and 10. The experimental subjects differed in their M3 values from their M1 values in periods 1, 2, and 3. Their M2 and M3 values were not different. Although the individual periods are not significantly different, it is noteworthy that the TEMP values for the controls are consistently below their M1 values while the values on M2 and M3 for the experimental subjects are consistently above the M1 values.

Respiratory frequency. The mean group values on RESP are displayed in Figure 7. No difference was observed between experimental and control subjects on M1 so the values were combined to give one curve. The M2 values seem to be higher on the average than the M1 values for controls and lower than M1 values for the experimental subjects. There is a significant difference between the M2 values of the experimental and control subjects only on period 6, although several other periods are on the borderline, and the overall trend is for controls to maintain higher values on M2 than experimental subjects. The M3 values are very close to the resting values and do not differ from them.

Figure 6

SKIN TEMPERATURE CHANGES BY GROUP FOR EACH MOVIE

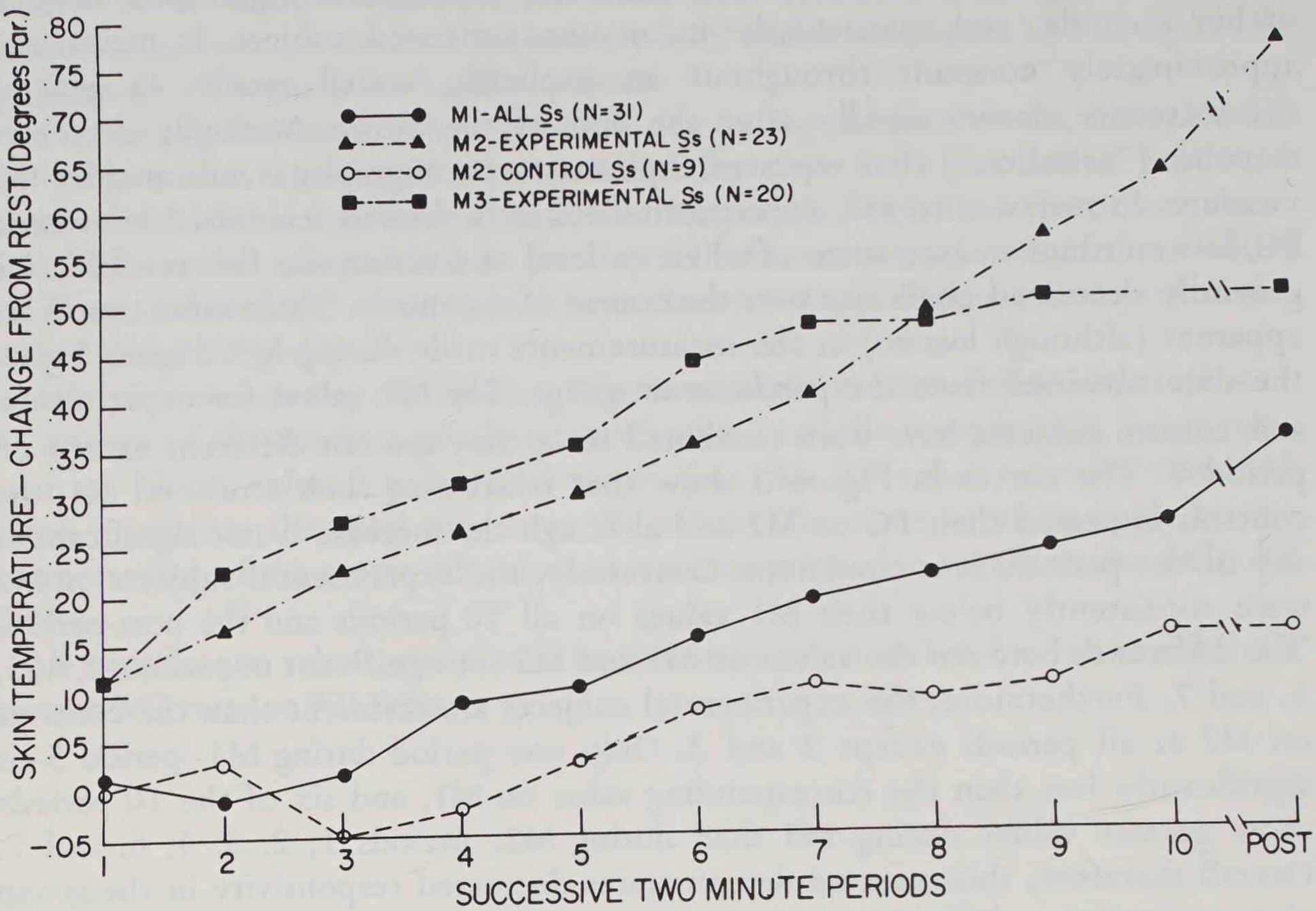
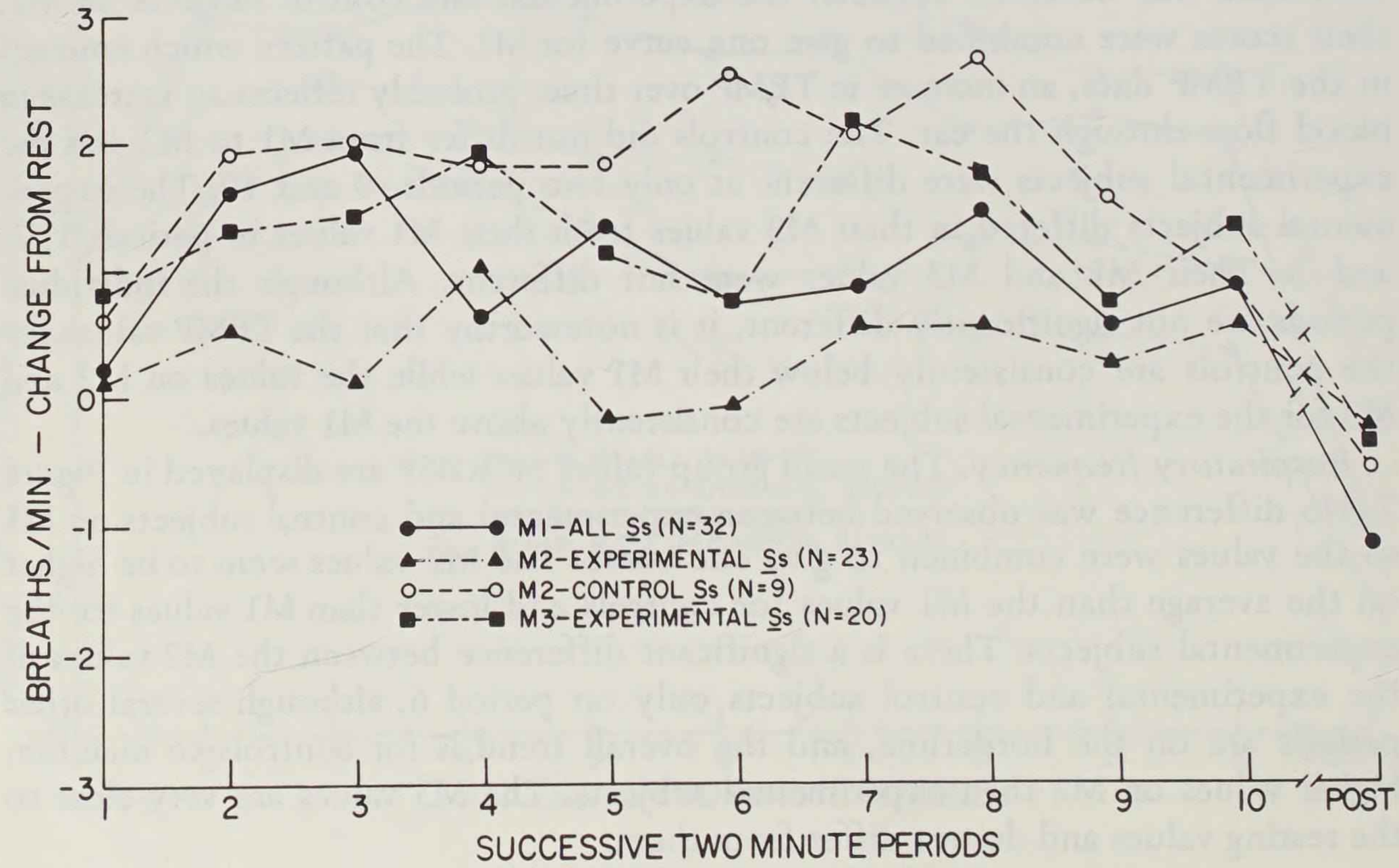


Figure 7

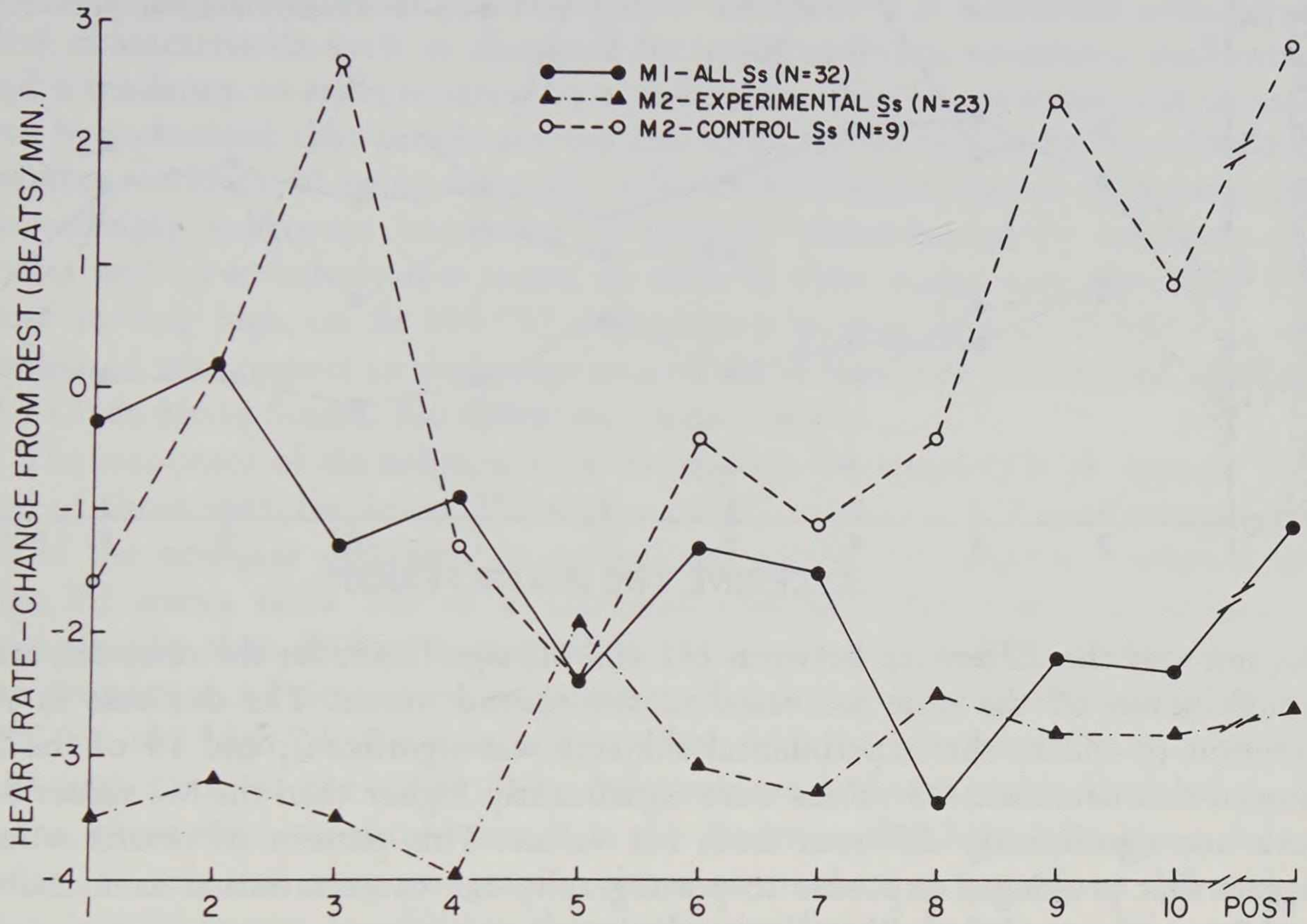
RESPIRATORY CHANGES BY GROUP DURING EACH MOVIE



Heart rate. HR values are displayed in Figure 8. The experimental and control subjects' values on M1 were not different and were combined to give one curve for

Figure 8

HEART RATE CHANGES BY GROUP DURING M1 AND M2



M1. The M2 values for the controls and the M3 values for the experimental subjects (not shown because it made the graph even more difficult to follow) paralleled those of the M1 until period 7 when they became somewhat higher. The M2 values for the experimental subjects were lower than the M1 values at most periods. The controls were higher than the experimental subjects on periods 3, 9, and 10 of M2 and the experimental subjects differed in their response during period 7 as they went from M2 to M3.

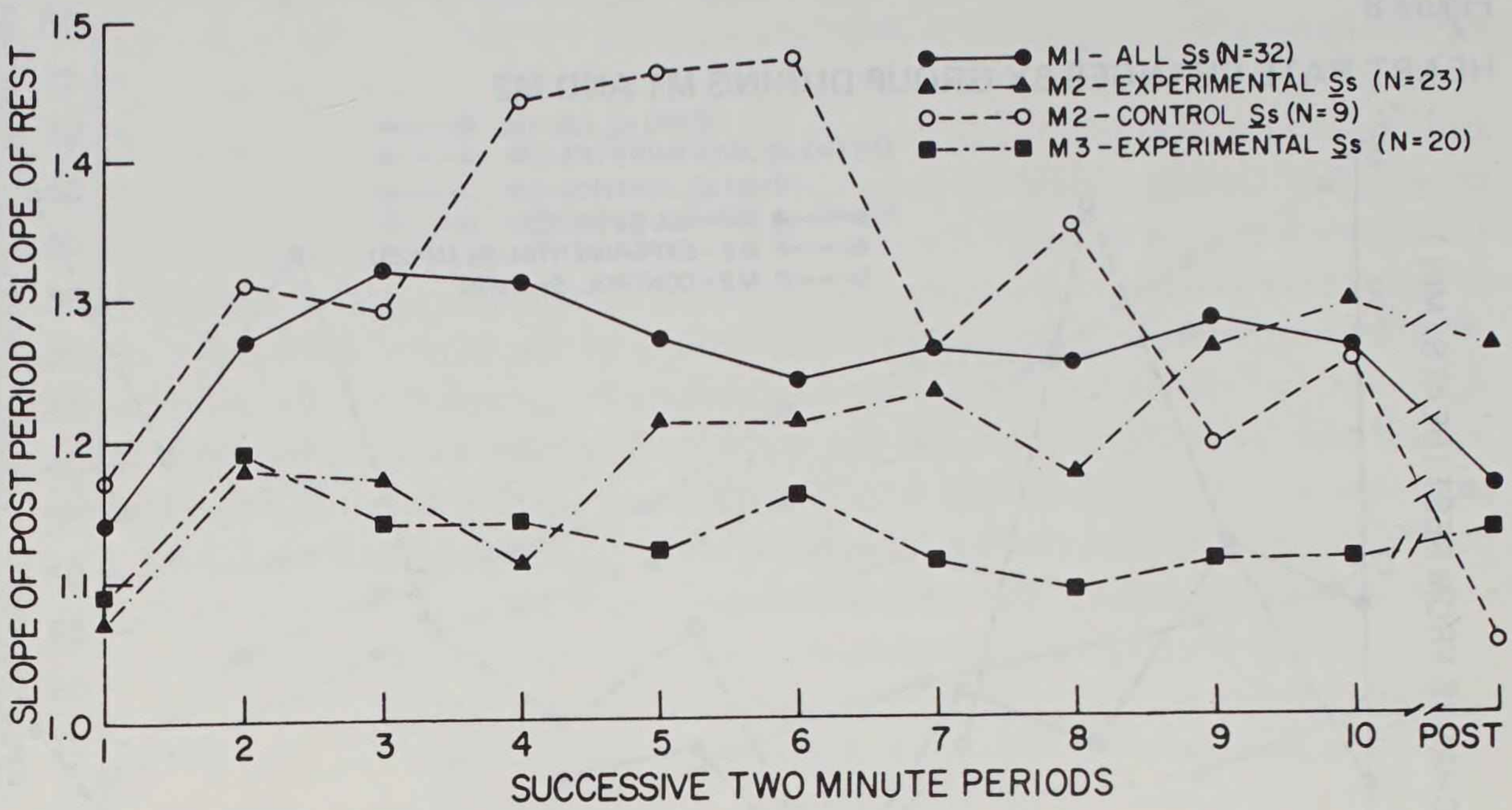
Of the 44 group values possible during the three movies, only nine were above the zero point, indicating that the general response to seeing a pornographic movie was a deceleration in HR.

Slope of blood volume pulse. Figure 9 shows the group values obtained for slope of BVP with M1 data again combined because of no difference. Although the experimental subjects seem to have a different pattern than the controls, there is no significant difference between them.

Acid phosphatase in response to the movies. Table 6 gives the mean AP values for experimental subjects on M1, M2, and M3 and for controls on M1 and M2. There was no significant difference between experimental and control subjects on

Figure 9

SLOPE OF BLOOD VOLUME PULSE BY GROUP FOR EACH MOVIE



M1, nor was the difference between M1 and M2 significant for the controls, even though seven of the nine increased to the second movie. The decrease in AP secretion to M2 in the experimental subjects was significant, and 19 of the 23 showed this decrease. M3 values were significantly higher than the M2 values but were not significantly different from M1 values. This pattern of results would suggest that prolonged exposure to pornography can cause satiation as measured by AP secretion and that this satiation dissipates over time.

TABLE 6

MEAN AP VALUES FOR EXPERIMENTAL SUBJECTS ON M1, M2, AND M3 AND FOR CONTROL SUBJECTS ON M1 AND M2

	M1		M2		M3
Experimental subjects	54.8	$p < 0.005$	32.3	$p < 0.005$	44.9*
	N.S.		$p < 0.005$		
Control subjects	63.3	N.S.	111.0		

*Was not different than the value for M1.

Additional analyses

All the previous analyses were performed on data obtained from the entire group of normal adult male subjects. In an attempt to broaden the potential

generalizability of our findings we selected two scales of the MMPI, "Pd" and "Es" (Dahlstrom & Welsh, 1960), which we felt had some a priori potential for discriminating groups of individuals who might be differentially affected by exposure to pornography.

Es ("Ego Strength") relates to an individual's capacity for emotional control and modulation while Pd ("Psychopathic Deviance") is associated with personality characteristics such as disregard for social customs, emotional shallowness, and a tendency to react to stress by action rather than by psychological means. It was hypothesized that people scoring low in Es and/or high in Pd would have the greatest tendency of being adversely affected by the stimulation of pornography. Accordingly subgroups consisting of subjects characterized by relatively high scores and by relatively low scores on each of these scales were identified. Subjects scoring high on Es (69-74) and subjects scoring low on Es (41-59) were compared with respect to their responses on the daily activity sheets, AP secretion, and Clyde Mood Scales. No differences were found.

The responses of six subjects with the highest Pd scores (71-83, mean = 75.7) and of those with the lowest Pd scores (45-57, mean = 53.7) were compared on all of the response variables. In general the results indicated that subjects with high Pd scores show less of a decreased response after repeated exposure to pornography than do low-scoring subjects. The most significant finding was that the proportion of time spent on pornography during daily sessions 9 and 10 was 49% for the high-Pd group as compared to 14% for low scorers (u=22, p<.05). Although none of the other daily measures reached acceptable levels of significance, there were consistent trends in the direction that high-Pd subjects did not satiate in response to pornography either as much or as quickly as did subjects with low Pd scores. In addition there were significant changes in self perception occurring in the high-Pd group as compared to the low-Pd group over the course of the experiment. Compared to the low-Pd group, the high-Pd subjects demonstrated an increase in their view of themselves as heterosexual (u=0, p<.01), as having more sexual frustration (u=0, p<.002), as having less sex control (u=5, p<.05), and showed a decrease in their scores on the autonomy scale (u=0, p<.05). There was, however, no evidence that these changes were reflected in any reported behavior. Both high- and low-Pd groups showed no behavioral change.

DISCUSSION

Zuckerman (1969), in his extensive review of the physiological measures of pornography, points out the fact that scientists cannot answer questions about the sexual arousal produced by pornography until reliable measures are available to measure sexual response. The results of this study must therefore be discussed first in terms of the measures used and then in terms of the implications of the results themselves.

For males, it would appear that measurements of penile erection would be a primary indicator of arousal to sexual stimulation. In this study the response to

the presentation of explicitly sexual material was extremely rapid and relatively long-lasting, particularly in the less experienced subjects. None of the 32 subjects who saw M1 failed to have an erection and none showed complete detumescence before the end of the movie. The utilization of a small elastic strain gauge responsive to changes of penile circumference (PC) occurring with tumescence allows for the application of the transducer by the subject himself, producing less affect associated with the application and greater subject acceptability. In addition, the strain gauge is a simple, inexpensive, rugged, and sensitive instrument which, if one wishes, can be calibrated.

The measurement of the presence of specific substances secreted in association with sexual arousal has also seemed a valuable approach toward the measurement of response to pornography. The presence of the enzyme acid phosphatase (AP) in more than minimal amounts is an almost certain indicator of prostatic secretions and it has been shown that there is a marked increase in the amounts of detectable AP in urine samples obtained under conditions of sexual arousal (Clark & Treichler, 1950; Gustafson et al., 1963). While there is some doubt that prostatic secretions are entirely specific in terms of being related only to sexual arousal, there is no doubt that in the presence of sexual arousal, prostatic secretions occur and can be identified by AP activity.

Despite the technical problems encountered (see METHOD), the subjects' values on AP decreased over the course of successive exposure. Even more significantly, subjects secreted the least AP at the time that they reported the least sexual stimulation from their exposure to pornography. It is unclear whether this finding in the daily AP determination relates only to decreased exposure (total time spent with pornography during sessions 9 and 10 was less than 40%) or to decreased responsivity as well. It appears that the latter is in part responsible because these same individuals reported less arousal on M2 (when exposure time was the same as M1) and showed less arousal as measured by PC in addition to having less AP activity. The potential errors introduced into these AP analyses by the technical difficulties described under METHOD would be in the opposite direction and as such would tend to minimize differences. We feel, therefore, that the determination of prostatically derived AP from urine samples collected over the time of exposure is a measure worthy of further investigation. Because of the wide variation in AP values produced by different individuals it would not seem that comparisons between individuals would be useful. For any particular individual, however, AP values would seem appropriate not only for determining the presence of sexual arousal but the relative degree of arousal as well.

None of the other physiological measures or changes obtained during the movies are as specifically related to sexual arousal as PC or AP. However, the finding that the predominant response of heart rate (HR) is a slowing is in agreement with the findings of Wenger et al. (1968). They propose that the decrease in HR is due to a dominance by the parasympathetic nervous system during sexual arousal until just before ejaculation when the sympathetic nervous system becomes important. More parsimonious and perhaps more biologically meaningful

would be an explanation in terms of the subjects' behavior. The subjects in this study were extremely quiet during the movies, even more so than during the rest period. With the drop in metabolic requirements brought about by the decrease in movement while attending to a stimulus, it is natural for HR to drop just as it is natural for HR to rise during exercise. The vasodilation and rise in skin temperature found by Wenger et al. (1968) is supported in the present study by the finding of an increase in the slope of BVP and TEMP measures, respectively.

The results obtained from the physiological measures support the hypothesis that repeated exposure to pornography results in decreased responsiveness toward it. Although both control and experimental groups showed similar responses to the first movie (M1), on M2 the control group had greater erections, secreted more AP, breathed faster, and had more rapid heart rates than did the experimental subjects, who had had daily exposure to pornography. Over an additional period of eight weeks this diminished response to a pornographic stimulus subsided. Thus at the final movie the mean response of the experimental subjects on the physiological measures was at a level intermediate to their responses on the two previous movies.

Decreased response to stimuli is one measure of satiation. Although in our study complete satiation in the sense of total inhibition of response did not occur, we believe the physiological data unequivocally point toward satiation in terms of diminished response. Another measure of satiation, however, is the degree of interest or attractiveness which the stimulus offers. At the beginning of the experiment all subjects were interested in seeing pornography and were even willing to pay for this privilege. After M3, about nine weeks after the end of the daily exposure, all experimental subjects reported being bored by the thought of pornography and a number said that they had refused private opportunities to view it. The daily activity measures give behavioral support to these verbal statements: on daily sessions 10-13, even though new pornography was introduced, the amount of time spent on pornographic materials continued to decline. It was only when all nonpornographic materials were removed from the room and the subjects were instructed to keep occupied with the pornography, that the amount of time spent viewing pornography approached initial levels. We feel, therefore, the subjects demonstrated satiation to pornography in both senses of the word in that they manifested both diminished response and diminished interest.

Not only did subjects become satiated to pornography but there is no evidence that this massive exposure to erotically stimulating material had any major lasting effect upon their attitudes or behavior. What changes did occur seemed to be in a favorable direction and quite minor. Psychological tests given before and after the experience showed that the subjects' opinion of themselves had moved in the direction of greater self-esteem. During the early part of the intensive daily exposure there was a transitory increase in sexual thoughts and feelings, and the subjects reported being "happier," but this returned to control levels and by the end of the experiment, subjects showed diminished interest in the project and expressed feelings of boredom in relation to pornography. Daily monitoring of

mood, thoughts and behavior, as well as assessment of any alteration in such functions as eating, sleeping, dreaming, concentrating, studying, or relating to other people failed to reveal any behavioral change over the course of the experiment.

In fact, the only other enduring changes noted were that subjects showed an increased attitude of repression toward sexual activity and a marked change in their attitudes toward pornography. We interpret that the increased repression relates primarily to exposure to a great variety of sexual practices about which they were not previously conversant, and which they subsequently disapproved of for themselves (e.g., group sex or homosexual activity).

The change in attitude toward pornography and toward the legal control of such material was the most striking result of the project. The subjects' initial attitudes were varied, ranging from a desire to maintain current controls to feeling that all controls for adults should be abolished. After the experiment all subjects except the two most conservative moved toward a more permissive attitude. The agreement was unanimous (after the experiment) that pornography would not harm an adult or stable adolescent, and subjects' opinions moved significantly in the direction of feeling that those who were most interested in controlling pornography must have sexual problems of their own. Of 23 subjects, 17 favored the abolition of all controls (except for an age criterion) on the sale and distribution of pornography, and four felt that not only was an age criterion unnecessary but they would have no objection to their younger sisters seeing the material, if they wished.

Several qualifications must be placed on the conclusions presented in this report. Subjects were young white adults (ages 21-23) whose educational level (at least two years of college) and socioeconomic background (family income >$16,000) is higher than the national average. Secondly, even though subjects did not know the nature of the project at the time they volunteered, after they were informed that it involved pornography they were given the opportunity to withdraw. Of the 70 initial volunteers, 18 apparently took advantage of this opportunity and it is not known whether this was because of distaste for pornography, unwillingness to discuss details of their sexual experiences, unreported scheduling conflicts or other reasons. Those remaining were relatively affluent and highly educated young men who were not bothered by the prospect of seeing pornography or talking about intimate details of their lives with a heretofore unknown psychiatrist.

The fact that these subjects were self-selected is not as worrisome in terms of potential generalizability as is their age and educational level. Presumably most exposures to pornography occur under conditions of self-selection and the nature of that exposure is considerably less intense than the conditions of the experiment. Most exposures to pornography do not, however, occur under the solitary conditions of social isolation which were part of the design of this experiment. We do not know what the effects on response to pornography would be if the

additional variables of social interaction with same sex or different sex individuals or groups were added.

Can our findings be generalized to younger, lesseducated, or less stable populations? In order to be certain, another study would have to be done utilizing samples drawn from such populations. In an attempt to identify factors within our population, however, which would help to ascertain whether pornography might have a more adverse effect on certain individuals, we chose two scales from the MMPI. Utilizing these scales we identified individuals with relatively high potential for dealing with stress by action rather than thought (high Pd) and others with relatively lower capacity for emotional control generally (low Es). Analysis of the responses of these individuals failed to reveal any differences other than it seemed that high-Pd individuals did not become as satiated with the pornographic exposure. As with the rest of the experimental subjects, there was no indication that their behavior outside the experimental situation was in any way modified as a result of their participation in the experiment.

CONCLUSIONS

Our data replicate in the laboratory and on an individual basis results analogous to the Danish experience with removal of the legal restrictions to the availability of pornography. In our sample of white adult college men from moderately affluent families we have demonstrated that extensive exposure to pornography results in diminished response when exposure to it is enforced, decreased interest in either seeking it or looking at it if it is present, and does not produce any detrimental or even enduring effects other than liberalization of attitudes toward pornography itself.

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APPENDIX A

National Survey Instrument Results

Results of Individual Subjects on the National Survey Instrument of the Commission on Obscenity and Pornography (September 26, 1969 revision).

		Subject Number														
Question Number		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1.(a)	A.	5	11	8	8	9	6	8	4	7	6	10	7	7	7	6
	B.	11	6	11	9	10	11	5	11	10	10	11	9	7	10	10
	C.	9	9	8	7	9	11	7	5	8	10	8	9	7	9	8
	D.	10	11	9	7	10	11	7	6	8	6	9	9	7	7	8
	E.	2	6	4	6	9	2	6	3	3	6	4	2	7	3	2
	F.	11	11	10	11	4	11	6	11	10	10	10	7	10	10	11
	G.	11	11	9	9	6	11	8	11	9	10	11	11	10	9	10
	H.	11	11	6	6	7	9	6	8	9	10	11	2	5	8	8
	I.	9	7	10	4	6	7	6	8	5	6	9	11	7	7	5
	J.	11	11	11	10	10	11	8	10	11	11	10	11	11	11	11
1.(b)	A.	11	11	9	3	9	2	7	8	10	10	10	11	11	7	11
	B.	8	8	9	7	8	7	5	2	6	8	7	7	6	3	2
	C.	9	6	4	5	9	4	5	3	3	6	3	2	8	3	2
	D.	2	11	7	3	11	2	6	4	9	6	2	2	4	2	7
	E.	10	11	10	10	2	9	6	7	7	11	10	7	10	7	8
	F.	11	6	5	8	5	10	6	8	6	10	11	2	7	11	11
	G.	9	11	11	8	5	10	8	6	4	9	11	11	7	10	9
14.	(a)	2	4	3	3	1	4	1	3	3	3	4	5	3	2	3
	(b)	4	4	3	4	2	4	2	4	3	4	4	3	4	3	3
	(c)	5	3	3	3	3	4	4	4	3	4	4	3	1	3	2
	(d)	3	3	2	3	2	4	1	2	3	4	3	4	4	3	3
	(e)	3	3	4	3	2	4	2	4	3	4	4	3	5	3	4
	(f)	4	4	2	4	1	3	2	3	3	4	4	2	2	1	2

Question Number	Subject Number														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
(g)	4	4	3	3	1	4	2	3	3	4	4	4	3	4	3
(h)	3	4	3	4	2	4	1	3	4	4	4	3	3	3	3
(i)	3	3	3	2	4	2	3	3	3	3	2	3	5	2	2
(j)	3	3	3	2	2	4	2	3	3	2	3	5	2	2	2
(k)	3	2	3	3	1	4	1	4	3	4	4	4	3	3	3
(l)	4	3	4	4	3	4	3	4	4	4	4	4	5	3	4
(m)	4	5	3	3	3	5	3	3	3	2	4	3	2	3	3
(n)	4	3	3	4	2	3	3	4	3	4	4	3	3	3	3
(o)	3	4	3	3	1	4	2	3	4	3	4	3	3	3	3
(p)	4	4	3	3	2	4	2	2	3	4	4	5	5	3	3
(q)	4	4	4	4	3	4	4	3	4	4	4	4	4	3	4
(r)	4	4	3	3	3	2	3	3	4	4	3	4	3	4	3
16. (a)	1	1	1	-	1	1	1	1	1	1	1	1	1	1	1
(b)	1	1	1	-	2	1	1	1	1	1	1	1	1	1	1
(c)	1	1	2	-	4	1	1	2	2	1	2	1	1	5	5
17. (a)	1	1	1	-	1	1	3	1	3	2	1	1	3	2	3
17.(b) A.	2	2	1	-	2	2	2	2	2	2	2	2	2	2	2
B.	2	2	1	-	2	2	2	2	2	2	2	2	2	2	2
C.	2	2	2	-	2	2	2	2	2	2	2	2	1	2	2
D.	1	1	1	-	1	1	1	1	2	1	1	2	1	1	1
E.	2	2	2	-	2	1	2	2	2	2	2	1	2	2	2
F.	1	1	1	-	2	2	2	1	2	2	1	1	2	2	2
1.	2	2	2	3	2	1	2	2	2	1	2	1	2	3	2
2.	4	1	4	3	2	1	4	4	2	2	3	1	1	2	2
3.	5	5	5	4	4	5	5	5	6	5	5	5	3	3	3
4.	5	4	4	4	5	4	5	4	5	4	4	4	4	4	4
5.	6	5	4	4	6	1	4	7	2	7	2	2	4	6	7
6.	3	5	4	5	6	3	6	4	3	4	3	3	3	5	5
7.	1	1	1	3	2	1	1	1	1	1	1	1	1	3	1
8.	2	1	1	3	5	1	2	1	3	1	1	1	2	2	2
9.	1	1	1	1	2	1	1	2	1	1	1	1	1	2	1
10.	1	3	1	1	3	4	2	1	1	1	1	1	1	1	1
11.	3	1	1	2	3	1	1	1	2	3	1	1	2	4	3
12.	3	6	3	3	2	5	4	3	4	6	5	6	3	4	4
13.	1	1	1	4	5	3	1	2	2	3	3	3	4	4	2
14.	3	1	2	2	5	1	1	4	3	2	4	6	3	3	4
15.	4	1	1	1	3	1	1	1	3	3	4	1	2	1	2
16.	4	5	2	3	1	3	3	5	3	4	5	1	4	3	2
17.	5	6	6	5	3	6	5	6	4	4	6	6	4	4	4
18.	5	6	6	6	5	6	5	6	4	5	5	6	4	4	4
19.	1	1	1	1	2	1	1	1	3	1	1	1	3	1	1

Question Number	Subject Number														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
20.	1	5	1	4	3	3	2	1	3	2	3	2	5	1	2
21.	2	1	1	1	2	1	1	1	3	1	1	1	1	1	1
22.	1	2	2	2	2	1	1	1	4	1	1	1	2	1	2
23.	6	6	5	5	3	5	6	6	5	6	6	6	4	4	4
24.	6	6	5	5	2	6	5	3	4	5	2	6	4	4	2
25.	1	2	1	1	2	1	1	1	3	1	1	1	1	4	3
26.	4	5	3	4	2	2	3	2	4	6	6	5	3	4	3
27.	5	5	6	6	3	5	6	2	5	6	6	3	3	4	3
28.	1	1	1	4	1	4	2	4	4	2	5	3	3	4	2
29.	3	6	2	2	2	4	5	2	3	5	1	6	3	3	2
30.	1	1	1	1	1	1	1	1	3	1	1	6	1	1	3
31.	6	6	5	6	4	6	6	6	5	6	6	6	4	5	6
32.	4	1	2	1	2	3	2	1	3	2	4	1	3	2	1
33.	4	4	5	4	6	3	5	4	4	6	6	6	6	6	6
39.	4	3	3	3	2	2	2	3	9	3	2	2	3	3	3
40.	4	2	6	3	3	4	7	3	9	3	3	4	7	2	2
41.	6	6	2	2	5	5	1	5	7	5	3	4	1	6	6
42.	1	1	4	1	2	2	4	2	0	6	7	7	3	1	1
48.	4	4	6	1	1	4	2	2	1	5	6	2	2	7	7
49.	1	1	1	2	1	1	1	1	7	1	1	1	2	1	1
50.	4	3	4	4	4	2	4	2	-	2	3	4	3	4	4
51.	7	7	7	1	1	1	7	7	5	7	7	7	1	1	4
52.	5	6	6	4	3	5	6	3	2	6	6	5	3	6	6
53.	6	8	8	6	6	8	8	2	9	6	5	6	6	8	8
54.	5	3	1	2	4	1	1	4	6	3	3	4	3	3	3
55.	1	1	1	-	-	1	1	1	-	1	-	1	2	1	1
57.	4	4	3	3	4	4	4	4	-	2	4	2	3	4	3
60.	5	2	4	3	4	4	2	3	4	2	3	4	4	5	5
61.	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
62.	4	4	-	4	7	6	3	3	4	4	6	3	5	8	8
63.	2	1	1	1	1	1	2	1	2	1	2	1	2	2	1
64.	4	1	2	4	2	2	4	1	5	2	1	2	4	1	1
65.	4	1	2	4	1	2	1	1	5	1	2	2	5	1	1
66.	5	4	5	5	5	5	4	4	5	4	5	4	5	5	5
67.	4	4	2	4	3	3	4	4	4	4	3	1	3	4	4
68.	1	2	2	4	4	1	1	2	2	1	2	1	2	2	2

APPENDIX B

Forms used in this study which are unique to it or not generally known:

A. Volunteer consent form
B. Identifying data
C. 275 Pre-post questionnaire
D. Sex Inventory
E. Psychiatric interview check list
F. Daily questionnaire
G. Activity sheet (including Clyde Mood Scale)
H. Final questionnaire

The Effect of Pornography: A Pilot Experiment on Perception, Behavior, and Attitudes

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This article is a report on an exploratory study of the immediate and short term effects of a one-hour exposure to hard-core pornography. The study was carried out in February 1970, in Copenhagen, as part of a series of investigations concerning pornography and sex crimes (Kutschinsky, 1971a, 1971b). The subjects were 72 university students of both sexes, mostly married couples.

The study was planned and executed as a partially factorial experiment, with a number of hypotheses to be tested and a number of specific questions to be answered. Primarily, however, the purpose of this study was an exploratory one: to try out the usefulness of some questionnaires, a procedure, and a stimulus material to be used in subsequent studies of pornography and attitudes towards sex crimes. We therefore did not endeavor to use control groups or to make a complete factorial design, and we were not too unhappy about the fact that the group of subjects was selective and rather small.

When the present experiment was carried out, only a few studies existed concerning the perception, or the immediate experience and effect of pornography (e.g., Eliasberg & Stuart, 1961; Levitt & Brady, 1965; Levitt & Hinesley, 1967). The findings of these studies have had very little influence on the present experiment. Due to their age, cultural situation, or stimulus material, these studies were too far removed from the situation at hand. Moreover, a major purpose of our experiment was to get some information about the *later* effects of pornography.

A number of studies of that type have been carried out very recently by Schmidt, Sigusch and Meyberg (1969); however, these studies, as well as a series of studies carried out under the sponsorship of the Commission on Obscenity and Pornography, were not known to us before the planning of the experiment.

Finally, a number of sexological studies (mainly Kinsey, Pomeroy, & Martin, 1948; Gebhard, Gagnon, Pomeroy, & Christenson, 1965; Hertoft, 1968; and Israel, Gustavson, Eliason, & Lindberg, 1970) have offered inspiration for some of the sexological questions in the questionnaires.

Concerning all the main features of this study, however, we had a feeling of exploring virgin land (although, for more than one reason, "virgin" is hardly the proper word to use about this land, the realm of pornography). Apart from the many who have been there for pleasure, curiosity, or whatever, it has been visited by some who considered themselves explorers. Some of these explorers did not restrict themselves to a description of the features of the land; they also told about the effects of this land on those who came there. Most tales were of horror and destruction, a few of bliss and edification. All of them had some element of myth, since their empirical basis was weak.

When forming the hypotheses and questions that we wanted to test or find an answer to in this experiment, we used some of these assertions as points of departure. Those were the assumptions which especially concerned the detrimental or beneficial effects of pornography on morals, sexual attitudes, and sexual inclinations and behavior. Other hypotheses were mainly based on earlier sexological findings (such as sex-specific differences), or psychological/sociological knowledge and theory (mostly relations between attitudes, perception, and behavior). Finally, some hypotheses concerned one very specific question: Does pornography have any effect on attitudes towards sex crimes?

In the present report, we shall refrain from a detailed exposition of each of the hypotheses and how they were tested. After an introduction, we shall present a digest of the major findings, without too much discussion, and make some conclusions at the end.

The following is a summary of the major questions the experiment was designed to answer and around which the hypotheses were centered:

1. What is the effect of a one-hour exposure to hard-core pornography on the attitudes of a group of young college students towards sex crimes? Is there an immediate effect? Does it persist after four days? After two weeks?

2. What is the immediate reaction of the subjects to this one-hour exposure to hard-core pornography? How do they evaluate different types of pornographic material? What do they feel? How do they react sexually? Are there any differential effects related to different background factors such as sex, age, major subject of studies, earlier sexual experience and behavior, sexual attitudes, moral beliefs, interest in and earlier experience with pornography?

3. What are the effects of the pornography stimulation on the sexual behavior of the subjects within 24 hours? After four to seven days? After two weeks?

Are there any differential effects related to the immediate reaction to the pornography? Are there any differential effects related to the above-mentioned background variables?

4. What are the effects of the pornography stimulation on attitudes towards sex life—"normal" as well as "deviant"? Are there any differential effects related to the immediate reaction to the pornography or to the background variables?

5. Apart from the pornography stimulation, are there any effects of the procedure itself, the different questionnaires, and the order in which they were given? Does it make any difference whether spouses are present or not?

Before carrying on with a presentation of the answers to these questions, it might be a good idea to explain, in a few words, why they were asked in the first place. We shall leave out the question: why bother about the effects of pornography at all? The topicality—from many different viewpoints—of the problems concerning pornography and its effect on people's behavior and attitudes will be well known to the readers of this paper. Rather we shall anticipate a question from those of our readers who are well versed with the current debate on these problems: why study the short-term effect of a short stimulation, when all the important questions concerning pornography are about the long-term effect of an extended or continued stimulation? (See, for example, Clor, 1969, p. 146.)

We have two answers to this question: Firstly, it is not true that *all* the important effects of pornography hoped for, or feared, are of the long-term type: techniques learned and used in "normal" *or* "deviate" behavior, including sex crimes; sexual arousal overcoming impotence *or* leading to indecent behavior; healthy and consoling sexual satisfaction to lonesome, invalid, or otherwise sexually deprived persons; feelings of shock, guilt, depression, or inferiority—all of these allegedly beneficial or detrimental effects of pornography follow immediately or shortly after stimulation.

Secondly, it is true that the absence of a short-term effect of a single stimulation does not prove that long-term effects will not occur, at least after prolonged or repeated stimulation. However, it would seem that if an expected short-term effect fails to appear, the burden of proof would rest more heavily than before on those who claim that there is a long-term effect of the same type. Similarly, if an experiment does show a short-term effect of the same type as would be expected to occur in the long run, the burden of proof would shift toward those who disclaim a long-term effect. They would have to prove that the immediate effect does not persist or, in case it doesn't, that the immediate effect would not tend to increase and eventually become fixated through a repeated or intensified stimulation. Thus, no matter what the results are of a proper experiment on the short-term effect of a short stimulation, the discussion about extended stimulation and prolonged effects cannot remain totally unaffected.

METHOD

Subjects

The subjects were 43 men and 29 women who volunteered for the experiment after a written invitation. This invitation had been sent to each of the 140 apartments in a large dormitory for married students, mainly with children, and also to a few unmarried students who lived in another dormitory next door.[1]

Age. The ages of the men ranged from 22 to 34 years with an average of 25.6 years. The women's ages ranged from 18 to 28 with an average of 24.1 years.

Marital status. Twenty-nine of the men and 23 of the women were married. In addition, seven men and six women were "going steady," meaning that they had a permanent sexual partner. Six men and no women were "single." In no less than 22 cases both parties of the couples, whether married or unmarried, took part in the experiment. This was not accidental: we had directly encouraged the subjects to come in couples, because we wanted to study what effects it would have if both partners in a couple were present at the "show."

Profession. With few exceptions the subjects were graduate students of no less than 16 different courses ranging from theology to civil engineering. From the point of view of profession, the subjects seem to constitute a sample of quite average Danish students.

Sexual background. In addition to the personal background data, we asked a number of questions concerning the subjects' sexual backgrounds, and their earlier experiences with and attitudes towards pornography. All the subjects has experienced sexual intercourse, which is no great surprise considering the high percentage of married or otherwise sexually "established" persons. Age of first coitus ranged among the women from 13 to 21 with an average of 18.6 years, and among the men from 12 to 26 with an average of 18.7 years. The number of intercourses per month had an average of 10.3 for men and 9.7 for the women. About half of the women declared that they masturbated now and then, with an average of 2.4 times per month, while the men, only two of whom didn't masturbate, did so on an average of 8.7 times per month.

These data tend to agree with earlier studies of the same types of subjects (Kinsey et al., 1948; Gebhard et al., 1965; Hertoft, 1968; Israel et al., 1970), showing, among other things, that the age of sexual debut of persons on a high educational level is usually one or two years later than the average, and that they tend to masturbate more frequently.

Interest in and earlier experience with pornography. This topic was investigated through a number of questions. Seventy-one percent of the men and 40% of the women declared that they were somewhat or strongly interested in pornography. While most subjects had read one or more pornographic books and seen a number of magazines, 47% of the men and 66% of the women had never seen a porno-

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1. One man did not give his personal data, and will be excluded wherever these data are relevant; one woman by mistake did not get one of the follow-up questionnaires and will also be excluded from figures where this questionnaire comes in.

graphic film. A comparison of these findings with data from a survey in which a representative sample of the Copenhagen population was asked similar questions (Kutschinsky, 1971b) shows that, on the whole, these subjects were somewhat more experienced with pornography than the average population of Copenhagen. The difference, however, is not very striking, and it is quite possible that, in this respect, the subjects do not differ at all from other Copenhagen *students* (cross-tabulations of the survey data not yet available will provide an answer to this question).

Procedure

The questionnaire called "Arthur" (see Appendix A) was constructed in such a way that it should be useful, with some changes, in other types of sexological studies. It was administered to groups A and B before the pornography session. Four days later group B was retested with part of it (questions 1 to 10 and 16 to 34) plus a follow-up page (called "Fl-up-Art," Appendix C), while group C was presented with "Arthur" for the first time along with the follow-up page. The comparison between the answers of groups B and C four days later would show whether there was a pre-test effect of "Arthur." Group A was retested with "Fl-up-Art" two weeks later.

The SIKOL (Special Instrument for the Study of Knowledge and Opinion about Law) has been in a process of preparation for several years. It was constructed for the purpose of conducting cross-national comparisons of attitudes towards crime, and for experimental studies on attitude change (Kutschinsky, 1970). This test was administered to group C before the pornography session. Group C was retested four days later with the same test. Group A was tested after the pornography session for the first time and once more two weeks later. Group B had SIKOL only once, four days after the session. The purpose of this design was, by comparing the results of the three groups, to investigate the effects of pornography on subjects' attitudes towards sex crimes immediately after, four days after, and two weeks after they were exposed to it. The pre-test effect was studied through a comparison of groups B and C after four days.

The "post-porno' test" (Appendix B) was constructed especially with this particular experiment in mind (with some changes, however, it can be used in other similar experiments). It consisted of both open-ended and forced-choice questions, and gave both qualitative and quantitative data about the immediate effects of the pornography stimulation. Since this test was given to all three groups, its specific effects were beyond experimental control. In relation to the *later* effects it must be considered part of the stimulus material.

The experiment started at 8:30 p.m. The 70 students gathered in a lobby belonging to the dormitory, a large room very well suited for the purpose. Upon entering, each student was informed of the letter of the group he belonged to.

After a general introduction which mentioned some of the features of the experiment, though without revealing too much of the purpose and completely concealing the fact that there was going to be a follow-up, each subject was

handed a cardboard folder with flaps. The folder contained all of the questionnaires in the order in which they were to be used. In addition, it provided a hard writing pad, since there were no tables in the room; and finally, the flaps served as screens against curious glances. The subjects were instructed to open the folder and the three flaps and to place their questionnaire in the bottom of the folder and fill it in this way. The three groups were then asked to mix together and spread evenly all over the room. Some people sat on chairs, or benches, but most of them were sitting on cushions they had brought with them. Couples and friends were asked not to sit down together.

When the first questionnaire had been filled in, it was collected and the subjects were asked to sit down in one end of the hall for the pornography session. This session lasted for exactly one hour. It started with a 15-minute full color film, showing three young "hippies," two girls and a boy, performing all kinds of triangular petting and intercourse. When the lights came on, each subject received five color magazines—the same for all subjects—containing a total of 167 pictures. These magazines depicted a great variety of sexual acts in all kinds of combinations. When the subjects had studied these for about 15 minutes, a male voice was heard over the built-in stereo set reading a piece of pornographic literature (incidentally written by a well-known Danish poet); and finally came another 15-minute film, this time showing two couples, one heterosexual and one lesbian.

All of the visual stimulus material used was brand new, and of the highest technical quality to be obtained in Denmark. Also from a "pornographic" point of view, it was considered by experts to be among the "best" available. We chose pornography "of highest quality" because we wanted to give a potential effect of the stimulation the best odds possible. On the other hand, because of the very rapidly changing scene in this area, the "high quality pornography" we used would very soon become quite average.

Immediately after the last film the subjects filled in the post-porno' test. When everybody had finished it, groups B and C left, and group A filled in the SIKOL.

Everybody was given the impression that the whole experiment was over. However, four days later, the members of groups B and C were contacted in their homes and were asked to come down in the hall sometime during the evening. Here they filled in the follow-up questionnaires and left again. The same procedure was repeated with group A after another 10 days. A few subjects were not at home on the follow-up days, but were summoned within one or two days.

The study was completely anonymous. The subjects were listed and later on summoned on the basis of their room or flat numbers. However, since these numbers would have made identification possible they were not written on the questionnaires. Instead, the subjects were instructed to write a code number of their own choice on all the questionnaires that they filled in. Thus, it became possible to combine all of the questionnaires from each person without interfering with the anonymity.

RESULTS

The effect of pornography on attitudes towards sex crimes

In recent years we have seen a considerable decrease in the rate of reported sex crime in Denmark. One opinion put forward in explanation of this fact is that people would no longer report minor sex crimes because daily intercourse with pornography had made them look more leniently upon such things. Based on this general argument, we constructed an experimental procedure to test the following hypothesis: Persons who have been stimulated with pornographic material will tend to have a more lenient attitude towards sex crimes than persons who have not been so stimulated, and the more recent the stimulation, the stronger this effect will be.

If this hypothesis was to be confirmed, the first SIKOL filled in by group A (SIKOL-A-I) should show more lenient attitudes towards sex crime than the second SIKOL of the same group two weeks later (SIKOL-A-II). The SIKOL four days after the experiment filled in by groups B and C should show somewhat less leniency than SIKOL-A-I but more than SIKOL-A-II. Finally, SIKOL-C-I should be the least lenient of all because it was filled in *before* the pornography session. The way this test was constructed, leniency was not measured in absolute terms, but relative to a number of nonsexual crimes. The hypothesis can be restated in the following formula:

$$\text{C-I} > \text{A-II} > \text{B-I} = \text{C-II} > \text{A-I}$$

where '>' means "considers sex crime to be relatively more severe than." The results will be reported in detail elsewhere.

The overall findings were that *no significant differences or changes occurred in the attitudes towards sex crimes in general*, relative to other crimes. There may have been differential effects for persons with different backgrounds or different immediate reaction to the pornographic session. There may also have been an effect on single specific sex crimes which have not affected the general picture. That can only be seen upon a more detailed analysis of the data, not completed at the moment.

However, the general hypothesis that a short-term stimulation of pornography leads to a relatively more lenient attitude towards sex crime has not received any support in the present study.

The perception and immediate effects of the pornography

The subjects' immediate experience of and their reaction to the pornography session was tested by means of the post-porno' questionnaire, which they filled in immediately after the session. First we shall give an outline of the subjects' general perception of the material and of their own feelings about it. We shall then deal more directly with the sexual reactions to the pornography stimulation.

Further, we shall take a look at the relation between the reaction to the pornography and other variables involved in the experiment. Finally, some of the results will be briefly discussed.

Table 1

EFFECT OF PORNOGRAPHY: EXPERIMENTAL PROCEDURE

Experimental Group	Evening of experiment					Four days after experiment	Two weeks after experiment
Group A	Introduction	Arthur	Pornography session	Post-porno' test	SIKOL		SIKOL + Fl-up-Art
Group B	Introduction	Arthur	Pornography session	Post-porno' test	(end)	SIKOL + Fl-up-Art	
Group C	Introduction	SIKOL	Pornography session	Post-porno' test	(end)	SIKOL + Arthur + Fl-up-Art	
Duration in minutes	10	25	60	15	25	30 to 50	30

Arthur: Questionnaire mainly concerning sexual behavior and attitudes (Appendix A).
SIKOL: An instrument for the study of attitudes towards crimes (Kutschinsky, 1971c).
Post-porno' test: Questionnaire concerning the immediate reaction to the pornography (Appendix B).
Fl-up-Art: A follow-up questionnaire, partly repeating sections of "Arthur," partly asking about changes in sexual behavior and attitudes (Appendix C).

General reaction to the pornography session. Both the sentence completion page and the subsequent more quantitatively oriented pages of the post-porno' test (one for "own feelings," one for "qualities of the material"), showed that, on the whole, the material was evaluated rather unfavorably. Although a number of subjects were, by and large, positive, very few were whole-heartedly so, while many were whole-heartedly negative. In the sentence completion, words like "boring," "tedious," "uniform," and "distasteful" were dominating.

Table 2

EFFECT OF PORNOGRAPHY: 10 CHECKLIST DESCRIPTIONS MOST OFTEN USED ABOUT EACH OF 4 TYPES OF STIMULUS MATERIAL

Men	Women
Film No. 1	
Inartistic (79%), technically bad (61%), exciting (42%), boring (37%), indifferent, callous (32%), funny, ridiculous (30%), entertaining (28%), lusty (26%).	Inartistic (66%), boring (41%), technically bad (38%), callous, exciting, indifferent, ridiculous (35%), funny, grotesque, stilted (24%).

Table 2 (Continued)

Men	Women
Film No. 2	
Inartistic (74%), technically bad, boring (49%), stilted, indifferent (40%), exciting (37%), callous (35%), technically good (33%), ridiculous (30%), grotesque (28%).	Inartistic (59%), exciting (48%), boring (35%), technically bad, ridiculous (28%), callous, grotesque, stilted, indifferent (21%), lusty, technically good (17%).
Magazines	
Boring (61%), inartistic (54%), technically good (47%), indifferent (44%), callous (35%), stilted (23%), exciting, ridiculous (19%), entertaining (16%), lusty (14%).	Boring (62%), inartistic(48%), ridiculous, indifferent (41%), callous (38%), grotesque, stilted (31%), funny, exciting, technically good (14%).
Text	
Boring (44%), inartistic (42%), funny (40%), indifferent (33%), entertaining (30%), stilted (26%), ridiculous (19%), grotesque, technically bad (16%), technically good, callous (14%).	Inartistic (41%), funny (35%), boring (31%), exciting (28%), ridiculous, indifferent (24%), callous (21%), entertaining, grotesque (17%). stilted (13%).
All four types	
Inartistic (62%), boring (48%), indifferent (37%), technically bad (34%), stilted (31%), callous, technically good (29%), exciting (26%), ridiculous (24%), funny (23%).	Inartistic (54%), boring (42%), ridiculous (32%), exciting (31%), indifferent (30%), callous (28%), grotesque (23%), stilted, technically bad (22%), funny (19%).
Other terms used: Grotesque (19%), lusty (17%), entertaining, informative, lovely (9%), frustrating (8%), embarrassing (4%), bawdy (2%), sickening, weird (1%).	Other terms used: Entertaining (14%), technically good, lusty (11%), sickening (9%), informative (8%), bawdy, frustrating (5%), embarrassing, lovely, smutty (4%), indecent (3%), weird (1%).

Note: Figures in parentheses indicate percentage of subjects of same sex checking a particular descriptive term.

The analysis of the checklist concerning the pornographic material (see Table 2) showed that unfavorable descriptions were far more often used than favorable ones—"inartistic" and "boring" being the most common ones both among men and women. The films were liked somewhat better than the magazines and were considered much more exciting. On the other hand, the magazines were praised for their high technical quality, in contrast to the films. Strongly depreciatory words were rarely used, both in the sentence completion and in the checklist—although somewhat more often by women than by men.

The women found the second film more sexually exciting than the first one, while the men reacted reversely. The men found the magazines more exciting than

the text—only 7% of the men considered the reading aloud to be exciting. The women, on the other hand, thought the text was more exciting than the picture magazines (28% compared to 14%).

The sentence completion gave very few clues to an understanding of these differences. In fact, it is almost impossible to make qualitative generalizations from these data: that which was especially liked by some subjects was often especially disliked by others. Most typically this was the case with the great number of close-ups of genitals, the writhing bodies, and the faces of women having or pretending to have orgasm.

While the checklist data, as has been demonstrated, showed a number of small, but very distinct differences between men and women, it was striking how little difference there was between men and women in their evaluation of the pornography as expressed in the sentence completion. One surprising finding was that both men and women disliked the men in the films, while both men and women liked the lesbian couple in the second film.

The subjects' perceptions, in retrospect, of their own feelings during the pornography session, at the beginning, midway, and towards the end, are illustrated in Figures 1, 2 and 3. Figures 1 and 2 show percentages of nonsexual feelings checked by men and women, respectively. For the sake of clearness, we have placed the designations of "pleasant" feelings in the left side and the "unpleasant" feelings in the right side of the curves, which have furthermore been drawn up differently. Among the pleasant feelings we have included "tension," well knowing that the special flavor of this type of feeling has elements of both pleasantness and unpleasantness; however, in an audience like the present one, which volunteered to see the "show," the tension was probably predominantly pleasant.

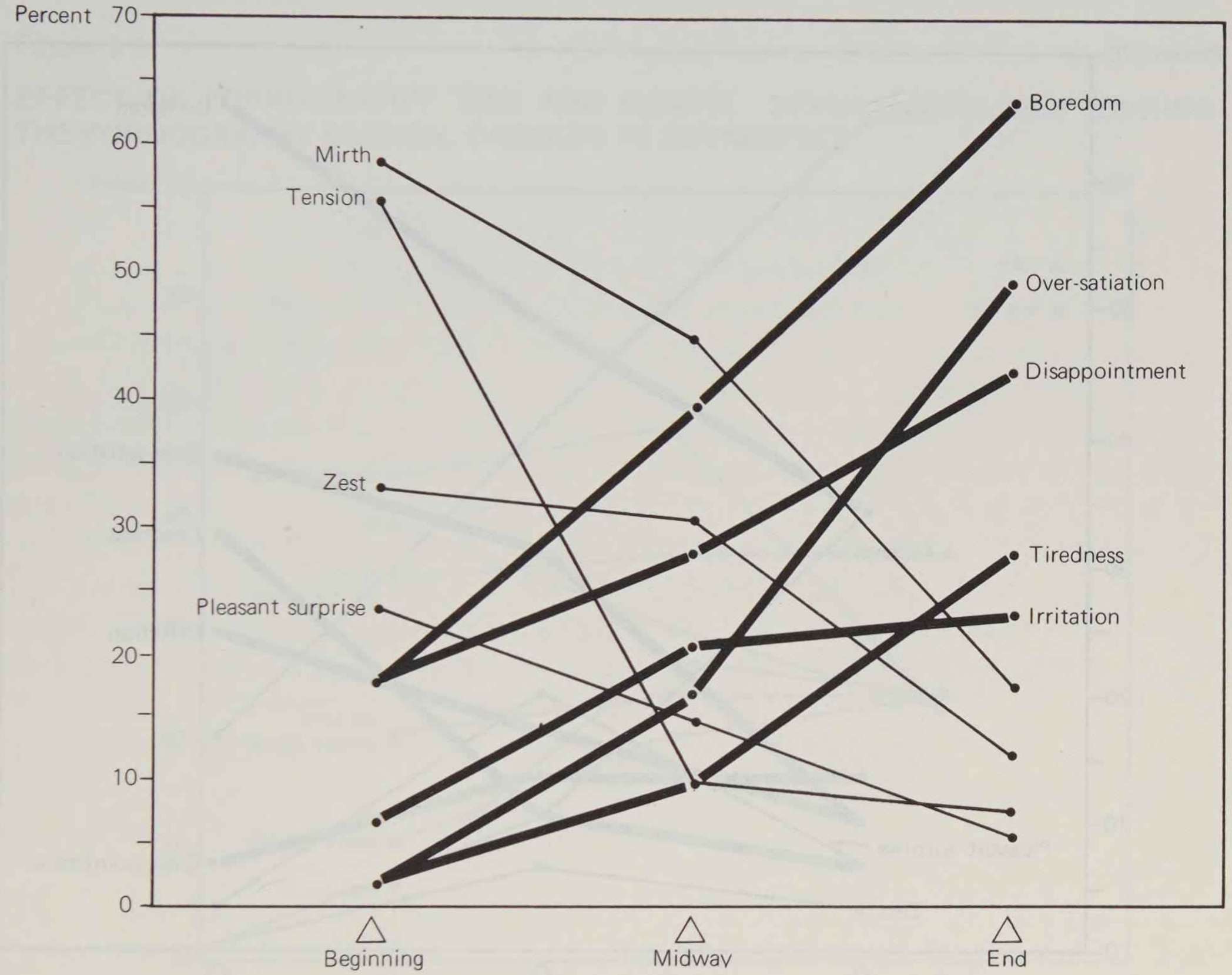
Among the men, the contrast between pleasant and unpleasant feelings during the pornography session is striking: without exception, the frequencies of the pleasant feelings—mirth, tension, zest, and pleasant surprise—decreased, while an increasing number of male subjects reported feelings of boredom, over-satiation, disappointment, tiredness and irritation. Among the women the tendency was clearly the same; however, there were a few exceptions. In contrast to the men, the feeling of pleasant surprise among women started very low, went up in the middle and dropped again towards the end. The same was true for zest, but this feeling was much more rarely checked by the women than by the men. Also, while a considerable and increasing number of men expressed disappointment, much fewer women seemed to be disappointed, and their disappointment went down towards the end of the session.

If the checklist answers contain some truth about the actual feelings among the subjects, it would appear that, as a group, the men had a lot more emotion involved in the experiment than the women. The men apparently had much higher expectations (appearing in the high frequency of tension) and were therefore much more often disappointed than the women. On the other hand they also

had an appreciable amount of sheer pleasure or zest during the session—in striking contrast to the women.

Figure 1

EFFECT OF PORNOGRAPHY, MEN. NONSEXUAL "FEELINGS" DURING THE PORNOGRAPHY SESSION, CHECKED IN RETROSPECT. THIN LINES—"PLEASANT FEELINGS"; THICK LINES—"UNPLEASANT FEELINGS."



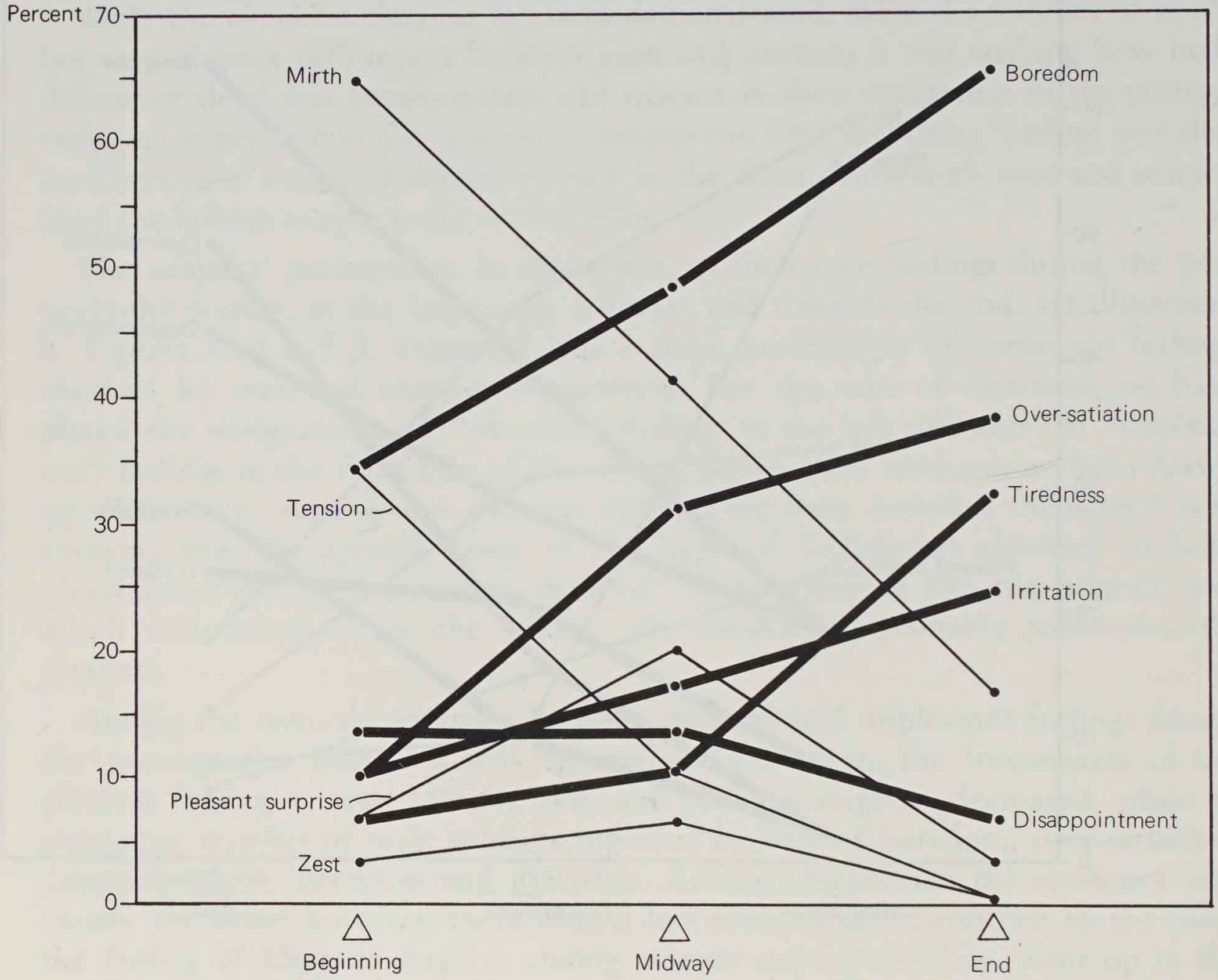
Amidst these differences between men and women, however, it is worth noting that concerning the most frequent feelings checked, namely the strongly decreasing mirth and the strongly increasing boredom, there was little or no difference between the male and the female subjects.

Strongly negative feelings were very rarely checked although more often by the women than by the men. Two women reported feeling anxiety and one woman checked "virtuous indignation," all in the beginning, but not later. One man and two women felt their "decency outraged" throughout the session. "Painfully

embarrassed," "discomfort," "uneasiness," and "disgust" were checked by two or three men, and three or four women each. Feelings listed but never checked were shock and anger.

Figure 2

EFFECT OF PORNOGRAPHY, WOMEN. NONSEXUAL "FEELINGS" DURING THE PORNOGRAPHY SESSION, CHECKED IN RETROSPECT. THIN LINES–"PLEASANT FEELINGS"; THICK LINES–"UNPLEASANT FEELINGS."

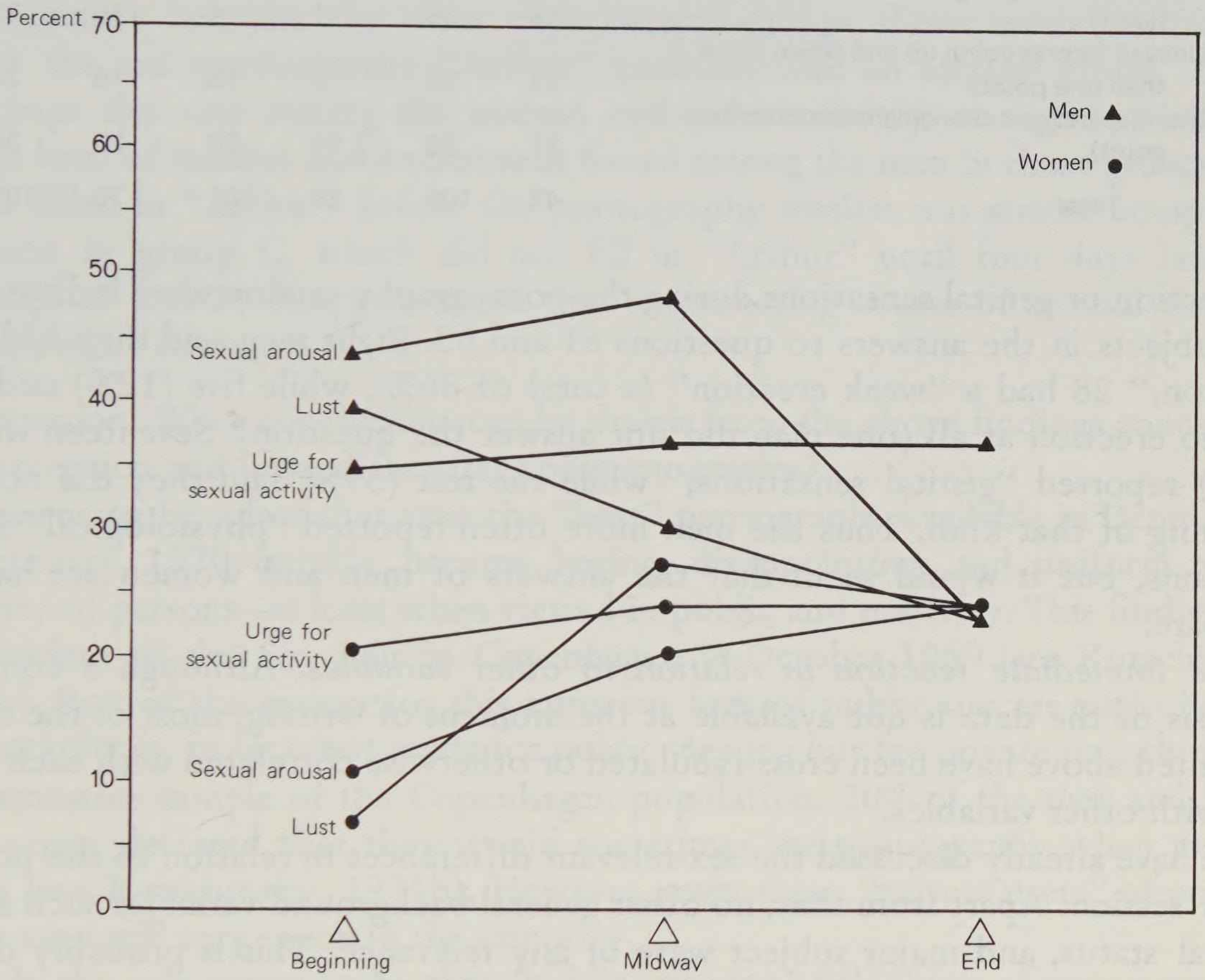


Sexual reaction to the pornography. Turning now to the course of sexual feelings during the pornography session (as reported in retrospect after the session), a difference between male and female subjects once again appears (Figure 3). Among the men, 40 to 44% indicated they felt sexual arousal and lust right from the beginning of the session, while only 7 to 10% of the women did so; in contrast, 23 to 24% of both men and women said they experienced these feelings

at the end of the session. Urge for sexual activity among the women starts somewhat higher than the two other descriptions of sexual feelings, but this too ends up in 24%. Among the men, however, urge for sexual activity runs parallel to the curve for the women. Apparently this urge remained constant, both in men and women, during the whole session (apparently, it is possible to have an urge for sexual activity without being sexually aroused). Apart from that, the results seem to indicate that during the session there was a tendency towards "heating up" of women (though still the majority remained unaffected) while the men tended to "cool down."

Figure 3

EFFECT OF PORNOGRAPHY, MEN AND WOMEN. SEXUAL "FEELINGS" DURING THE PORNOGRAPHY SESSION, CHECKED IN RETROSPECT.



That this was in fact the case, not only for the male and female groups as a whole, but also for an appreciable number of individuals, appeared from the results of the more direct questions concerning sexual arousal during the pornography session. Questions 58 to 60 on the post-porno' test asked the subjects to circle a number on a 0 to 6 scale for sexual arousal "at the beginning," "midway," and "towards the end" of the session. So far the data have been used for the preparation of two indexes. One based on the total score gives some information about the amount of reported arousal; another based on a comparison between the three scores for each individual tells something about the course of the arousal.

The men's total score ranged from 1 to 18 (which is the maximum possible) with a mean of 7.0. The women scored from 0 to 12 and had a mean of 3.9 points. The difference is highly significant (*t*-test: $t<0.001$). The course of the arousal is shown in Table 3. It will be seen that the women more often had a rising or even course than the men, who more often had a falling course.

Table 3

EFFECT OF PORNOGRAPHY: COURSE OF SEXUAL AROUSAL DURING PORNOGRAPHY SESSION, AS INDICATED AFTER SESSION

	Men		Women		Total	
Course of arousal	No.	%	No.	%	No.	%
Rising (scores going up more than one point)	5	12	8	29	13	19
Falling (scores going down more than one point)	15	36	1	4	16	23
Uneven (scores going up and down more than one point)	11	26	5	18	16	23
Even (scores not changing more than one point)	11	26	14	50	25	36
Total	42	100	28	101	70	101

Erection or genital sensations during the pornography session were indicated by the subjects in the answers to questions 61 and 63. Eight men said they had "full erection," 28 had a "weak erection" (a total of 86%), while five (12%) said they had no erection at all (one man did not answer the question). Seventeen women (61%) reported "genital sensations," while the rest (39%) said they did not feel anything of that kind. Thus the men more often reported "physiological" sexual reactions, but it would seem that the answers of men and women are hard to compare.

The immediate reaction in relation to other variables. Although a complete analysis of the data is not available at the moment of writing, most of the results presented above have been cross-tabulated or otherwise correlated with each other and with other variables.

We have already discussed the sex-relevant differences in relation to the pornography session. Apart from that, no other general background variables such as age, marital status, and major subject were of any relevance. This is probably due to the high homogeneity of the experimental group. More interesting perhaps is the fact that even the subjects' sexual background, including coital frequency, frequency of masturbation, and satisfaction in sex life, was found to be without any relation to their perception of and reaction to the pornography. What we did find was:

> A statistically significant relationship, among both men and women, between "interest in 'deviant' sexual practices" (second part of questions 16 to 32, "Arthur") and the general reaction to the pornography. Persons who had a high score on this index tended more often to have an excess of positive reactions to the pornography, that is, favorable evaluations and pleasant feelings.

A favorable reaction was more often found among men who had seen pornographic films before, and among women who declared that they were interested in pornography.

A generally favorable reaction to the pornography was positively correlated with sexual arousal during the session.

There was a very close relation between the immediate reaction to the pornography and the later effect: the more favorably the pornography was experienced and the more sexual arousal took place, the higher was the likelihood that the subject would increase sexual activities within 24 hours after the pornography session. These findings will be dealt with later.

Finally, the procedure itself seems to have had an effect on the reactions. A comparison between the three experimental groups shows several indications that the sex questionnaire "Arthur" probably had an arousal effect. This is perhaps the case among the women and quite certainly among the men. The high level of tension and excitement found among the men in those groups who had filled in "Arthur" before the pornography session was almost completely absent in group C, which did not fill in "Arthur" until four days later. In groups A and B, disappointment and a decreasing course of arousal was also much more common.

Discussion. What conclusions can be drawn from the above findings concerning the perception and immediate effect of pornography?

It seems to be a fact that even the "best" pornography available in Denmark as of February 1970 quickly became boring, disappointing, and uniform to the majority of persons—at least when viewed in public and passivity. This finding was also evident at the Sex Fair in Copenhagen in October 1969 (see Kutschinsky, 1971b). Part of the reason for this apparent lack of public success might be that pornography is, in fact, not made for public viewing but for private use: thus, in a representative sample of the Copenhagen population, 20% of the men and 5% of the women declared that they would sometimes use pornography when masturbating (see Kutschinsky, 1971b). However, even these "private users" of pornography were still very much in the minority.

While the rule seems to be that (public) viewing of this type of pornography is boring, we already know that there are exceptions: some do like to view it. Similarly, it cannot be excluded that it is possible to find or produce pornography which more people will enjoy looking at (even in public).

Concerning the differences between men and women, the conclusions will have to be more restrictive than the above. It is a fact that, as a whole, the women liked the pornography presented in the experiment somewhat less than the men, and they reported less sexual arousal. However, there are indications that both the type and content of the pornography played an important part in the sex-differential reactions to it: more women than men found the text and the second film exciting, while the men liked the first film and the magazines better than did the

women. Unfortunately, when comparing the text and the magazines, there is no way of telling whether the difference is due to the medium or the content, since both differed. And when comparing the first and the second film, there is no way of telling whether the difference is due to the content of the films or to their positions in the session program. To put it otherwise, did the women report a rising sexual arousal from the beginning to the end because they liked the content of the second film better than that of the first one? Or did they like the second film better than the first one because, for some independent reason, their sexual arousal tended to increase rather than decrease?

Moreover, it seems that the "Arthur" had some kind of pre-test effect on the rest of the procedure, and it cannot be excluded that the reactions to the pornography session, including the sex differences, were to some extent due to expectations or feelings induced by the filling in of this questionnaire.

Only renewed experiments in which these factors are varied systematically can provide an answer to these questions.

The later effects on sexual behavior

The questionnaire "Fl-up-Art" (Appendix C), (which was filled in by groups B and C four days after the first session, and with some changes by group A after two weeks) asked the subjects to indicate whether they had "noticed any changes in their sexual activity during the time after the experiment." The following is an outline of the major findings. Wherever possible, data from the three experimental groups have been lumped together, but it must be kept in mind that their circumstances differed somewhat.

Table 4

EFFECT OF PORNOGRAPHY: REPORTED CHANGES IN MASTURBATION WITHIN 24 HOURS AFTER PORNOGRAPHY SESSION

	Men		Women		Total	
Masturbation	No.	%	No.	%	No.	%
Strongly increased	1	2	1	4	2	3
Somewhat increased	5	12	2	7	7	10
Unchanged	33	79	25	89	58	83
Decreased	3	7	0	0	3	4
Total	42	100	28	100	70	100

Masturbation within 24 hours (see Table 4). Six men and three women reported increase in masturbatory activity within 24 hours after the evening of the experiment. The nine persons who reported increase in masturbation did not differ from the rest of the subjects on any of the background variables, including the sexual ones. A connection with the immediate reaction to the pornography session only appeared in one respect: *All* of the nine persons who increased masturbation had indicated that at least once during the session they felt an "urge

for sexual activities" (among all the subjects this was indicated by 60%). An interesting relation between masturbation and the presence or absence of spouse during the pornography session will be dealt with later.

Petting (without coitus). Four men and two women reported increased petting within 24 hours. These figures are too small to be of any use in an analysis.

Table 5

EFFECT OF PORNOGRAPHY: REPORTED CHANGES IN COITAL ACTIVITY WITHIN 24 HOURS AFTER PORNOGRAPHY SESSION

	Men		Women		Total	
Coital activity	No.	%	No.	%	No.	%
Strongly increased	2	5	0	0	2	3
Somewhat increased	9	21	9	32	18	26
Unchanged	30	71	19	68	49	70
Decreased	1	2	0	0	1	1
Total	42	99	28	100	70	100

Coitus within 24 hours (Table 5). Eleven men and nine women (a total of 29%) reported increase of coital activity within 24 hours after the pornography session (one man reported "strongly decreased" and added that this decrease had nothing to do with the pornography, but rather with the fact that he had just become a father).

It is worth noting that the increase in heterosexual activity is much more substantial than the increase in autosexuality. To our knowledge, the present study is the only one so far to have obtained such a result. The reason for this is obviously that our subjects were mostly married couples, while earlier studies only had single persons, or at least persons not coming in couples. The differential effect of viewing pornography "singly" and "with a spouse" can be clearly demonstrated (Table 6). While there was no difference in the overall increase of the sexual activities between men whose spouses were present and men whose spouses were not, there was a striking difference as to the *type* of sexual activity that was increased.

Men whose wives or girl friends participated in the experiment reported increase *only* in coital frequency, never in masturbation. (Two of the men with spouse present who increased coital frequency at the same time decreased their masturbatory activities.) Five men whose spouses were not present increased masturbation; two of these also increased coital activities.

One might suppose that these differences could be explained through other differences between men whose spouses also took part in the experiment and men whose spouses did not, for example, earlier frequency of masturbation, or satisfaction in sex life. However, no such differences have been found. Unless the finding is accidental—which is very unlikely—it must be directly due to the experimental setting. A similar comparison could not be made for women since only a few women came without their husbands.

Table 6

EFFECT OF PORNOGRAPHY: RELATION BETWEEN PRESENCE OR ABSENCE OF SPOUSE* DURING PORNOGRAPHY SESSION AND CHANGES IN SEXUAL ACTIVITY WITHIN 24 HOURS

	Masturbation				Coitus				All sexual behavior			
	Spouse present		Spouse absent		Spouse present		Spouse absent		Spouse present		Spouse absent	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Increased	0	0	5	33	8	38	3	20	9	39	6	40
Unchanged	19	90	9	60	13	62	11	73	11	48	8	53
Decreased	2	10	1	7	0	0	1	7	3	13	1	7
Total	21	100	15	100	21	100	15	100	23	100	15	100

*Wife, fiancée, or steady girlfriend.

Table 7

EFFECT OF PORNOGRAPHY: REPORTED CHANGES IN COITAL ACTIVITY WITHIN 24 HOURS IN RELATION TO OTHER VARIABLES

	Men			Women			Total		
Variables	No. in category	% increased	% not increased	No. in category	% increased	% not increased	No. in category	% increased	% not increased
All subjects	42	26	74	28	32	68	70	29	71
Satisfaction in sex life:									
Low or medium	20	5	95	10	40	60	30	17	83
High	22	45	55	18	28	72	40	38	62
Interest in "deviant" practices:									
Low	8	38	62	11	45	55	19	42	58
Medium	19	11	89	10	0	100	29	7	93
High	15	40	60	7	57	43	22	45	55
General reaction to pornography session:									
Mainly unfavorable	27	11	89	22	18	82	49	14	86
Mainly favorable	15	53	47	6	83	17	21	62	38
Arousal during session:									
Low	28	14	86	18	17	83	46	15	85
High	14	50	50	10	60	40	24	54	46
Checked "lust":									
No	20	5	95	16	25	75	36	14	86
Yes	22	45	55	12	42	58	34	44	56
Checked "sexual arousal" towards end of pornography session:									
No	32	13	87	20	25	75	52	17	83
Yes	10	70	30	8	50	50	18	61	39

In contrast to most of the other results, increase in coital frequency had a number of significant relationships to other variables. Most of these have been listed in Table 7. While no general background variables were of any consequence, two background factors of sexual relevance were correlated with "increase in coital activity": Almost half of the men who had a "high" score (6 to 7 points) on "satisfaction in sex life" increased coital frequency within 24 hours after the pornography session, compared to only one of those who scored medium or low. For unknown reasons such a relationship was not found among the women.

Both among men and women, however, was found an interesting U-shaped correlation with "interest in 'deviant' sexual practices" (questions 16 to 32, "Arthur"): increase in coital frequency occurred far more often among persons who would like to try many of these practices *and* among persons who were very restrictive in this respect (42 and 45%, respectively), while increase rarely took place among these who showed a medium interest (7%).

The remainder of Table 7 shows that increased coital frequency was highly correlated with the immediate reaction to the pornography session. Among both men and women who had more favorable than unfavorable checkings, or who had a "high" arousal score (more than 5 points for women and more than 8 for men), around 50% reported an increase of coital activity within 24 hours. The same was the case among subjects who checked "lust" at all, or who checked "sexual arousal" towards the end. On the other hand, among those who predominantly did not like the pornography and who were not sexually stimulated by it, increased coital activity was a rare exception.

Changes in sexual behavior after more than 24 hours. Groups B and C (who were retested after four days) were also asked about changes in their sexual behavior during the three days following the first 24 hours. Group A was asked about changes within the "following week." Positive answers to these questions were so few that we shall disregard the differences between the experimental groups: Three men and one woman reported somewhat increased masturbation. Three men and two women reported somewhat increased petting. One man and one woman reported highly increased coital activity, and three men and one woman reported somewhat increased coital activity. These figures are too small to be crossed with other variables.

Finally, group A was asked about changes in sexual activity during the second week after the pornography session. No increase whatsoever was reported.

Other changes in sexual behavior. The follow-up provided a number of other opportunities for testing changes in sexual behavior.

The checklist on coital positions and the checklist on "deviant" sexual practices ("Arthur," questions 1 to 10 and 16 to 32) were repeated in the follow-up questionnaire. A comparison between the results before and after the pornography session did not show more than chance shiftings in the behavior part of these checklists.

The follow-up questionnaire finally asked the subjects whether they had noticed other changes that might be ascribed to the experiment. Two of the changes suggested in the checklist concerned sexual behavior: two men (and no women) checked "more satisfactory sexual activity," while six men and five women checked "more varied sexual activity." One woman additionally described how she and her husband had been inspired by the pornography to try a new coital variation.

Discussion. All the evidence found in this study concerning changes of sexual behavior was based on the subjects' own direct and subjective opinion about whether such changes had taken place or not. This fact *may* be responsible for the very high positive correlation between a favorable immediate reaction to the pornography and increased sexual activity: someone who liked the pornography would probably be more inclined to admit that it had had an influence on his behavior than someone who disliked the pornography. In other words, there may have been changes that were not reported, and some changes reported may not actually have taken place.

On the other hand, this whole study relies heavily on the assumption that the individuals taking part do know something about what goes on inside them and what is happening to them, and that they are able and willing to tell about it with some degree of truthfulness. No evidence gives reason to believe that this assumption was not on the whole correct. On the contrary, some of the findings in our study are hardly compatible with an assumption that the subjects were not quite truthful. To these belongs the finding that *none* of the men whose wives or other sex partners were present at the experiment reported increased masturbation, while increase of sexual activity among those married men whose spouses were *not* present, was mainly in masturbation.

We would suggest, therefore, that the results in this section be regarded with "cautious benevolence"—keeping in mind, however, that caution should be especially applied in cases where the pornography has seemingly had a "positive" effect. In this light, the conclusion would be that the one-hour exposure to hard-core pornography, on the whole, had little effect on the sexual behavior. Only a minority of the subjects reported increased sexual activities, and then almost exclusively within the next 24 hours. After a week, the extent of sexual activities had returned to normal in all cases. A few subjects claimed that the pornography had inspired them to try some new sexual variations—apparently, however, none of these variations exceeded "normal, heterosexual behavior." Very few subjects increased masturbatory activity, which is probably due to the fact that most of them were married and that both partners in a couple were present at the experiment. Increased heterosexual activity occurred among an average of 50% of those who reacted positively to the pornography, that is, who liked it and were sexually stimulated by it. On the other hand, increase was a rare exception among those who reacted negatively to the pornography—and they were by far the majority. Increase was also mainly found among those who already thought they had a more satisfactory sex life than average.

The later effects on sexual attitudes

In a number of ways we tried to get an impression of the effect of the pornography stimulation on attitudes. We have already mentioned the absence of any effect on attitudes towards sex crimes. Another part of the experiment concerned the effect on opinions about a number of issues, mainly of sexual and moral implication (questions 45 to 59 in "Arthur"). The results of that part have not yet been analyzed in detail; so far, attempts to find correlations between the answers to this series of questions as a whole and other variables in this study have stranded on the "truncated range phenomenon"—all the subjects placing themselves in the "liberal" end of the scale.

The last question in the "Fl-up-Art" concerning other changes which could be ascribed to the pornography experiment suggested a number of changes in attitude or feelings about sex and pornography. Some were "positive" and some were "negative." Among the negative ones, only "disgust of pornography" got any checkings, namely by five men and one woman. Furthermore, three men and five women added a type of change which, by mistake, had been forgotten in the questionnaire, namely "decreased interest in pornography." Nobody checked "feelings of frustration" or "discomfort at sexual activity"; and no one added other changes of a negative kind.

Among the positive changes, "increased interest in pornography" only received one checking, by a man. Six men and four women checked "increased desire for sexual activity" and eight men and four women checked "desire for sexual innovation." One woman added that, for some time, she had not felt an urge for sexual activity due to her being in the early months of pregnancy. However, she wrote, the pornography evening had reawakened her desire for sex. One man pointed out that his increased desire for sexual activity was not so much due to the pornography he had seen as to a discussion about pornography and sex which he had taken part in afterwards.

While apparently a few subjects did find some sexual inspiration and stimulation in the pornography, or perhaps in the whole experiment, by far the majority of subjects remained unaffected—at least according to their answers to the direct questions about this in the questionnaire.

Changes in sexual attitudes were finally tested through a repetition of the two checklists on sexual practices, "normal" as well as "deviant" (second part of questions 1 to 10 and 16 to 32). While no change in "interest in trying different coital positions" took place, there was a significant change in "interest in trying 'deviant' sexual practices."

Since this part of the experiment was an attempt to provide an answer to a question which has often been asked, but, to our knowledge, never before answered on an empirical basis (see, for example, Clor, 1969, p. 164), we shall deal with it in some detail.

The questions consisted of 17 descriptions of sexual activities, most of them traditionally considered "deviant"; many of these were depicted in the pornographic material used in the session. The subject was to indicate, in each case,

whether he would like to *try* the type of activity. There were three answer categories: "yes," "possibly," and "no." (It should be added that extremely few had ever tried any of these things.) These questions were checked by groups A and B before the pornography session, by groups B and C four days after the session, and by group A two weeks after the session. The purpose of the repetition was to test a hypothesis, based on the traditional pro-censorship viewpoint that viewing pornography will tend to promote "prurient interest." If this hypothesis was to be confirmed, there should be found an increased interest in trying the "aberrations" described in the questions.

An index of "interest" was computed for each person in a very simple way: for each question 2 points were given for "yes," 1 point for "possibly," and 0 for "no." The results were as follows:

In group B, the men scored an average of 8.2 points on the first day, and 6.5 points four days later. While nine men decreased their score by an average of 2.8 points, two men increased by an average of 2.0 points, and none of the men remained unchanged. (The change is significant by the sign test, $p = .033$, and the Wilcoxen matched-pairs signed-rank test, $p < .02$.)

In group B, the women scored a mean of 7.0 points on the first day, and 4.8 points four days later. While seven women decreased by an average of 3.1 points, two women increased by an average of 1.0 point, and none of the women remained unchanged. (This change is not significant by the sign test $p < .09$, most certainly due to the small numbers, but by the Wilcoxen test, which takes account of the size of the change, p becomes $< .05$.)

The combined decrease of men and women in group B is 16 out of 20. The likelihood of getting such a decrease by chance is $< .006$.

In group A, the men scored an average of 10.1 on the first day, and 9.5 two weeks later. While seven men decreased by an average of 1.7, five men increased by an average of 1.3 and two remained unchanged. (The chance of obtaining such changes by random is .39, i.e., not significant.)

In group A, the women scored an average of 7.8 on the first day and 6.3 two weeks later. Six women decreased by an average of 3.0 points, two women increased by an average of 2.0 points, and one woman remained unchanged. (The chance figure for such changes is .15, again, not significant.)

The combined decrease of men and women in group A is 13 out of 20 ($p = .13$).

It should be noticed that the group C scores were in the middle—they did not differ significantly from either groups A or B.

Clearly, there was a serious drop in "interest in 'deviant' sexual practices" measured the way we did it, four days after the pornography session, and a somewhat smaller drop after two weeks. The decrease took place among both men and women, being slightly stronger among the women than among the men. The women had already a significantly lower score than the men.

Discussion. There does not seem to be any doubt that the hypothesis "pornography breeds prurient interest " has been found false in this study. The question is

whether we have enough basis for the conclusion that it had exactly the opposite effect, namely that of diminishing "prurient interest." The results seem to indicate that shortly after the stimulation with pornographic material there was a strong decrease of interest in the very kind of sexual activities which the pornography depicted. This effect seems to have tapered off after a while. However, even after two weeks it was still measurable.

Unfortunately, owing to the way this pilot experiment was designed and to the way "experimental groups" A and B differed from "control group" C, it does not seem possible to conclude whether the decrease in groups A and B was *directly* caused by the pornography stimulation or whether it was due to a combined effect of the pre-test and the stimulation. There is also the possibility that the finding is merely a retest effect inherent with the "Arthur"; that is, independent of any stimulation, people might tend to get a lower score on these specific questions when retested after a while. Much can be said in favor of each of the possibilities put forward; however, the only convincing solution to the problem lies in renewed experiments with control groups or a complete factorial design, including a larger number of subjects.

CONCLUSIONS

This pilot study has yielded three types of results. The first type is the information it has provided concerning methodological problems and solutions. The second type is a number of findings which may guide us in focusing on new questions and formulating more specific hypotheses concerning the perception and effects of pornography. Finally, a small group of findings were so well-supported that it would seem reasonable to classify them separately. This third category of findings will be summarized at the end of this section. First, however, we shall discuss the two first mentioned categories.

The methodological problems confronting a study of pornography are considerable. The most important one would seem to be that we can hardly make any direct observations of the reactions, feelings, changes in behavior and attitudes, and so forth; we are reduced to recording, in one way or other, the subject's own subjective report about these things.[2] Truly enough, such problems are inherent in many other studies of perception, behavior, and attitudes. However, in the study of pornography the difficulty would seem to be more pressing because we are dealing with a topic which for all people is connected to some extent with taboos.

The "forbidden" nature of this object means that in-depth studies, involving direct verbal communication between the experimenter and the individual subject, or direct observation of visible sexual reactions (ad modum Masters &

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2. Interesting attempts have been made to introduce objective criteria into the study of psychosexual reactions, through the measurement of different types of excretion (e.g., Levi, 1969) or through the study of pupil reactions (e.g., Hess, Seltzer, & Shlien, 1965). However, so far, attempts to find unique relationships between such physiological reactions and psychological states of mind have not been successful.

Johnson, 1966) would have to accept a highly selective (or "trained") sample of subjects. Furthermore, in such individual studies, the fact that the subject knows he or she is being closely observed would have to be taken into consideration; in a number of subjects, such knowledge might seriously influence their reactions. On the other hand, if we want to minimize the selectiveness and the observer influence by introducing complete anonymity and letting the subject "hide in a crowd," we become more dependent on the subjects' own recordings of their reactions, and in addition there is the risk that the respondents may influence each other.

In our study of pornography we chose the extreme of the second type: 72 persons went through the procedure in the same room at the same time. This group was probably too large; without losing any of the advantages of a large group study, it would be preferable to split a sample of this size into four or five smaller groups, running through the procedure in separate rooms. In addition to permitting better control, this would also facilitate a systematic rotation of the stimulus material and the questionnaires.

It was interesting to notice that also in this type of study, the "observation" by an experimenter would influence the subjects. It seems that the questionnaire "Arthur" provoked expectations and perhaps also sexual arousal in some of the respondents in such a way that it interfered with their response to the subsequent pornography session. This problem, however, can be overcome through a systematic variation of the position of this questionnaire in the procedure.[3]

While we did provide a control in the pilot experiment for the possible effects of "Arthur" on the response to the pornography session and on some of the later effects, no control was provided for the possible influence of the post-porno' test on the later behavior. This questionnaire may have served to increase the respondents' awareness of their own reactions. However, whether such a *Bewusstmachung* would tend to increase or decrease the subsequent effects (theoretical considerations may lead to both!), or whether it did not have any consequences at all, is unknown. This factor too will be among the many which will have to be varied systematically in a future study.

Apart from the inadequacies resulting from the incomplete experimental design, a number of minor technical, procedural problems and shortcomings in the questionnaire were detected through this pilot study. The overall impression, however, was that the procedure and the questionnaires functioned very smoothly. The subjects were extremely cooperative—this was apparent, among other things, from the fact that all of them agreed to fill in the follow-up questionnaires, although it came as a surprise. Finally, there seemed to be a cogent candidness, seriousness, and consistency in the answers to the questionnaires.

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3. A different solution to this problem was adopted by Schmidt et al. (1969), who administered the sexological questionnaire two weeks before the pornography session. Even at this distance of time from the pornography session, however, the questionnaire may have an influence on expectations, or on the sexual behavior during the days preceding the session. In any case, the safest thing would be to take systematic account of the sex questionnaire in the experimental design.

It would therefore seem fair to conclude that the method used was very applicable. There is reason to believe that continued studies of this type will yield valid and useful results.

Also from a topical point of view, this study seemed promising. In this article we have presented a number of findings (at a few major points, unfortunately, the analysis has not yet been completed). Some of these findings were more or less expected, or directly hypothesized, while others came as a surprise. Among the findings hypothesized were some of the differences between the reactions of male and female subjects, and the correlation between immediate response and later behavior. An example of a quite unexpected result was the finding, in the follow-up, that "interest in 'deviant' sexual practices" had decreased in a significant number of subjects.

Whether expected or not, most of these findings cannot be considered "confirmed" in this study. This means, among other things, that they are unsuitable as a basis for a serious debate on the political level (unless, of course, they happen to be well-supported by findings in other studies). On the other hand, they may, as mentioned, serve as an excellent point of departure for the specification of hypotheses and the formulation of new ones in future studies.

While most of the findings in this study were of the above-mentioned type, a small group of findings had the following characteristics: they were marked and unambiguous results of experimental situations, in which specific hypotheses were put to a test. The hypotheses were formulated before the experiment, and research situations were arranged in such a way that each hypothesis had plenty of opportunity to find support, or to be rejected. We have left out all cases in which the support was insufficient or the rejection qualified.

Before presenting this list of findings, two presuppositions should be mentioned. Firstly, the following findings are facts about the reactions of a group of normal Danish students to a one-hour group exposure to hard-core (Danish) pornography. We shall not try to discuss the extent to which these findings can be generalized to abnormal persons, non-students, non-Danes, exposure in privacy, and completely different types of pornography. Secondly, accepting these findings as facts in the above sense presupposes an acceptance of the assumption that the reports given by the subjects were more or less truthful. The findings are as follows:

1. On the basis of the traditional view on pornography as having a powerful influence on people, it was expected that, in many subjects, the exposure to this hard-core pornography would create strong emotional reactions such as an irresistable urge for sex, horror, fear, shame, and so forth. This hypothesis was clearly rejected: Strong emotional reactions were very rare; as a matter of fact, the most frequent reactions were the relatively vague feelings of mirth and boredom.

2. Similarly, on the basis of traditional viewpoints, we formed the hypothesis that the viewing of hard-core pornography would create in many subjects an

increased interest in "deviant" sexual practices. This hypothesis too was very clearly rejected. In fact, there was a considerable decrease in this type of interest, following, and perhaps due to, the pornography stimulation. The latter finding would seem to favor the "catharsis" theory of the effect of pornography. However, our study did not provide for unambiguous conclusions as to the cause of this change.

3. Finally, traditional views on pornography favor the hypothesis that the viewing of hard-core pornography would create in many subjects a craving for more of the same type (see, for example, Clor, 1969, p. 169). This hypothesis was obviously found to be false. Only a few persons were left, after the exposure to the pornography, with any wish for more. The general reaction was that of over-satiation, and even after four to 14 days many subjects spontaneously declared that they had lost interest in pornography, while only one person said that his interest in pornography had increased.

4. We shall conclude this article by mentioning a hypothesis which was based entirely on sound common sense: The later effects of pornography will, to some extent, depend on whether the subjects view it together with their sex partners or not. This hypothesis was supported. Men whose spouses were present during the pornography session significantly more often increased coital frequency, while men whose spouses were not present tended more often to increase masturbatory activities.

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APPENDIX A

ARTHUR

Here are some drawings of coital positions. Go through the list and put two crosses against each drawing: One to indicate whether you have tried the position in question and one to indicate if you would like to try it (no matter if you *have* tried it or not).

[Items 1 through 10 of the questionnaire concerned ten drawings of horizontal and vertical coital positions with anal and oral variations.]

11. Look at the coitus drawings on the preceding page again. What positions would you prefer, if you were able to decide all for yourself? Please indicate the numbers of the positions.

Prefer most No. _____
Second most No. _____
Third most No. _____

12. What positions do you think most men prefer?

Prefer most No. _____
Second most No. _____
Third most No. _____

13. What positions do you think most women prefer?

Prefer most No. _____
Second most No. _____
Third most No. _____

14. What three positions do you think are the most common?

Most common No. _____
Second most No. _____
Third most No. _____

15. Which ones do you think are the most uncommon? (Need not be in rank order)

No. _____
No. _____
No. _____

Here are some descriptions of other sexual situations. Indicate whether you have tried them and, no matter if you *have* tried them or not, if you would like to.

	Have you tried it?			Would you like to try?		
	Often	Now and then	Never	Yes	Possibly	No
16. To take part as a model in a pornographic setting.	____	____	____	____	____	____
17. To take part in a triangle: one man and two girls.	____	____	____	____	____	____
18. To take part in a triangle: two men and one girl.	____	____	____	____	____	____
19. To take part in group sex: two girls and two men.	____	____	____	____	____	____
20. To take part in an orgy with many people.	____	____	____	____	____	____
21. To go to bed with a person of your own sex.	____	____	____	____	____	____

	Have you tried it?			Would you like to try?		
	Often	Now and then	Never	Yes	Possibly	No
22. To see a show in which a man and a woman have intercourse on the stage.	____	____	____	____	____	____
23. To see a lesbian show (two or several girls carry on sexually together).	____	____	____	____	____	____
24. To see a similar show with male homosexuals.	____	____	____	____	____	____
25. To use a "vibrator."	____	____	____	____	____	____
26. To use a substitute penis.	____	____	____	____	____	____
27. To wear rubber clothes for sexual activities.	____	____	____	____	____	____
28. To be beaten, whipped, or the like.	____	____	____	____	____	____
29. Yourself to beat, whip, or the like.	____	____	____	____	____	____
30. To use handcuffs, chains, pillory, binding with rope, or the like.	____	____	____	____	____	____
31. To have "intimate massage" at a "clinic."	____	____	____	____	____	____
32. To have anal intercourse.	____	____	____	____	____	____

33. Have you tried other sexual varieties?
Write here: _____

34. Would you like to try other sexual varieties?
Write here: _____

35. How old were you when you had sexual intercourse for the first time?
I was ___ years old.
Have never had intercourse ____

36. How often have you masturbated within the last year? (Fill in only one of the spaces.)
About ____ times per month.
About ____ times per week.

37. When was the last time you masturbated?
About _____ ago.
Have never masturbated _____

38. If you have had intercourse: When was the last time you had it?

About_____ago.

39. How often have you had intercourse within the last year? (Fill in one of the spaces only.)

About____times per month.

About____times per week.

40. How many different persons have you had intercourse with within the last year?

Write the number here _____

41. Try to estimate your own sexual interest on this scale: 1 means almost no interest; 7 means extremely great interest. Put a circle around the one figure that fits.

1 2 3 4 5 6 7

42. How do you think your own sexual interest compares with that of most other persons of your own sex and age?

Less than most others'_____

Like most others'_____

Greater than most others'_____

43. Try to estimate how satisfactory your sexual life is to yourself. 1 means extremely unsatisfactory; 7 means extremely satisfactory.

1 2 3 4 5 6 7

44. How satisfactory do you think your sexual life is compared to that of other persons of your sex and age?

Less than most others'_____

Like most others'_____

More than most others'_____

Here are a number of sentences which express viewpoints that many people have. Put a cross against each sentence to indicate whether you strongly agree, agree, disagree, or strongly disagree.

	strongly agree	agree	don't know	dis-agree	strongly dis-agree
45. There are too many descriptions of intercourse in books nowadays.	____	____	____	____	____
46. All longhaired boys should have their hair forcibly cut.	____	____	____	____	____
47. The pleasure you get from sex is better than anything else.	____	____	____	____	____
48. Homosexuality is unnatural and ought to be combatted.	____	____	____	____	____

	strongly agree	agree	don't know	dis-agree	strongly dis-agree
49. It is a great disaster for this country that the ban on pornography was raised.	____	____	____	____	____
50. It can be harmful for the development of children and young people to masturbate.	____	____	____	____	____
51. Pornography is completely harmless, even for children.	____	____	____	____	____
52. There has been too much talking and writing about sex during the last years.	____	____	____	____	____
53. A woman need not be a virgin when she marries.	____	____	____	____	____
54. There ought to be free access to abortions in Denmark.	____	____	____	____	____
55. Most sexual perversions are disgusting.	____	____	____	____	____
56. With regard to sex, people should be allowed to do exactly what they want, as long as it does not hurt other people.	____	____	____	____	____
57. There is too little discipline in schools these days.	____	____	____	____	____
58. A man ought to have sexual experiences before he marries.	____	____	____	____	____
59. It is good for children to have a sound thrashing now and then.	____	____	____	____	____

In the following questions, pornography means books, magazines, or substandard films, which *predominantly* have to do with strong sexual descriptions.

60. Do you consider yourself to be interested in pornography?

Yes, to a great extent ____
Yes, to some extent ____
No ____
Absolutely no ____

61. Have you ever bought a regular pornographic book? Yes ____ No ____

62. Have you ever bought a regular pornographic magazine? Yes ____ No ____

63. About how many regular pornographic books have you read? About_____books.

64. About how many regular pornographic magazines have you looked through? About_____magazines.

65. About how many regular pornographic films have you seen? About_____films.

66. Your age?_____years.

67. Man ____ Woman ____

68. Are you
____ Married
____ Divorced
____ Widowed
____ Unmarried
____ Engaged
____ Going steady with someone

70. Is your spouse present here? Yes ____ No ____

APPENDIX B

POST-PORNO' TEST

1. What I liked best was_____
2. What I did not like was_____
3. In general I think that pornography is_____
4. I think that film No. One was_____
5. I think that film No. Two was_____
6. The pornography magazines were_____
7. The reading aloud was_____
8. What was most sexually arousing for me was_____
9. I found it unpleasant_____
10. The experiment as a whole was_____
11. Besides I think_____

Put a cross in each column against the answers you think fit to your experience.

During the pornography session I felt:	In the beginning	Midway	Towards the end
12. Anxiety			
13. My decency outraged			
14. Shock			
15. Virtuous indignation			
16. Pleasant surprise			
17. Irritation			
18. Boredom			
19. Lust			
20. Wish for more pornography			
21. Mirth			
22. Zest			
23. Oversatiated			
24. Painfully embarrassed			
25. Sexual arousal			
26. Disappointment			
27. Tension			
28. Urge for sexual activity			
29. Tiredness			
30. Discomfort			
31. Uneasiness			
32. Anger			
33. Disgust			
34. Other (state what)			

Put a cross against the answers you think fitting with your experience of:

	Film No. 1	Film No. 2	Pornographic magazines	Reading aloud
35. Lovely				
36. Indecent				
37. Frustrating				

	Film No. 1	Film No. 2	Pornographic magazines	Reading aloud
38. Callous				
39. Grotesque				
40. Boring				
41. Ridiculous				
42. Lustful				
43. Indifferent				
44. Funny				
45. Exciting				
46. Informative				
47. Stilted				
48. Embarrassing				
49. Bawdy				
50. Smutty				
51. Technically bad				
52. Technically good				
53. Weird				
54. Inartistic				
55. Entertaining				
56. Sickening				
57. Other (state what)				

On the scales below please indicate the degree of sexual excitement you felt during the pornography session. 0 means absolutely no sexual excitement and 6 means very strong sexual excitement. Put a circle around the number you consider best fit.

58. In the beginning of the pornography session	0	1	2	3	4	5	6
59. Midway	0	1	2	3	4	5	6
60. Towards the end of the pornography session	0	1	2	3	4	5	6

Questions for *men*:

61. Did you have an erection at any moment?

No _____
Weak erection _____
Full erection _____

62. Did you have an orgasm?

Yes _____
No _____

Questions for *women*:

63. Did you have any genital sensations?

Yes _____
No _____
Don't know _____

64. Did you have an orgasm?

Yes _____
No _____

APPENDIX C

FL-UP-ART

Cover page:

In this questionnaire some of the questions are repetitions from last Thursday, while others are new. Please answer *all* the questions carefully, *as if they were new.*

Page One:

("Arthur," (Appendix A) page 1, repeated unchanged)

Page Two:

("Arthur," page 3, repeated unchanged)

Page Three (after four days, groups B and C):

Have you noticed any changes in your sexual activity during the time after the pornography experiment?

1. From Thursday evening after the experiment till Friday midnight:

	Masturbation	Coitus	Petting without coitus
Strongly increased	_____	_____	_____
Somewhat increased	_____	_____	_____
Unchanged	_____	_____	_____
Somewhat decreased	_____	_____	_____
Strongly decreased	_____	_____	_____
How many times? (write figure)	_____	_____	_____

2. From Friday midnight till Monday at six o'clock p.m.:

	Masturbation	Coitus	Petting without coitus
Strongly increased	_____	_____	_____
Somewhat increased	_____	_____	_____
Unchanged	_____	_____	_____
Somewhat decreased	_____	_____	_____
Strongly decreased	_____	_____	_____
How many times? (write figure)	_____	_____	_____

3. Have you in any other way noticed changes, which might be attributed to the pornography experiment, such as (please check):

Increased desire for sexual activity _____
More satisfactory sexual activity _____
More varied sexual activity _____
Feeling of frustration _____
Discomfort at sexual activity _____
Increased interest in pornography _____
Disgust of pornography _____
Desire for sexual innovation _____
Other changes in attitude or behavior: (Please write below)

Page Three (after two weeks, group A):

Have you noticed any changes in your sexual activity during the time after the pornography experiment?

1. About the first 24 hours after the experiment:

	Masturbation	Coitus	Petting without coitus
Strongly increased	_____	_____	_____
Somewhat increased	_____	_____	_____
Unchanged	_____	_____	_____
Somewhat decreased	_____	_____	_____
Strongly decreased	_____	_____	_____

2. The rest of the first week after the experiment:

	Masturbation	Coitus	Petting without coitus
Strongly increased	_____	_____	_____
Somewhat increased	_____	_____	_____
Unchanged	_____	_____	_____
Somewhat decreased	_____	_____	_____
Strongly decreased	_____	_____	_____

3. During the second week after the experiment:

	Masturbation	Coitus	Petting without coitus
Strongly increased	_____	_____	_____
Somewhat increased	_____	_____	_____
Unchanged	_____	_____	_____
Somewhat decreased	_____	_____	_____
Strongly decreased	_____	_____	_____

4. Have you in any other way noticed changes which might be attributed to the pornography experiment, such as (please check):

Increased desire for sexual activity _____
More satisfactory sexual activity _____
More varied sexual activity _____
Feeling of frustration _____
Discomfort at sexual activity _____
Increased interest in pornography _____
Disgust of pornography _____
Desire for sexual innovations _____
Other changes in attitude or behavior (please write below):

Effects of Erotic Films on Sexual Behavior of Married Couples

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ABSTRACT

Eighty-five married couples were studied in order to investigate the effects upon sexual and marital attitudes and behavior of viewing erotic films as compared with viewing nonerotic films or no films. Initially, 51 males and 34 females were assigned to groups viewing erotic films; 17 males and 34 females to groups viewing nonerotic films; and 15 couples to a minimal contact control group. All three groups executed a pre-experimental assessment battery covering demographic, sexual history, and attitudinal data. All subjects except the minimal-contact controls then submitted detailed reports of marital and sexual behaviors daily for four weeks. Subjects assigned to view erotic films were then randomly subdivided into one group in which couples viewed films together, a second group in which males viewed erotic films while their wives viewed nonerotic films, and a third group in which couples viewed erotic films after receiving instructions that such films had been found to be beneficial to marital

1. During the course of the study, this author was a BioSciences Fellow in the Department of Psychiatry at Stanford. He is currently in the Department of Psychology at Oberlin College, Oberlin, Ohio 44074.

sexual adjustment. Subjects in the erotic and nonerotic film conditions attended one film-viewing session per week for four weeks; some subjects viewed a total of seven explicitly erotic films depicting a variety of standard and nonstandard sexual activities and others viewed four nonerotic films. Subjects were asked to rate films on a number of variables. Limited-contact controls neither submitted daily questionnaires nor viewed films. Subjects in film-viewing conditions continued to submit daily reports throughout the four weeks of film-viewing and for an additional four weeks. All subjects then executed final assessment batteries. Results indicated that viewing erotic films, as compared with viewing nonerotic films or no films, produced no significant differential changes in subjects' attitudes except that female subjects viewing nonerotic films became significantly less permissive toward legalization of pornography relative to female subjects viewing erotic films. No sustained changes in behavior were found for subjects who viewed erotic films relative to other subjects; however, they exhibited significantly greater activity on film-viewing nights than did subjects who viewed nonerotic films. Some subjects in all conditions reported that participation in the study benefited their marital and sexual relationship. Film rating data are discussed.

INTRODUCTION

Proponents of legislation restricting dissemination of erotic films commonly maintain that exposure to such films instigates antisocial behavior. In contrast, opponents of such legislation frequently take the position that erotic films may provide a therapeutic catharsis for sexual impulses. Reviews of experimental studies of human sexual arousal (Cairns, 1968; Cairns, Paul, & Wishner, 1962; Mann, 1971) indicate that there is almost no evidence to support either position. As Cairns (1968) emphasizes, previous experimental work has focused upon specific dependent measures within the laboratory setting and has stopped short of evaluating the effects of visual erotic stimuli upon subsequent behavior and attitudes of subjects in a natural environment. The present study attempts to investigate longitudinally, within a natural environment, the effects of repeated exposures to erotic films upon the sexual behaviors, attitudes, and marital relationships of a group of married couples. First, however, we shall summarize the major findings of prior experimental studies of human sexual arousal, even though few of these studies have investigated effects beyond the laboratory setting.

The principal findings of the above reviews are as follows:

1. Exposure to pictorial representation of nudity or sexual activity tends to produce somatic, behavioral, and affective correlates of sexual arousal in a high proportion of college males and females.

2. Numerous factors, such as social context, sex of viewer, content of stimulus, and sexual experience and orientation of viewer, influence both the intensity and qualitative nature of response.

3. Evidence from clinical and experimental studies based on learning theory suggests that sexual behavior and attitudes may be modified by modeling, classical and operant conditioning, and social influence processes.

Investigators at the University of Hamburg have recently published a series of studies which appear to be the first to measure changes in subjects' behavior outside the laboratory following exposure to erotic films and slides. Schmidt, Sigusch, and Meyberg (1969) reported that, of 99 college males exposed to a single session of viewing erotic slides, approximately 26% masturbated more often during the 24 hours following exposure than they did in the 24 hours preceding exposure, 5% masturbated less often, and the others either were nonmasturbators or exhibited no change in frequency. There was also a nonsignificant tendency toward increased frequency of coitus, petting, and spontaneous erections. One factor contributing to the lack of a significant increase in coital activity may have been the relative unavailability of coital partners during the 24-hour period studied. Schmidt and Sigusch (1969) presented erotic slides and motion pictures to 128 college males and 128 college females and interviewed them afterward about their sexual behavior during the 24 hours before and after exposure to the stimuli. Both men and women reported significant increases in frequency of masturbation. Females also exhibited small but significant increases in frequency of petting and coitus. During the 24 hours after viewing, no subject engaged in behaviors that he or she had not engaged in at some time during the preceding 12 months. The above and related findings are discussed further in Schmidt and Sigusch (in press) and Sigusch, Schmidt, Reinfeld, and Wiedemann-Sutor (1970).

Although the Hamburg studies constituted an initial attempt to extend findings beyond the confines of the laboratory, several methodological problems restrict the extent to which they permit inferences as to the effects of viewing erotica upon the subsequent sexual behavior of various segments of the general population.

First, the single exposure to erotic stimuli employed by these investigators may have failed to elicit subjects' full behavioral potential. Alternatively, subjects could have been exposed to repeated showings separated by time intervals of several days, in order to allow for the possibility that subjects' expanded sexual fantasies would produce progressive changes in behavior. Second, restricting time-samplings to the 24 hours before and after viewing diminished the opportunity for the appearance of new behaviors to be observed, and impaired adequate evaluation of changes in frequency of habitual behaviors. A longer pre-experimental period would have allowed for the observation of subjects' base rate of sexual activity, which could then have been compared to an equivalent time-period of activity following viewing. Third, these studies employed only college student samples. Although using college students probably insures relative homogeneity of demographic characteristics and, therefore, relative homogeneity of response, college groups have been used almost exclusively in previous

experimental studies of human sexual arousal. Using such restricted samples creates problems in applying findings to the general population. In the above studies, for example, restricting the sample to unmarried subjects obviously left to chance the availability of a sexual partner during the brief period investigated. Thus, studying these young unmarried subjects measured the effects of sexual arousal upon individuals who may or may not have had a sexual partner readily available, with the result that data are somewhat confounded by differences among subjects in terms of the availability of a partner. Although investigation of such samples is a legitimate focus of study, it leaves unexplored the question of the influence, if any, that exposure to erotica exercises upon the sexual behavior of a large group, namely, those individuals who have readily available partners with whom they can conceivably perform the widest range of sexual activities. It appears necessary, therefore, to augment previous studies of unmarried samples by investigating married or cohabiting couples.

PROBLEM

The present study investigates the effects of exposure to specific types of erotic films upon sexual as well as general marital behavior and the sexual attitudes of a reasonably homogeneous group of married couples throughout a 12-week period. It is, in part, an extensive field survey, since it collects detailed data on the sexual and marital activities of subjects in their natural environment for 84 consecutive days; it is also, in part, an experimental study, since it introduces the showing of various types of erotic films as an experimental manipulation during the central time block of the investigation.

Because of the almost complete lack of empirical evidence concerning the effects of erotica upon human behavior, it was decided to study a relatively homogeneous sample. Thus, results applicable to one specific segment of the population could be reported. The present methodology could then be applied to additional samples in order to develop a cross-sectional view of the problem. It was decided to recruit predominantly middle-class couples, married at least 10 years, who resided in the environs of Palo Alto, California, an area populated largely by middle-income professionals, semiprofessionals, and businessmen. Several considerations governed selection of this particular sample. First, it was anticipated that their motivation for participation in an innovative and socially relevant study would be high. Moreover, such a sample presumably would be capable of completing a rather detailed daily questionnaire with the required degree of accuracy and reliability. Second, one would expect that couples married for 10 years would have evolved stable, if not stereotyped, patterns of sexual behavior and would have crystallized attitudes concerning sexuality. Thus one might cogently attribute any changes that might occur within the present sample to the effects of the experimental manipulation rather than to random extra-experimental influences. Third, it was considered possible that exposure to erotica might instigate more frequent or more varied sexual activity among

married couples whose frequency or spontaneity had declined over time or whose rearing during a relatively repressive era might have inhibited development of extensive repertoires of sexual behaviors. Also, there is some evidence that middle-class status may be associated with diminished potency in middle-age; Newman and Nichols (1960), who studied the sexual activity of aging males, reported sharper declines in potency for middle-class than for lower-class subjects. Moreover, it is probable that couples demographically comparable to the present sample might seek professional help for marital and sexual problems, if only because they can afford it.

Although the present investigators have been unable to find published reports of the professional use of erotica for stimulating jaded married couples, they have received personal communications from several therapists alluding to such use by themselves or their colleagues.[2] For the above reasons, it appeared important to investigate the effects of erotica upon the sexual activity and other marital behaviors of the present sample. Moreover, in view of the almost total lack of evidence as to the instigational effects of exposure to erotica on behavior, selection of a sample posed an ethical problem. Thus it was believed preferable to test these effects upon stably-married, socialized, predominantly middle-aged subjects, whose most probable sexual outlet would be their marital partners, rather than to recruit, for example, young, unmarried subjects, who might be less socialized and more sexually impulsive and who would not have access to societally sanctioned sexual partners.

The paucity of prior research on the problem under study precludes hypotheses. However, on the basis of previous laboratory research, certain areas of inquiry were emphasized: (*a*) effects of erotic as compared to nonerotic films; (*b*) sex differences in response; (*c*) differential responses to films portraying various types of explicit sexual activity, for example, heterosexual versus homosexual; (*d*) effects of social context; (*e*) immediate versus extended effects; and (*f*) effects of order of presentation.

METHOD

Subjects

Recruiting of subjects

Prospective subjects were recruited by means of advertisements in the *Palo Alto Times*, a daily newspaper, by handbills posted in several supermarkets, and by circular letters distributed to key people within the area. All contained the following text:

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2. These include Dr. Albert Ellis, Institute for Advanced Study of Rational Psychotherapy, New York, and Dr. William Hartman, Center for Marital and Sexual Studies, Long Beach, California.

MARRIED COUPLES NEEDED

by federally-funded team of social scientists to participate in important and unique scientific research project. MUST BE MARRIED AT LEAST TEN YEARS. Spend two minutes daily for twelve weeks completing check list of marital behavior. Absolute anonymity guaranteed. Payment at end of study. For further details phone: 325-4411, or send name and phone number to Family Study, P.O. Box 988, Palo Alto, California 94301.

Within a four-day period, 186 respondents replied to a telephone answering service and an additional 21 replied by mail. Although applications were closed at that point, 38 more respondents subsequently applied. A research assistant randomly selected respondents from among the mail replies and from the list submitted by the answering service. She telephoned each of these prospects explaining the nature of the questionnaires, procedures, and time commitments involved, and the amount of payment ($75.00 per couple). Couples wishing further details were invited to attend one of a series of meetings. Of the 123 couples who were telephoned, 105 agreed to attend meetings in groups of five or six couples, and 95 actually attended. Of the 18 individuals who were telephoned but did not volunteer, nine promised to discuss participation with their spouses but did not call back and seven others did not qualify because they had not been married 10 years. No prospects stated that they were reluctant to view erotic films. Although it is difficult to identify all the reasons for failure to volunteer or failure to attend meetings after volunteering, several of these prospects mentioned scheduling, babysitting, or other practical problems. Many of those who agreed to volunteer seemed most attracted by the federal sponsorship and scientific research connotations of the study. After attending these meetings, 93 of the 95 couples agreed to participate. The two who declined cited no specific reasons for their decision. Of these 93, 85 were randomly selected as final participants, since the design of the study required a sample of 85. Thus, of 123 prospective couples originally telephoned, 78% volunteered as participants.

During the course of each meeting, the principal investigator presented each prospective subject with a written summary of the study and a sample copy of the report form that he or she would be asked to mail daily. He then answered subjects' questions and asked interested individuals to complete a consent form, stating that they understood the requirements of the study and were willing to participate. Several steps were taken to reduce the likelihood that prospective subjects would develop response sets, biases, or the expectation that viewing the films would affect their sexual behavior. First, all information given to them was designed to support the assumption that the study was primarily a field survey of married couples' sexual patterns and to divert attention from its experimental aspects. Second, prospective subjects were requested to suspend conjectures about the major emphases of the study and, if selected, to try to execute questionnaires as accurately and candidly as possible. They were assured that they would receive a complete summary of results following completion of the study. Finally, in

order to minimize the probability that their attitudes toward pornography or government regulation of pornography would bias their responses, they were not informed that the study was being funded by the Commission on Obscenity and Pornography. Instead they were told that the funding agency wished to avoid premature publicity and would therefore remain anonymous until the completion of the study. To maximize candor in reporting, the investigator explained in detail to each group of prospective subjects the procedure which would be followed to insure their anonymity. He emphasized that they should feel free to report all behaviors with perfect confidence and that their questionnaires would in no way be linked with them as individuals. Furthermore, he stressed the necessity for spouses' executing and mailing daily reports individually, privately, and without consulting each other.

Assignment to groups

Subjects were assigned by means of a table of random numbers to the control condition, comprising 15 couples, or to one of four film-viewing conditions, each comprising 17 couples. Although it was considered desirable to attempt matching of subjects on one or two major variables, the use of dyads rather than individuals rendered such matching impractical. However, assignment produced experimental groups which did not differ significantly among themselves on crucial variables.

Procedure

Pre-experimental assessment

Within three to four weeks after appearance of the first advertisement for subjects, the three instruments described below were administered as pencil-and-paper inventories to participants as a group. No instructions other than the written ones accompanying the instruments were administered to the respondents; however, the principal investigator remained available to answer individual questions. Males and females were seated at segregated tables in order to separate couples and to reduce constraint in responding. Upon entering the room, each subject obtained his coded questionnaires by selecting a sealed manila envelope to which was stapled a card bearing his name. After he or she had detached the name card, a three-letter code word remained on the outside of the envelope; however, the instruments inside the envelope were coded with a numerical code unknown to the experimenter, who had access only to the names of the subjects and their corresponding three-letter codes. Thus, one person knew only the numerical code and the three-letter code; a second person knew only the three-letter code and the subjects' names. Since only the numerical code appeared on questionnaires, no person possessed sufficient information to identify individual participants' questionnaires.

The pre-experimental assessment battery comprised the instruments described below.

Psychology Today Research Questionnaire on Sex. This 100-item inventory devised by Athanasiou and Shaver (in press)[3] was originally distributed as an insert in the July 1969 issue of *Psychology Today*. It contains three sections: questions dealing with (*a*) attitudes, (*b*) demographic information, and (*c*) actual sexual behavior. Embedded in these sections are two multi-item scales designed to measure "romanticism" and "sexual liberalism." This instrument was used to elicit background data on the demographic characteristics, attitudes, and sexual histories of the present sample and to measure pre-post attitude change. Although the 20,000 *Psychology Today* readers who originally replied to the questionnaire apparently constituted an exceptionally liberal segment of the general population, they did provide extensive data with which results for the present sample could be compared.

Marriage Council of Philadelphia Marital Adjustment Survey[4]. The present investigators used an abridged form of this 33-item inventory to assess patterns of sexual behavior, each individual's degree of satisfaction with various sexual activities, and perception of spouse's degree of satisfaction with these activities. This questionnaire was used to elicit background data on participants' sexual activities and to cross-validate comparable data derived from daily report forms.

Marital Survey. This inventory, designed by Starr and Mann (1969) as a measure of marital functioning, comprises 20 items dealing with various dimensions of marital roles and attributes (e.g., "parent to your children," "source of affection to spouse," "source of trust for spouse"), on which each respondent rated himself and his spouse on seven-point Likert scales. In the present study, pre-post administrations were used to assess change in level of marital harmony within the sample.

Film Experience Survey. This additional questionnaire, devised by the present investigators, was administered to all subjects approximately four weeks after the above battery and just prior to presentation of the first film of the experimental series. This instrument briefly surveyed the extent of each respondent's previous experience with various categories of erotic films, his typical response to each category, and his opinion as to the degree of legal censorship which should be applied to each category. The final portion of the survey was readministered following the study in order to assess possible changes in attitudes toward censorship.

Daily reporting procedure

After completing the questionnaires comprising the assessment battery, each subject removed from his manila envelope (*a*) a manual of instructions for executing daily reports, (*b*) 84 daily report sheets coded with his identification number and numbered serially from 1 to 84, and (*c*) a chart indicating the

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3. The cooperation of these authors in making available a preliminary draft of their manuscript and the cooperation of *Psychology Today* in permitting use of the questionnaire are gratefully acknowledged.

4. The authors thank the Marriage Council of Philadelphia for permission to adapt their instrument for use in this study.

number of each report sheet and the date on which it was to be executed. This last chart was supplied in the event that subjects inadvertently failed to mail one or more reports promptly or became confused about the numerical sequence of reports.

The investigator instructed subjects to read through the instructions carefully. He then emphasized key points and answered questions. Subjects were also advised that they could telephone a female research assistant at a number listed in the printed instructions if they required further clarification of the procedure.

Daily report forms contained 42 separate items. Each of the first 24 items was contained in an individual printed box, as in Figure 1. Items 1 through 10 covered

Figure 1 EXAMPLE OF INDIVIDUAL ITEM ON DAILY QUESTIONNAIRE

16. You orally stimulated partner's genitals to climax With:	DNO		
	P	W	D
Spouse			
Partner (opp. sex)			
Partner (same sex)			

sexual behaviors or behaviors relevant to sexual activity for which each respondent was to indicate occurrence by placing an *X* in the *P* column opposite the category of partner with whom he had *performed* the activity, in the *W* column opposite the category of partner with whom he had *wanted* to perform the activity, or in the *D* column opposite the category of partner with whom he had *daydreamed about* performing the activity. For most behaviors, spaces were provided for the following partners: spouse, partner (other than spouse) of opposite sex, and partner same sex. An *X* placed in the *DNO* box indicated that the behavior in question *did not occur* during the 24-hour period covered by the report (from noon on the previous day to noon on the day of mailing).

Items 11 through 24 also dealt with sexual behaviors; however, for these items respondents were to specify the frequency of occurrence. The instructions describe a discrete event as an episode of sexual activity extending from the beginning of foreplay to the cessation of afterplay. Thus, if oral-genital contact, for example, occurred intermittently during a single protracted episode of sexual activity, the occurrence would be treated as a single event. In order for oral-genital contact to qualify as a multiple event it must have occurred in more than one sustained sexual episode within the reporting period. On the other hand, one sexual episode might encompass occurrences of several different behaviors, all of which would be reported individually if they had occurred at any time during the episode. Thus, if oral-genital contact, anal intercourse, and vaginal intercourse

all had occurred during a single sustained sexual episode, all three were to be reported. The distinction between wanting to perform (*W*) and daydreaming about performing (*D*) a given behavior was emphasized. The former denotes willingness and readiness on the part of the respondent to engage in the behavior in question if the opportunity presented itself; the latter denotes ruminating about performance of a given behavior without definite willingness, readiness, or intention to perform it. For any given behavior with a given partner, only the most active option was to be reported. Thus an individual who *wanted* to have intercourse with his spouse early in the evening but did not *perform* the act until somewhat later would only report performance *(P)*. Similarly, subjects who daydreamed about performing a specific act with a given partner but subsequently were actively ready and willing to perform the behavior would only report wanting to perform (*W*).

Items 25 through 33 of the daily report dealt with personal and interactional variables not specifically sexual in nature, which each respondent was asked to rate on a seven-point Likert scale ranging from "Very Much" to "None." Items 34 to 39, which dealt with sexual behaviors such as duration of foreplay or respondents' perceived degree of adequacy as a sex partner, were to be rated on a seven-point Likert scale only if respondent and spouse had engaged in sexual activity during the reporting period.

The remaining portion of the daily report provided spaces for (*a*) female respondents to indicate whether they were menstruating during the reporting period, (*b*) males to report failure to achieve or hold an erection or to attain ejaculation, (*c*) all respondents to describe erotic dreams, and (*d*) all respondents to report unusual circumstances in their lives which might have affected their sexual activity. In order to facilitate uniformity and precision in reporting, detailed definitions of terms and examples of various behaviors were included in the manual of instructions with which each subject was provided.

Along with his other reporting materials, each individual subject was given a packet of 84 stamped, addressed envelopes in which he was to mail his daily reports. The investigator emphasized that each subject was to complete and mail forms individually, privately, and without consulting his spouse. Precautions taken by the investigators to safeguard anonymity were reiterated.

Subjects were instructed to file their first daily report on Sunday, December 14, immediately following completion of the assessment battery. They were informed that they would be telephoned by a staff member in the event that they failed to file reports promptly but that the staff member would have no access to their numerically coded data. They were also instructed to use only their three-digit code designation when requesting information from the research assistant. Thus, if the research assistant had to mail materials to a subject, she could seal the numerically-coded materials in an envelope and mark the envelope with the subject's three-letter code. The envelope could then be transmitted to an assistant in another building who could enclose the materials in a second envelope on which he would substitute the subject's name and address for the three-letter

code. Telephone messages could be translated in similar fashion before being transmitted by one assistant to another.

Daily reporting was continued over three four-week phases: the baseline phase, during which normative data was collected; the film-viewing phase, during which short-term effects of film-viewing were evaluated; and the followup phase, during which changes following cessation of film-viewing were evaluated.

Film-viewing and control conditions

Sixty-eight couples were randomly assigned to four film-viewing conditions, each comprising 17 couples. An additional 15 couples who neither saw films nor completed daily questionnaires were assigned to a fifth group. During the film-viewing phase of the study, which immediately followed the initial four weeks of daily reporting, each subject in the four film-viewing conditions was required to attend one 30-minute session of film-viewing weekly for four consecutive weeks. Subjects were never explicitly informed of the experimental condition to which they would be assigned but merely were told that they would view either erotic or nonerotic films. Presumably, after viewing their first sequence of films in Phase 2, they understood which of the two types of films they would view in subsequent sessions. It was understood also that those assigned to the viewing of nonerotic films during the study would be permitted to view all the erotic films at the conclusion of the study. Approximately 40 subjects attended each session. Films were shown in a large conference room[5] by a clinical psychologist who had had no previous contact with the subjects. His verbal contact with them during film-viewing sessions remained minimal; however, he had been instructed to observe their reactions and to record any unusual behavior.

Upon entering the room, each subject selected a manila envelope to which was stapled a card bearing his name. This card was subsequently detached. Each envelope contained one coded Film Rating Sheet for each film to be viewed during the session; forms used for subjects who viewed erotic films differed from those used by subjects who viewed nonerotic films.

Condition I required both spouses to view erotic films as a couple. Subjects in this condition received the following written instructions prior to each film-viewing session:

> This evening and one evening a week for the following three weeks you will be seeing films concerned with a variety of human sexual activities. Because individual reactions vary we are showing several different kinds of films in order to survey people's responses to them.
>
> We would appreciate your giving us as spontaneous and honest a reaction as you can to all the films you will be seeing over the next few weeks. Thank you for your cooperation, and as usual your anonymity will be protected.

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5. The authors thank Dr. John Elderkin Bell for granting permission to use the facilities of the Mental Research Institute, Palo Alto, California.

Condition II also required both spouses to view erotic films as a couple; however, it was suggested to Condition II subjects that viewing the films might facilitate their marital sexual relationship. They received the following written instructions prior to each film-viewing:

> This evening and one evening a week for the following three weeks you will be seeing films concerned with a variety of human sexual activities. Some of these films have been used by people in the mental health professions for helping married couples achieve a better sexual relationship. They have also been used by such church-affiliated organizations as the Glide Foundation of San Francisco in their courses on sexual sensitivity. These courses were designed to help people to develop an awareness and acceptance of themselves as sexual beings. Judging by the experience of others, you may be sexually aroused by some or all of these films. This is perfectly natural. However, individual reactions vary and a film that arouses one person may not have the same effect on another. Thus, if a particular film does not happen to arouse you, it is possible that another one will.
>
> We would appreciate your giving us as spontaneous and honest a reaction as you can to all of the films you will be seeing over the next few weeks. Thank you for your cooperation, and as usual your anonymity will be protected.

Condition III males viewed erotic films under the same instructions given to Condition I subjects; however, their wives viewed nonerotic films.

Condition IV required both spouses to view nonerotic films as a couple. Condition IV subjects and Condition III wives received the following written instructions prior to each film-viewing.

> This evening and one evening a week for the following three weeks you will be seeing films concerned with a variety of topics. Because individual reactions vary we are showing several different kinds of films in order to survey people's responses to them. Several weeks from now you will be invited to a session where you will have the opportunity to see films concerned with human sexual activity.
>
> We would appreciate your giving us as spontaneous and honest a reaction as you can to all of the films you will be seeing over the next few weeks. Thank you for your cooperation, and as usual your anonymity will be protected.

Condition IV subjects were used to control for the effects of viewing erotic films as compared to merely attending film showings.

Condition V was composed of 15 couples who neither viewed films nor completed daily questionnaires. Their participation was limited to completing pre- and post-experimental assessment batteries. Thus, they served as minimal-contact controls.

Table 1 summarizes the experimental design.

Table 1

SUMMARY OF EXPERIMENTAL DESIGN[a]

Group		Both Sexes		Males		Females	
	N[b] (couples)	Assessment batteries	Daily questionnaire	Film-viewing instructions	Type of film	Film-viewing instructions	Type of film
1a	8	Yes	Yes	Standard erotic	Erotic	Standard erotic	Erotic
1b	9	Yes	Yes	Standard erotic	Erotic	Standard erotic	Erotic
2a	9	Yes	Yes	Therapeutic	Erotic	Therapeutic	Erotic
2b	8	Yes	Yes	Therapeutic	Erotic	Therapeutic	Erotic
3a	9	Yes	Yes	Standard erotic	Erotic	Nonerotic	Nonerotic
3b	8	Yes	Yes	Standard erotic	Erotic	Nonerotic	Nonerotic
4	17	Yes	Yes	Nonerotic	Nonerotic	Nonerotic	Nonerotic
5	15	Yes	No	None	None	None	None

a. All subjects in subgroups 1a, 2a, and 3a males viewed standard films first and nonstandard films later; order was reversed for corresponding b subgroups.

b. Groups 1b and 2b each lost one couple before film viewing.

Description of films

The erotic films consisted of two sequences of "standard" films and two sequences of "nonstandard" films. The term "standard" refers to the nature of the activity depicted, which in "standard" films was female masturbation or heterosexual activity involving an individual couple. "Nonstandard" films depicted activities often categorized as "deviant."

Sequence 1 of the nonstandard erotic category consisted of a 12-minute film depicting two female homosexuals engaging in fondling and mutual oral-genital activity, followed by a 12-minute film depicting two females and a male engaging in oral-genital activity, coitus, fondling, and anal play. This film also depicted one female lapping semen that had been ejaculated by the male on the breast of the other female. Sequence 2 of the nonstandard erotic category consisted of a 12-minute film depicting three male homosexuals engaging in oral-genital activity and mutual masturbation, followed by a 12-minute film depicting a Japanese male and female engaging in whipping and coital activity.

Sequence 1 of the standard erotic films consisted of a 10-minute film depicting a female masturbating to orgasm, followed by a highly realistic 12-minute film depicting a couple engaging in fondling, oral-genital activity and coitus, involving a variety of positions. Sequence 2 consisted of a 20-minute film, entitled *Unfolding*, produced by the National Sex and Drug Forum. This film, which was photographed by a female cinematographer, attempts to present a female's fantasies about sex. Although it contains highly explicit closeups of oral-genital contact, penile insertion, and other sexual activity, these closeups are presented in a highly aesthetic manner. The film incorporates photomontages, frequent cuts to landscapes, or scenes of birds in flight, and other techniques that lend a poetic quality not found in the other films used in the study. *Unfolding* has its own musical soundtrack. The other films were accompanied by recorded tapes of Indian ragas, which were played to heighten erotic effect. Only the female masturbation film is in color; all others are black and white. All the erotic films

except *Unfolding* were selected because they appeared representative of the commercial "stag" films available. *Unfolding* was selected as a rare example of a film in which explicit erotic activity is depicted aesthetically. All the films were obtained from the National Sex and Drug Forum,[6] except the female masturbation film, which was produced for research purposes by the University of Hamburg. A large number of films were previewed before selections were made.

Four nonerotic films—a different one each week—were shown during the four-week film-viewing period. These films were selected because they contained no explicit erotic content, were roughly equivalent in length to the erotic film sequences, and were intrinsically interesting. The films used were: *Why Man Creates*, which deals with human creativity; *The Eye of the Beholder*, which concerns the subjective nature of human perception; *A Nice Kid Like You*, which depicts students' informal conversations about drugs; and *Phoebe*, which portrays a day in the life of an adolescent expectant mother. It appeared necessary to select nonerotic films of interesting content in order to insure attendance. Furthermore, subjects in this group frequently presented scheduling problems. In contrast, subjects in the groups viewing erotic films appeared to require no special inducements to insure their attendance.

Half the subjects in each group that viewed erotic films viewed the two standard sequences during the first two weeks and the two nonstandard erotic sequences during the second two weeks. The remaining half of the subjects in each of these groups viewed the films in reverse order. Thus, order effects were counterbalanced across groups. However, in analyzing data at a later date, it would be possible to compare changes within the group that viewed standard films first with those achieved by the group that viewed nonstandard films first, in order to ascertain whether subjects were differentially affected by order of presentation.

Film rating sheets

Although both subjects who viewed erotic films and those who viewed nonerotic films were given forms on which they were asked to rate each film after viewing, only the rating sheets executed by subjects viewing erotic films were to be scored. The format of rating sheets distributed to subjects viewing nonerotic films will not be discussed further, since these subjects were assigned the task of rating films merely in order (*a*) to control for the effects of having to rate films after viewing and (*b*) to provide a rationale for requiring their attendance.

Subjects who viewed erotic films were first required to rate a set of dimensions covering the attractiveness of the actors, the film setting, the photography, and the sexual techniques portrayed. They were then asked to assess the actors' spontaneity, ability to portray tenderness, and level of sexual skill, as well as to

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6. The authors wish to thank Rev. Ted McIlvenna, Miss Phyllis Lyons, and Mr. Laird Sutton of the National Sex and Drug Forum, Glide Foundation, San Francisco, for making these films available and supplying consultation about their use.

rate the extent to which they themselves shared feelings portrayed by the actors, felt that the film was realistic, or experienced anxiety, embarrassment, or sexual fantasies while viewing. Subjects were also asked to rate the levels of interest, attention, arousal, and aversiveness attained, as well as the extent to which they gained new ideas about sexual practices, were induced to want to see or *not* see additional sex films, and were impelled to inhibit their feelings while viewing. They were asked to report whether they had experienced physiological changes while viewing, including increased heart or breathing rate, dry mouth, erection, genital sensations, muscle tension or relaxation, flushing, sweating, or other responses. Finally, they were asked to indicate which aspects of the film, if any, they had found most arousing, and which aspects of the film, if any, had "turned (them) off" the most.

Post-experimental assessment battery

The post-experimental battery repeated selected questions from the *Psychology Today Research Questionnaire on Sex* administered at the beginning of the study. Only questions dealing with attitudes and behaviors which may have been subject to change during the course of the study were asked. The Marital Survey and the Marriage Council of Philadelphia questionnaire were readministered to all subjects in order to assess changes in various areas of sexual and general marital functioning. In addition, subjects completed a brief questionnaire—the Opinion Survey—dealing with their perceptions of the study and their estimates of its effects upon them.

RESULTS

Before discussing changes exhibited by the various treatment groups, the demographic and background characteristics of the sample will be described. The characteristics of the present sample will be described in greater detail than is customary in experimental studies, since it seems probable that age, socio-economic status, educational level, sexual history, and other background variables strongly influence the nature of individual responses to visual erotic materials.

Description of sample

Background information was derived chiefly from the initial administration of the *Psychology Today* Research Questionnaire on Sex and the Marriage Council of Philadelphia Questionnaire. Each variable discussed below is summarized in Table 2, which lists by sex (*a*) percentages of the sample falling within given subcategories for each variable, (*b*) medians where applicable, (*c*) chi-square values between sexes, and (*d*) chi-square values among treatment groups. Chi-square analyses revealed no significant differences among treatment groups on any variable.

Table 2

BACKGROUND DATA FOR TOTAL SAMPLE AND SIGNIFICANCE TESTS BETWEEN SEXES AND AMONG EXPERIMENTAL GROUPS

Response category	Distribution by %		X^2 values/df	
	Males (N = 81)	Females (N = 81)	Between sexes	Among groups
	Age			
			6.48/5	15.98/12
30–34 years	11.1%	17.3%		
35–39	17.3%	18.5%		
40–44	18.5%	28.4%		
45–49	30.9%	23.5%		
50–54	12.3%	4.9%		
55–59	9.9%	6.2%		
60–64	0.0%	1.2%		
	Mdn=45.75	Mdn=42.50		
	Number of years married to present spouse			
			0/4	11.54/12
10–14 years	33.3%	33.3%		
15–19	23.5%	23.5%		
20–24	19.8%	19.8%		
25–29	13.6%	13.6%		
30–34	8.6%	8.6%		
35–39	1.2%	1.2%		
	Mdn=17.50			
	Number of previous divorces			
			1.44/1	1.44/1
0	90.2%	95.1%		
1	8.6%	3.7%		
2	1.2%	1.2%		
	M = 0.10	M = 0.07		
	Occupational level			
			107.20/4	10.17/8
Retired	1.2%	0.0%		
Unskilled laborer	1.2%	0.0%		
Semi-skilled laborer	4.9%	3.7%		
Skilled laborer	9.9%	3.7%		
Lower white collar	40.8%	12.3%		
Upper white collar	4.9%	1.2%		
Lower professional	21.0%	1.2%		
Upper professional	13.6%	0.0%		
Student	2.5%	0.0%		
Housewife	0.0%	77.9%		
	Educational level			
			33.27/5**	9.15/8
Grade school	3.7%	4.9%		
High school graduate	4.9%	18.6%		
Some college	19.8%	35.8%		
College graduate	18.6%	21.0%		
Some graduate work	12.3%	14.8%		
Master's degree	24.7%	4.9%		
Ph.D., M.D., etc.	16.0%	0.0%		

Table 2 (Cont.)

Response category	Distribution by %		X^2 values/df	
	Males (N = 81)	Females (N = 81)	Between sexes	Among groups
	Family income level			
			3.70/2	2.24/4
<$5,000	1.2%	0.0%		
$5,000–$10,000	3.7%	4.9%		
$10,000–$15,000	26.9%	40.9%		
$15,000–$25,000	51.2%	41.9%		
>$25,000	17.0%	12.3%		
	Religious preference			
Atheist/agnostic	23.5%	15.4%		
Unitarian	8.6%	7.4%		
Jewish	11.1%	11.1%		
Protestant	45.7%	50.1%		
Roman Catholic	9.9%	11.1%		
Other	1.2%	4.9%		
	Degree of religiosity			
Very religious	11.1%	18.5%		
Somewhat religious	21.0%	32.1%		
Slightly religious	42.0%	23.5%		
Not at all religious	21.0%	21.0%		
Antireligious	4.9%	4.9%		
	Political affiliation			
			10.73/2**	9.59/8
Republican	38.3%	39.2%		
Independent	27.3%	10.5%		
Democrat	29.5%	49.1%		
Other	4.9%	1.2%		
	Political views			
			0.97/3	8.25/12
Very liberal	14.9%	18.5%		
Somewhat liberal	27.1%	30.9%		
Moderate	38.3%	30.9%		
Somewhat conservative	18.5%	18.5%		
Very conservative	1.2%	1.2%		
	Self-rating of subject's marriage			
			1.01/3	2.83/8
Very happy	37.0%	44.5%		
Happier than average	33.3%	30.9%		
Average	18.6%	14.8%		
Somewhat unhappy	9.9%	8.6%		
Very unhappy	1.2%	1.2%		
	Importance of sexual problems in subject's marriage			
			0.62/3	3.49/4
Very important	14.5%	12.3%		
Somewhat important	28.1%	32.1%		
No significant sex problems	46.3%	45.8%		
Not important at all	11.1%	9.8%		

Table 2 (Cont.)

Response category	Distribution by %		X^2 values/df	
	Males (N = 81)	Females (N = 81)	Between sexes	Among groups
Relationship of first coital partner				
			36.34/5**	8.49/12
Spouse after marriage	19.9%	46.9%		
Fiance	11.1%	24.7%		
Steady date	21.0%	19.8%		
Someone you had known for awhile but not dated steadily	16.0%	4.9%		
Casual acquaintance	11.1%	2.5%		
Stranger	3.7%	0.0%		
Prostitute	16.0%	0.0%		
Relative	1.2%	1.2%		
Average frequency of intercourse during past 6 months				
			1.29/2	7.01/8
Not at all	1.2%	1.2%		
A few times	2.5%	2.5%		
Once or twice a month	18.5%	12.3%		
Once or twice a week	56.8%	65.5%		
Three or four times a week	17.3%	16.0%		
Five or more times a week	2.5%	2.5%		
Dailv or more often	1.2%	0.0%		
Self-rating of subject's sex life				
			2.87/4	7.06/8
Very unsatisfactory	13.6%	12.3%		
Unsatisfactory	6.2%	3.7%		
Somewhat unsatisfactory	8.6%	8.6%		
Somewhat satisfactory	7.4%	12.3%		
Satisfactory	38.3%	29.6%		
Very satisfactory	25.9%	33.5%		
Frequency of participation in wife-swapping				
			19.55/2**	8.10/4
Frequently	0.0%	3.7%		
Once or twice	6.2%	3.7%		
Never, might consider	34.6%	6.2%		
Never, would not consider	59.2%	86.4%		
Frequency of intercourse with more than one person at a time				
			20.86/1**	4.23/4
Frequently	0.0%	0.0%		
Once or twice	3.7%	6.2%		
No, might consider	44.4%	8.6%		
Never, would not consider	51.9%	85.2%		

*p<.05.
**p<.01.

Subjects ranged in age from 30 to 64 years with a median of 45.75 for males and 42.50 for females. Approximately half the male and female subjects fell within the 40 to 50 age bracket.

The median number of years married was 17.50; however, one-third of the couples had been married for 10 to 14 years and approximately one-fourth had been married for 15 to 19 years. As compared to the general population, subjects appeared to have maintained remarkably stable marriages; 88.9% of the males and 93.8% of the females had never been divorced.

Except for one Negro couple, all subjects were Caucasian.

Males in the sample were drawn predominantly from white-collar and professional occupations, with over 80% of them falling within these groups. Of females, 77.9% were housewives. The distribution of subjects by occupation is presented in Table 3. The educational levels of both males and females markedly

Table 3

DISTRIBUTION OF SUBJECTS BY OCCUPATION

Occupation	Males	Females	Secondary Occupation of housewives
Administrative executives	4		
Advertising	1	1	
Architect	1		
Artist/writer		1	
Attorney	1		
Businessman	1		
Cartographer	1		
Certified public accountant	1		
Civil service employees	4		
Computer operator		1	
Designer	1		
Educators			
College level	1		
Secondary level	5	4	4
Employment counselor	1		
Engineers	14		
Housewives		64	
Internal auditor	1		
Managers	8		
Medical photographer	1		
Minister	1		
Navy	1		
Pilot	1		
Price analyst	1		
Real estate broker	1		
Registered nurse		3	
Retired	1		
Sales	4	1	
Scientists	12		
Self-employed	5		
Skilled laborer	4	4	2
Social work		3	
Sports writer	1		
Stockbroker	1		
Student	1		2
Supervisory personnel	2		
Unskilled laborer	1	1	3
Total	83	83	11

surpassed that of the general population, with 71.6% of males and 40.7% of females having at least a college degree. Of males, 40.7% had received at least a master's degree. As might be expected, given the occupational and educational levels of the sample, family incomes fell mainly (68.2%) within the $15,000-and-over brackets. Interestingly enough, females tended to report lower family incomes than did their spouses.

Religious affiliations of subjects deviated somewhat from the distributions in the general population. Although 45.7% of males and 50.1% of females identified themselves as Protestant, the sample comprised a disproportionately large percentage of Unitarians (males = 8.6%; females = 7.4%), Jews (11.1% for both males and females), and atheist/agnostics (males = 23.5%; females = 15.4%) and a disproportionately small percentage of Catholics (males = 9.9%; females = 11.1%). Males tended to describe themselves as less religious than females. Only 32% of males reported themselves as being more than "slightly religious"; in contrast, 50.6% of females described themselves in this manner.

Most of the males identified their political affiliation as Republican (38.3%), with the remainder almost equally divided between Democratic and Independent categories. In contrast, 49.1% of females reported themselves as Democrats and 39.2% as Republicans. The difference in affiliation is reflected in subjects' descriptions of their political views. Of the males, 38.9% described themselves as political moderates, as compared to 30.9% of females; 41.9% of males described themselves as "somewhat" or "very" liberal, as compared to 49.4% of females. Thus, both males and females fell predominantly within the moderate to liberal portion of the political continuum, although females tended to describe themselves as somewhat more liberal than their spouses.

In rating the extent to which they were happy in their marriage, 37% of males and 44.5% of females rated their marriage as "very happy" and 33.3% of males and 39.9% of females rated it as "happier than average." Only 11.1% of males and 9.8% of females rated their marriage as more unhappy than average. Thus, most of the subjects appeared to view their marriages as happy, although there was a slight tendency for wives to rate marriages more favorably than did their spouses. A substantial proportion of subjects reported that sexual problems had played an important part in their marriage (males = 42.6%, females = 44.4%). This finding lends support to the assumption that middle-aged, middle-class populations can be expected to contain a substantial proportion of individuals with impaired sexual functioning. Of course, the lack of research findings on the sexual functioning of married couples within other demographic groups restricts comparison.

It was considered important to scrutinize the sexual history and present sexual proclivities of the sample in order to ascertain their degree of past and present sexual liberalism. Although variables relevant to changes in sexual behavior and attitudes will be treated in detail in a subsequent section, a few such variables have been selected for descriptive purposes. The relationship of subjects to the partner with whom they engaged in first intercourse was selected as an index of their earlier sexual patterns. "Spouse after marriage" was reported by 19.9% of

males and 46.9% of females, "fiance" by 11.1% of males and 24.7% of females, and "steady date" by 21.0% of males and 19.8% of females. The remaining 32% of males and 3.7% of females reported initial partners in more casual categories. When one compares these percentages with the finding of Athanasiou and Shaver (in press) that only 20% of their sample had not had premarital intercourse, it may be seen that, by current standards, most subjects in the present study exhibited fairly conservative sexual behavior before marriage.

Most subjects in the sample report a rate of current intercourse consistent with that reported by Kinsey, Pomeroy, and Martin (1948) for males with 13+ years of education who fall in the 41-50 age group. These investigators reported that for all males in their sample with 13+ years of education weekly frequencies of intercourse were 1.5 times for those in the 41-to-45 year age bracket and 1.3 times for those in the 46-50 year age bracket; therefore the report in the present study of "once or twice weekly" as the mean frequency for 56.8% of males and 65.5% of females appears normal. Males exhibited a slight tendency to report lower frequencies than did females.

About two-thirds of the subjects expressed satisfaction with their sex lives, with no significant difference noted between the sexes; 64.2% of the males and 63.1% of the females rated their sex lives as "satisfactory" or "very satisfactory." The remaining males (35.8%) and females (36.9%) categorized their sex lives as unsatisfactory to some extent or, at best, "somewhat satisfactory." These ratings corroborated the prior report of approximately 40% of subjects that sexual problems had played an important part in their marriage.

Questions concerning wife-swapping and group sex were used to ascertain the degree of current sexual permissiveness within the sample. Only 6.2% of males and 7.4% of females reported ever having participated in wife-swapping; 59.2% of males and 86.4% of females stated they would not consider participating. For group sex, responses followed a similar pattern. Only 3.7% of males and 6.2% of females reported ever having participated in this activity; 51.9% of males and 85.2% of females stated they would not consider participating.

To summarize, the sample consisted predominantly of 40-to-50-year-old couples, whose median length of marriage was 17.50 years, with a negligible incidence of previous divorces. For the most part, males were drawn from white-collar or professional occupations; the education and economic status of most subjects surpassed the mean for the general population. In terms of religion, although roughly half the sample was Protestant, Catholics appeared underrepresented; in contrast, Jews, Unitarians, and atheist/agnostics appeared somewhat overrepresented. Only a small percentage of the subjects considered themselves very religious; for the most part, they clustered within the moderately religious categories. Since, as Athanasiou and Shaver (in press) reported, a high degree of religiosity tends to correlate negatively with high sexual liberalism, one might expect the present sample to exhibit moderately liberal sexual attitudes. Politically, the males appeared to be moderately liberal, although most identified themselves as Republicans; females, most of whom claimed Democratic affilia-

tion, tended to describe themselves as somewhat more liberal than males. For the most part, subjects viewed their marriages as happier than average and their sexual adjustment as better than average. Furthermore, most of the subjects appeared to exhibit sexual histories and current sexual practices assumed to be standard for white, middle- to upper-middle-class Americans within the age brackets represented, although a few exhibited more restrictive and a still smaller number more permissive patterns.

Daily questionnaire data

Three factors contributed to the extensiveness and complexity of daily questionnaire data: (*a*) each questionnaire yielded over 250 potential variables, since for any activity the subject was asked to report performing, wanting to perform, or fantasizing the behavior, as well as to specify the actual, desired, or fantasized partner; (*b*) each subject was required to submit 84 individual daily questionnaires; and (*c*) each subject's behavior, although reported independently, was related to the behavior reported by his marital partner. In order to impose order on the large body of data obtained, daily questionnaire results were organized longitudinally and dyadically. Conceptual organization was achieved by grouping related behaviors under a series of summary scales which will be described in the following section. Procedures for achieving longitudinal and dyadic organization will be described subsequently.

Summary scales. Scales A through G cover overt performance of specific categories of sexual behaviors, as reported in the *P* (Performance) columns of the daily questionnaire. Table 4 indicates for each of these scales the category of behavior summarized and the questionnaire items contributing to the summary score. Each subject's score on a given summary scale is equal to the total number of occurrences of the component behaviors he or she reported during a given time-period.

Table 4

DATA COMPRISING PERFORMANCE SCALES FROM DAILY QUESTIONNAIRE *

Item No.	Activity	Sexual Partner: Spouse	Partner opp. sex	Partner same sex	Alone	Others
	Scale A — Use of Erotic Materials					
3.	Erotic pictures	X	X	X	X	X
4.	Erotic movies	X	X	X	X	X
5.	Erotic entertainment	X	X	X	X	X
6.	Erotic literature	X	X	X	X	X

Table 4 (Continued)

		Scale E Nondeviant marital activity	Scale F Extramarital activity	Scale G Homosexual activity
7.	Whipping		X	X
8.	Being whipped		X	X
9.	Group sex		X	X
12.	Manual stimulation of partner's genitals to climax	X	X	X
13.	Manual stimulation to climax of subject's genitals by partner	X	X	X
14.	Oral stimulation of partner's genitals	X	X	X
15.	Oral stimulation of subject's genitals by partner	X	X	X
16.	Oral stimulation of partner's genitals to climax	X	X	X
17.	Oral stimulation of subject's genitals to climax by partner	X	X	X
18.	Sexual contact with paid partner		X	X
19.	Coitus—usual positions	X	X	
20.	Coitus—unusual positions	X	X	
21.	Anal intercourse	X	X	X

* Items contributing to each summary scale are marked with an X. The performance scales comprise only those items for which subjects reported actual performance.

Among the performance scales, Scale E (Marital Activity) accounted for the highest incidence of reported activity. This scale covered all the higher-frequency marital activities appearing in the questionnaire. However, a few marital activities were excluded from this scale and evaluated separately. For example, use of erotic materials with spouse is summarized by Scale A, which subsumes all use of such materials with a variety of partners. Scale A permits assessment of changes in the total incidence of using erotic materials before, during, and after viewing the experimental erotic films in Phase 2. Two other sets of conjugal behaviors are also scaled separately. Scale B covers sadomasochistic marital activity and Scale C covers wife-swapping and group sexual activity involving both spouses. Because of their negligible incidence within the present sample, these variables will be evaluated separately in order to ascertain what effect participation in the study had upon low-frequency, low-probability conjugal activities such as these.

Scales H through M subsume covert behaviors, that is, either *wanting* to perform certain activities, as reported in the *W* (Wanting) columns of the daily questionnaire, or *fantasizing* about performing certain behaviors, as reported in the *D* (Daydreaming) columns of the daily questionnaire. Table 5 indicates for each of these scales the category of covert behavior summarized and the questionnaire items contributing to the summary score.

Table 5

DATA COMPRISING EROTIC WANTS AND EROTIC FANTASY SCALES FROM DAILY QUESTIONNAIRE*

		Covert behavior and preferred partner					
		Wanted to perform			Daydreamed about performing		
Item No.	Activity	Spouse	Partner opp. sex	Partner same sex	Spouse	Partner opp. sex	Partner same sex
		Scale H Desire for marital activity	Scale J Desire for extra-marital activity	Scale L Desire for homo-sexual activity	Scale I Fantasiz-ing marital activity	Scale K Fantasiz-ing extra-marital activity	Scale M Fantasiz-ing homo-sexual activity
3.	Erotic pictures	X	X	X			
4.	Erotic movies	X	X	X			
5.	Erotic entertainment	X	X	X			
6.	Erotic literature	X	X	X			
7.	Whipping	X	X	X	X	X	X
8.	Being whipped	X	X	X	X	X	X
9.	Group sex	X	X	X	X	X	X
12.	Manual stimulation of partner's genitals to climax	X	X	X	X	X	X
13.	Manual stimulation to climax of subject's genitals by partner	X	X	X	X	X	X
14.	Oral stimulation of partner's genitals	X	X	X	X	X	X
15.	Oral stimulation of subject's genitals by partner	X	X	X	X	X	X
16.	Oral stimulation of partner's genitals to climax	X	X	X	X	X	X
17.	Oral stimulation of subject's genitals to climax by partner	X	X	X	X	X	X
18.	Sexual contact with paid partner		X	X		X	X
19.	Coitus—usual positions	X	X		X	X	
20.	Coitus—unusual positions	X	X		X	X	
21.	Anal intercourse	X	X	X	X	X	X

*Items contributing to each summary scale are marked with an X. Erotic desire scales comprise only those items that subjects reported wanting to perform; erotic fantasy scales comprise only those items for which subjects reported daydreaming about performing.

In addition to the above scales, two other summary scores were derived from items rated 1 (Very Much) to 7 (None) on Likert scales. Questionnaire items 25 through 33 yielded the Marital Functioning Scale, a measure of general personal and marital function; Questionnaire items 34 through 39 yielded the Sexual Functioning Scale, which measured the level of marital sexual function. Tables 6 and 7 indicate the variables covered by these two scales.

Table 6

ITEMS COMPRISING MARITAL FUNCTIONING SCALE

Item No.	Description of item
25	Amount of energy
26*	Degree of anxiety
27*	Degree of depression
28*	Amount of quarreling with spouse
29	Degree of closeness to spouse
30	Degree of satisfaction with spouse's company
31	Degree of affection for spouse
32	Degree of affection from spouse
33	Amount of discussion of sexual topics

*Indicates item was reverse scored.

Table 7

ITEMS COMPRISING SEXUAL FUNCTIONING SCALE[a]

Item No.	Description of item
34	Amount of foreplay
35	Amount of afterplay
36	Amount of time in sexual activity
37	Amount of sexual gratification received
38	Extent subject perceived self as sexually adequate
39	Extent subject perceived spouse as sexually adequate

a. All items refer to activity with spouse.

Although marital coitus in usual positions (as reported in Item 19) and marital coitus in unusual positions (as reported in Item 20) were included in Summary Scale E, they were also considered separately, since they were the most frequently reported conjugal activities. Frequency of climaxes with spouse and total frequency of climaxes were also treated as separate dependent variables.

Major within-group, between-group, and correlational analyses focused on the 19 variables described above. Means for these variables for each phase are presented by treatment group in Table 8.

Derivation of change scores. In order to organize data longitudinally from each subject's 84 daily questionnaires, results were divided into three four-week phases: Phase 1 (before film-viewing), Phase 2 (during film-viewing), and Phase 3 (after film-viewing). Three sets of change scores were derived for analysis. *D* (3-1), the difference between Phase 3 and Phase 1, yielded a measure of overall change; *D* (2-1), the difference between Phase 2 and Phase 1, yielded a measure of change from baseline to film-viewing phase, *D* (3-2), the difference between Phase 3 and Phase 2, yielded a measure of change from film-viewing to followup phase. Where necessary, signs of results were transformed, so that in all cases positive change

Table 8a

MEANS OF DAILY QUESTIONNAIRE VARIABLES FOR MALES BY TREATMENT GROUP AND PHASE

Scale Item	Variable	Group I			Group II			Group III			Group IV		
		Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3
A	Use of erotic material	0.81	7.62	1.37	2.25	7.19	2.12	4.35	6.65	1.94	1.82	1.12	1.12
A_1	Use of erotic material (adjusted)		2.31			2.25			3.35				
B	Sadomasochism[a]	0.0	0.0	0.0	0.0	0.0	0.0	0.06	0.06	0.12	0.0	0.0	0.0
C	Group sex[a]	0.0	0.0	0.0	0.0	0.0	0.0	0.18	0.0	0.0	0.0	0.0	0.0
D	Masturbation[a]	0.50	0.50	0.12	1.00	0.88	1.06	0.88	0.82	0.82	1.53	1.70	1.41
E	Marital activity	12.19	11.44	9.19	10.50	12.06	11.87	17.35	14.65	12.65	11.18	10.35	13.29
F	Extramarital activity[a]	0.44	0.31	1.06	0.0	0.44	0.44	1.35	1.00	0.23	0.0	0.65	0.35
G	Homosexual activity[a]	0.12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H	Desire for marital activity	8.12	7.81	3.06	3.31	4.87	2.44	7.65	6.70	5.82	6.18	7.12	3.65
I	Fantasizing marital activity	6.94	9.50	9.00	2.69	2.25	2.44	6.23	4.88	1.06	3.82	3.00	1.18
J	Desire for extramarital activity	0.12	0.06	0.0	0.31	0.06	0.25	0.65	0.35	0.65	1.18	2.18	4.94
K	Fantasizing extramarital activity	4.56	4.75	4.37	2.56	3.56	4.62	3.65	3.94	2.70	3.53	2.94	2.70
L	Desire for homosexual activity[a]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M	Fantasizing homosexual activity[a]	0.0	0.06	0.0	0.12	0.12	0.06	0.0	0.06	0.12	0.0	0.0	0.06
19	Coitus, usual positions	6.12	5.75	5.06	5.56	5.19	5.25	8.65	7.82	7.00	6.06	5.59	5.18
20	Coitus, unusual positions	1.31	1.44	0.56	0.87	1.06	0.69	0.94	1.41	0.47	0.76	0.88	1.65
21	Climaxes with spouse	7.19	7.06	5.50	6.44	6.37	5.81	9.00	9.00	7.00	7.00	5.88	6.06
22	Total climaxes	8.31	7.44	6.37	7.19	7.12	6.75	10.29	9.82	7.59	8.41	7.53	7.18
25-33	Marital functioning scale[b]	32.91	33.58	33.85	34.09	34.49	34.64	31.96	32.95	33.66	32.78	33.38	33.49
34-39	Sexual functioning scale[b]	21.60	21.51	18.99	22.95	20.50	19.63	21.72	22.12	22.37	22.42	22.56	22.07

a. Distributions of scores did not permit statistical analysis.
b. Lower scores indicate higher level of functioning.

scores or significance values denote an *increase* in the frequency of a given behavior or positive change in a scale score of a given variable from the earlier to the later phase; negative change scores denote the reverse.

Dyadic agreement of daily questionnaire data. As has been stated above, each subject's report was to be considered not only in terms of its relevance to his individual behavior, but also in relation to the joint behavior of the marital couple. One step in analyzing relationships between each husband's and each wife's reports was to ascertain the level of dyadic agreement, that is, the extent to which spouses agreed each day in reporting each activity that by definition must involve joint participation. A total of 13 daily questionnaire variables relevant to such activities were selected for analysis. These variables covered participation in a range of sexual activities with one's spouse which included relatively high-frequency activities, such as coitus, as well as relatively low-frequency activities, such as sadomasochistic behavior, wife-swapping, group sex, and anal intercourse. If any of the activities listed on the daily questionnaire did not occur, each subject was required to indicate nonoccurrence in a space provided beside each item. Thus each subject was required to report daily the occurrence or nonoccurrence of each item under consideration.

Inspection of data revealed that many of the behaviors surveyed occurred very infrequently; therefore an isolated occurrence of a low-frequency behavior, if reported by both spouses, would yield a spuriously high rate of agreement, while a single discrepancy in reporting an isolated occurrence would yield a spuriously low rate. It appeared reasonable, therefore, to select coitus as the criterion variable, since it accounted for the highest frequencies of reported activity. The format of the daily questionnaire provided for reporting separately marital coitus involving subject's "usual" positions and marital coitus involving "unusual" positons. Since, judging from the data, it was often difficult for members of a dyad to agree on what constituted "unusual" as compared to "usual" positions, all incidents of marital coitus were pooled for the purpose of assessing dyadic

agreement, irrespective of the positions reported. For each dyad, the following daily data were collected: (*a*) number of mutual claims that coitus occurred, (*b*) number of male (only) claims that coitus occurred, (*c*) number of female (only) claims that coitus occurred, or (*d*) a mutual claim that coitus did not occur.

Table 8b

MEANS OF DAILY QUESTIONNAIRE VARIABLES FOR FEMALES BY TREATMENT GROUP AND PHASE

Scale Item	Variable	Group I			Group II			Group III			Group IV		
		Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3
A	Use of erotic material	0.94	6.50	0.12	1.12	6.37	0.81	1.89	1.18	0.70	1.76	1.00	0.59
A_1	Use of erotic material (adjusted)		1.31			1.69							
B	Sadomasochism[a]	0.0	0.0	0.0	0.0	0.0	0.0	0.12	0.12	0.12	0.0	0.0	0.0
C	Group sex[a]	0.0	0.0	0.0	0.06	0.0	0.0	0.23	0.0	0.06	0.0	0.0	0.0
D	Masturbation[a]	0.75	0.81	0.69	0.31	0.37	0.25	0.53	0.53	0.29	0.82	0.89	0.53
E	Marital activity	11.69	11.37	9.44	9.44	12.12	10.25	17.00	15.06	12.00	11.47	9.65	13.88
F	Extramarital activity[a]	0.06	0.0	0.0	0.06	0.0	0.0	0.41	0.0	0.0	0.18	0.18	0.35
G	Homosexual activity[a]	0.0	0.0	0.0	0.0	0.0	0.0	0.12	0.0	0.0	0.0	0.0	0.0
H	Desire for marital activity	6.19	3.31	2.69	1.25	0.81	0.87	3.47	2.65	2.23	1.94	1.18	1.65
I	Fantasizing marital activity	6.50	6.55	6.12	3.44	2.81	3.06	2.00	1.18	2.23	1.06	0.94	0.41
J	Desire for extramarital activity	0.44	0.06	0.12	0.06	0.0	0.44	0.59	0.41	0.0	1.41	1.41	0.76
K	Fantasizing extramarital activity	2.87	2.62	0.50	1.25	1.00	0.31	0.23	0.70	0.12	3.47	3.47	1.41
L	Desire for homosexual activity[a]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M	Fantasizing homosexual activity[a]	0.0	0.0	0.0	0.0	0.31	0.25	0.0	0.0	0.0	0.06	0.0	0.0
19	Coitus, usual positions	5.37	5.94	4.87	5.19	5.69	5.56	7.94	7.59	6.94	5.59	5.23	4.89
20	Coitus, unusual positions	1.31	1.06	0.69	0.69	0.94	0.50	1.00	0.94	0.59	0.89	1.06	1.89
21	Climaxes with spouse	6.44	5.56	3.69	5.87	6.19	5.87	10.59	8.35	5.82	6.41	4.29	6.70
22	Total climaxes	7.00	6.31	4.25	6.37	6.44	6.19	11.53	8.35	6.06	7.82	5.12	7.76
25-33	Marital functioning scale[b]	33.67	34.72	34.64	33.90	35.23	35.47	30.72	32.58	34.06	32.77	33.56	33.80
34-39	Sexual functioning scale[b]	21.84	22.15	20.54	23.11	20.77	18.85	22.34	24.10	23.61	21.94	22.18	21.96

a. Distributions of scores did not permit statistical analysis.
b. Lower scores indicate higher level of functioning.

From these data, a percentage of agreement was calculated for each couple in two ways. Method A involved dividing the sum of mutual claims of activity plus mutual claims of no activity by the total number of reporting days in the phase to yield a figure which would reflect the percentage of mutual responses, including agreement of no activity. Method B involved dividing mutual claims of activity by the sum of mutual claims, male (only) claims, and female (only) claims. Since this figure excluded mutual agreement of no activity, it represents a more conservative estimate. The mean percentages of agreement as calculated by both methods for the 66 couples who completed daily questionnaires are reported by phase in Table 9.

Table 9

MEAN PERCENTAGES OF AGREEMENT BY PHASE FOR 66 COUPLES

	Method A	Method B
Phase 1	95	83
Phase 2	97	87
Phase 3	97	85

The percentages of agreement for each couple across the three phases of the experiment were averaged for all couples in order to obtain some indication of the degree of accuracy maintained by each couple throughout the experiment. The frequency distribution of these mean percentages, calculated by Methods A and B, are reported in Table 10. Inspection of both Tables 9 and 10 indicates that the percentage of agreement calculated by either method yielded very respectable

levels of concordance. As is apparent from Table 10, only 16 couples achieved lower than 80% agreement (calculated by the conservative method). Examination of the data for these 16 couples revealed that they were randomly distributed among the different experimental conditions. Further inspection of Table 10 revealed that one-third of the couples achieved 100% agreement across all three phases of the experiment. It should be emphasized that the distribution in Table 10 represents 84 consecutive reports by 66 couples or 5,544 *pairs* of reports. On the whole, subjects achieved a remarkably high level of agreement; the finding that a small percentage of couples achieved somewhat lower levels was not unexpected. Indeed, perfect agreement by all couples would be suspect, for subjects were asked not to collaborate with their spouses on the daily report. There is yet another way to look at the data, however, that explains some of the discrepancies.

Table 10

FREQUENCY DISTRIBUTION OF COUPLES' MEAN PERCENTAGES OF AGREEMENT OVER ENTIRE EXPERIMENT

Mean percentage of agreement	Method A		Method B	
	Frequency	% of total	Frequency	% of total
100	22	33	22	33
95-99	30	45	5	8
90-94	7	11	12	18
80-89	5	7	11	17
70-49	1	2	6	9
Under 70	1	2	10	15
Total	66	100%	66	100%

The percentages of agreement reported are based on discrepancies recorded for each day and subsequently summed for each phase. Since the daily questionnaire was completed at the end of each 24-hour period, discrepancies between husband and wife may reflect a disagreement as to *when* the behavior took place, not as to whether it took place. Moreover, if one member of a couple allowed one or more days to elapse before completing a questionnaire instead of completing it promptly, the risk of reporting behaviors on the wrong day and hence reporting discrepantly from one's spouse was enhanced. Thus, although each partner may have reported the total incidence of a given behavior for a phase with complete accuracy, failure by one of the partners to report behaviors on the actual day of occurrence could have resulted in low percentages of agreement. In order to determine how accurately each couple was reporting the total incidence of coitus without regard to daily agreement, the sum for the phase of each male's daily incidence of coitus was correlated with a like sum for his spouse. The correlation coefficients were: .96 for Phase 1, .96 for Phase 2, and .98 for Phase 3. Judging from these very high levels of agreement, one may conclude that a substantial number of the discrepancies in the daily reports were due to failure of a

respondent to record an event on the correct day, rather than forgetting to report the event at all.

With respect to lower-frequency behaviors (other than coitus), for example, oral-gential contact, it is conceivable that a respondent could forget to report an instance, especially if it occurred as part of a sexual episode which culminated in coition. The finding that subjects' reports of low-frequency behaviors relative to reports of high-frequency behaviors did in fact reflect lower percentages of agreement supports this assumption. However, disparity between spouses' reports of joint experience should not be dismissed merely as error variance, but should rather be viewed as an important phenomenon, reflecting differences between spouses in the perception and conceptualization of shared events. For example, disparity in reporting unusual coital positions could be construed as reflecting differences between spouses in regard to the degree to which they experienced the same episode of marital coitus as innovative or novel.

One further analysis which was performed did not deal directly with dyadic agreement, but rather with the degree of agreement between pooled males and pooled females in each treatment group on one daily questionnaire variable—the nonoccurrence of marital sexual contact during a 24-hour period. Subjects had been instructed to report this information by marking an *X* in a space provided on the daily questionnaire. By subtracting the incidence of no-contact reports for a treatment group from the total number of daily questionnaires for the phase submitted by pooled subjects within that group, the total incidence of marital sexual contact by groups and phases was derived. These results are presented in Table 11. Inspection of the results indicates that males and females within all

Table 11

TOTAL INCIDENCE OF REPORTED SEXUAL CONTACT WITH SPOUSE BY SEX, TREATMENT GROUP, AND PHASE

	Sex	Group I	Group II	Group III	Group IV
Phase 1	M	120	114	161	127
	F	123	107	162	121
Phase 2	M	113	111	149	113
	F	116	111	154	109
Phase 3	M	92	102	129	117
	F	92	102	133	117

treatment groups, when considered without regard to dyadic membership, achieved very high levels of agreement in their reports of marital sexual contact.

In summary, comparison of husband-wife and male-female reports revealed high percentages of agreement, and thus supports the feasibility of the reporting procedure as applied to the present sample.

Changes within groups. Before comparing the effects of the several experimental treatments among groups, it was necessary to determine whether the pooled experimental group (in which one or both members of a dyad viewed erotic films) or the control group (in which couples viewed nonerotic films), considered separately, had achieved significant changes within their respective groupings on the daily questionnaire variables from Phase 1 to Phase 3, Phase 1 to Phase 2, and Phase 2 to Phase 3 of the study.

Twelve daily questionnaire variables for which score distributions appeared to meet the assumptions of standard statistical theory were subjected to correlated *t*-tests of *D* (3-1), *D* (2-1) and *D* (3-2) changes by sex for pooled experimental subjects and control subjects considered separately. Phase 2 data for Scale A (use of erotic materials) was adjusted for those subjects who viewed erotic films by subtracting all reports relevant to viewing the experimental stimuli from their scores. As may be seen from Table 8, seven remaining variables for which score distributions failed to meet the assumptions of standard statistical theory were excluded from these analyses. The results presented in Table 12 cover only those *t*-tests which attained significance; in order to simplify interpretation of changes, nonsignificant results were not reported.

Table 12

RESULTS OF CORRELATED t-TESTS FOR DAILY QUESTIONNAIRE VARIABLES

Scale or item	Variable	Males						Females					
		Experimentals (N = 49)			Controls (N = 17)			Experimentals (N = 49)			Controls (N = 17)		
		D (3-1)	D (2-1)	D (3-2)	D (3-1)	D (2-1)	D (3-2)	D (3-1)	D (2-1)	D (3-2)	D (3-1)	D (2-1)	D (3-2)
A	Use of erotic material[a]									-4.01 ***			
E	Marital activity	-2.54 **		-2.33 *				-2.45 **		-3.54 ***		-1.92 **	
H	Desire for marital activity	-2.16*		-2.67**			-1.76*	-1.84*	-1.75*			-2.13*	
I	Fantasizing marital activity				-2.66**								
J	Desire for extramarital activity								-2.02*				
K	Fantasizing extramarital activity							-2.12*		-1.99*			
19	Marital coitus, usual positions	-2.98***								-1.78*			
20	Marital coitus, unusual positions	-2.32*		-2.89***	1.82*			-2.16*		-1.87*	1.78*		
22a	Climaxes, with spouses	-4.99***		-3.63***		-2.15*		-3.62***	-1.73*	-2.79***		-2.23*	
22b	Climaxes, total	-4.28***		-3.28***				-3.71***	-1.75*	-2.85***		-2.15*	
25-33	Marital functioning scale	-2.25*	-1.81*					-3.99***	-3.57***				
34-39	Sexual functioning scale	-1.74*											

a. Adjusted by subtracting from Phase 2 means reported incidence of viewing experimental films.
* = < .05.
** = < .01.
*** = < .005.

Inspection of Table 12 indicates that, of 144 *t*-tests performed, 42 were statistically significant at the .05 level. Moreover, certain interesting trends are observable. For example, all changes achieved by experimental subjects were in a negative direction. Within the experimental group, males exhibited a total of 14 significant decrements, and females exhibited a total of 19. Thus, decrements for experimental subjects, with sexes pooled, totaled 33. In contrast, control subjects accounted for only nine significant changes (seven negative and two positive), of which four were achieved by males and five by females. The only two significant increments achieved by any groups were exhibited by male and female control subjects for marital coitus in unusual positions. It is obvious, then, that with the exception just cited, both experimental and control subjects tended to decline in

a number of activities as the study progressed; however, the number of significant decrements for experimental subjects surpassed those for control subjects by a ratio of more than four to one. Inspection of phase means in Table 8 indicates that many of these significant changes were of relatively small magnitude; however, it is also apparent that most decrements exhibited by experimental subjects on specific variables occurred within all three experimental treatment groups. Thus, negative trends were quite general across the three experimental treatment conditions. The much lower number of decrements achieved by control subjects indicates that, in contrast to experimental subjects, their performance across variables remained relatively stable.

Inspection of changes for each experimental phase also revealed a differential pattern of change for control and experimental subjects. The greatest number of significant decrements for experimental subjects occurred from Phase 1 to Phase 3, with males accounting for eight and females for seven. Thus, in the last phase of the study, scores for experimental subjects of both sexes tended to fall to lower levels than those achieved during the initial phase. During the second (film-viewing) phase of the study, male experimental subjects exhibited only one decrement; females, however, exhibited five. Apparently, then, film-viewing maintained reported performance at or near existing levels more effectively for males than for females. In the final phase of the study, male experimental subjects displayed five significant declines from levels achieved in the film-viewing phase; female experimental subjects exhibited seven such declines. To summarize then, pooled experimental subjects achieved 15 decrements from Phase 1 to Phase 3, six decrements from Phase 1 to Phase 2, and 12 decrements from Phase 2 to Phase 3. These results and an inspection of phase means reveal that, on the whole, experimental subjects tended to fall slightly below Phase 1 levels on a number of variables in the film-viewing phase; however, this steady downward trend was accelerated in the final phase after cessation of film-viewing, with the result that experimentals' Phase 3 scores for several variables fell significantly below Phase 1 levels. Control subjects exhibited a somewhat different pattern. Of seven significant decrements and two significant increments, only one decrement for males and one increment each for males and females occurred from Phase 1 to Phase 3. In the film-viewing phase, however, female control subjects achieved four decrements and male control subjects achieved only one, while from Phase 2 to Phase 3 only one change within the control groups, a decrement for male subjects, was observed.

In contrast to experimental subjects, then, control subjects who saw nonerotic films exhibited a lower tendency toward decrements in sexual activity as reported on daily questionnaire variables, although the female control subjects tended to remain less stable and more often exhibited significant decrements than did male control subjects.

Although the changes within groups summarized above suggested divergent patterns of change for experimental and control subjects, it was difficult to draw any conclusions about the implications of the findings without first analyzing the

phase changes by treatment groups. Such analyses were needed to clarify the differential effects of the several experimental treatments, because important treatment effects may well have been obscured by pooling the three experimental treatment groups in the analyses reported above.

Changes among treatment groups. Since results of correlated *t*-tests had revealed that both male and female subjects within the experimental and control groups had achieved significant phase-to-phase changes on a number of daily questionnaire variables, results were submitted to analyses of variance in order to determine whether either of the three experimental conditions (erotic films) or the control condition (nonerotic films) had produced a differential change on any of these dependent measures.

One-way analyses of variance for each sex grouping were performed on *D* (3-1), *D* (2-1), and *D* (3-2) change scores for each of the 12 variables for which score distributions met the assumptions of standard statistical theory.

Of 72 analyses performed, only two attained significance at the .05 level. As may be seen in the results, which are presented in Tables 13 and 14, the variable, coitus with spouse in unusual positions, exhibited significant *D* (3-1) change for both males and females. Inspection of phase means in Table 8 reveals that, relative to experimental subjects, control subjects of both sexes increased in reported frequency of coitus with spouse in unusual positions from Phase 1 to Phase 3 of the study.

Table 13

ANALYSIS OF VARIANCE FOR MALES' D (3-1) CHANGE IN FREQUENCY OF MARITAL COITUS IN UNUSUAL POSITIONS

Source	SS	df	MS	F	p
Between groups	25.59	3.00	8.53	3.36	< .05
Within groups	157.44	62.00	2.54		
Total	183.03	65.00			

Table 14

ANALYSIS OF VARIANCE FOR FEMALES' D (3-1) CHANGES IN FREQUENCY OF MARITAL COITUS IN UNUSUAL POSITIONS

Source	SS	df	MS	F	p
Between groups	26.56	3.00	8.85	3.26	< .05
Within groups	168.31	62.00	2.71		
Total	194.87	65.00			

Given the number of analyses performed, at least two significant *F*-ratios could be expected to occur by chance. Therefore, in the absence of significant differential change on any additional variables, it is difficult to conclude that

subjects in the several treatment conditions were differentially affected to any appreciable extent by variations in the experimental procedure. To be sure, analyses performed within groups suggest that experimental subjects progressively declined throughout the study on a number of measures of overt and covert sexual activity, in contrast to control subjects, who remained relatively stable or increased slightly on several measures. Subsequent analyses revealed, however, that these trends were not sufficiently strong to produce differential change among groups except for the one variable noted above. Thus, for 11 of the 12 daily questionnaire variables analyzed, neither exposure to erotic (as compared to nonerotic) films, nor variations in viewing conditions differentially influenced change.

Low-frequency behaviors. In the present study, sexual behaviors which are presumed to occur relatively infrequently within white, middle-class American society have been labeled "nonstandard" or "low-frequency." Several overt and covert sexual behaviors were reported with exceptionally low frequency by subjects in the present sample. Consequently, as has been mentioned above, certain summary variables on the daily questionnaire did not yield frequency distributions that met the criteria of standard statistical theory (see Table 8). In all cases, the phase means for these behaviors were low. Moreover, in several instances only one or two subjects in the group had reported the behavior in question. Thus, several occurrences of a given behavior reported by one individual in the group, if treated as group data, might yield a distorted estimate of the incidence of the behavior within the group. Table 15 presents the number of

Table 15

NUMBER OF SUBJECTS REPORTING LOW-FREQUENCY SEXUAL BEHAVIORS

Scale	Variable	Phase 1		Phase 2		Phase 3	
		Males	Females	Males	Females	Males	Females
A	Use of erotic materials[a]	10	6	7*	5*	4	5
B	Sadomasochism	1	1	1	1	2	2
C	Group sex	1	3	0	0	0	1
D	Masturbation[a]	4	3	2	1	1	2
F	Extramarital activity	4	5	4	2	5	1
G	Homosexual activity	1	1	0	0	0	0

a. Only subjects reporting more than 5 occurrences during a given phase are included in the table.
*Reports of viewing experimental films have been subtracted.

males and females who reported performing each low-frequency activity within any four-week phase. In addition, the table presents the number of males and females who reported more than five instances of masturbation or more than five instances of using erotic materials within any four-week phase. Since these figures are based on a total of 66 couples, it may be seen that only a very small proportion of the sample accounted for the total incidence of low-frequency behaviors. Ordinarily an individual would report only one or two isolated

instances of a given behavior; however, a very few individuals reported relatively high incidences, especially in the category of extramarital activity. It may be seen from inspection of the phase means in Table 15 that there were no notable increases in the number of individuals reporting behavior in any of the listed categories in any phase. Thus, exposure to the erotic films did not appear to result in an increase in the number of subjects who reported low-frequency behavior.

Each subject was asked not only to report daily sexual activities, but to indicate on his daily questionnaire each activity which had occurred for the first time in his life or for the first time in six months. It was assumed that most of the behaviors reported would fall within the low-frequency categories, because presumably, most subjects were already performing the more common behaviors prior to the study; however, results revealed that many of the activities reported were more common than those listed in Table 15. Evidence from previous studies of film-instigated imitative behavior, as recently reviewed by Bryan and Schwartz (in press), might lead one to expect that subjects who viewed erotic films in which a broad range of sexual techniques and activities were depicted would themselves be influenced to experiment with new techniques and activities to a greater extent than did subjects who saw only nonerotic films. However, the results did not support this expectation. As may be seen by inspection of Table 16, which presents by phases the number of instances of a given behavior reported by males

Table 16a

INCIDENCE OF ACTIVITIES PERFORMED BY MALE SUBJECTS FOR FIRST TIME IN 6 MONTHS OR FIRST TIME IN LIFE[a]

	Males											
	Group I			Group II			Group III			Group IV		
Activity	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3
Used mind-altering drugs				(1)			2(1)	(2)		1	1	
Performed oral-genital activity				1	1				1			(1)
Received oral-genital activity										1		
Performed oral-genital activity to climax			(1)									
Received oral-genital stimulation to climax		(1)	1				(1)					(2)
Masturbated spouse to climax							(1)	2	1		1	
Spouse masturbated subject to climax		1								1		
Anal intercourse								2				
Achieved climax	1						1					
Extramarital activity			1	1					(1)			
Activity with prostitute					1							
Performed sadomasochistic behavior										(1)		

	Group I	Group II	Group III	Group IV
Total incidence by group				
First time in 6 months	4	4	9	5
First time in life	2	1	6	4

a. Figures in parentheses indicate first time in life; other figures indicate first time in six months.

and females in each group, Group IV subjects who viewed nonerotic films appear to have initiated as many new behaviors as did most groups who viewed the erotic films. Although more behaviors were initiated in Phase 2 than in any other phase, the difference is too negligible to warrant the conclusion that viewing erotic films induced any sizable number of subjects (*a*) to introduce new behaviors into their repertoire or (*b*) to reinstate low-frequency behaviors that they had not

performed for at least six months. It is also noteworthy that behaviors reported for the first time were performed, for the most part, within, rather than outside, the marital relationship.

Table 16b

INCIDENCE OF ACTIVITIES PERFORMED BY FEMALE SUBJECTS FOR FIRST TIME IN 6 MONTHS OR FIRST TIME IN LIFE

	Females											
	Group I			Group II			Group III			Group IV		
Activity	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3
Performed oral-genital activity	1(1)											
Received oral-genital activity	(2)		(2)									
Performed oral-genital activity to climax					(2)		1(1)				(1)	
Received oral-genital stimulation to climax											(1)	
Masturbated self to climax				1	1					1	1	
Masturbated spouse to climax		(1)										
Spouse masturbated subject to climax	1				2(1)		1		(1)			
Anal intercourse		(1)			(1)							
Achieved climax							1					
Extramarital activity		(1)		1			1					(1)
Performed sadomasochistic behavior							(1)					
Group sexual activity							(1)					1
Total incidence by group												
* First time in 6 months		2		2			7			3		
First time in life		8		0			8			3		

a. Figures in parentheses indicate first time in life; other figures indicate first time in 6 months.

Effects of order of presentation. As may be seen from Table 1, approximately half of the males in Groups I, II, and III, and of the females in Groups I and II viewed films depicting "standard" sexual activities in their first two viewing sessions and "nonstandard" sexual activities in their second two viewing sessions. For the remaining subjects in these groups, the order of presentation was reversed. The group which viewed "standard" films first is designated as *Group A*; the group which viewed "nonstandard" films first is designated as *Group B*. Although females in Treatment Group III viewed nonerotic films while their husbands viewed erotic films, they were assigned to the same order groups as their husbands for purposes of statistical analysis because it was assumed that if a husband were differentially affected by order of presentation, the joint activities of both husband and wife would be influenced.

The two order groups were compared by means of one-way analyses of variance applied to each of the 12 variables treated in previous analyses. Since male and female change scores were analyzed separately for each of the three phase comparisons, a total of 72 analyses were performed. Of these, only two analyses for males and two for females attained the .05 level of significance. On the Martial Functioning Scale, Group A males changed in the positive direction relative to Group B males from Phase 1 to Phase 3 of the study. In contrast, Group B males changed in the positive direction relative to Group A males from Phase 2 to Phase 3. Tables 17 and 18 present the results for males.

For females, the only two analyses that attained significance dealt with closely linked variables: frequency of climax with spouse and total frequency of climax. As compared to Group A females, who exhibited decrements, Group B females achieved small but significant *D* (2-1) increments in these two variables ($p<.05$). Results for these analyses are presented in Tables 19 and 20.

Table 17

ANALYSIS OF VARIANCE FOR D (3-1) CHANGE ON MARITAL FUNCTIONING SCALE FOR MALE ORDER GROUPS

Source	SS	df	MS	F	p
Between groups	623,844.00	1.00	623,844.00	6.13	< .05
Within groups	4,783,498.00	47.00	101,776.50		
Total	5,407,342.00	48.00			

Table 18

ANALYSIS OF VARIANCE FOR D (2-3) CHANGE ON MARITAL FUNCTIONING SCALE FOR MALE ORDER GROUPS

Source	SS	df	MS	F	p
Between groups	465,032.00	1.00	465,032.00	4.41	< .05
Within groups	4,951,026.00	47.00	105,340.90		
Total	5,416,058.00	48.00			

Table 19

ANALYSIS OF VARIANCE FOR D (2-1) CHANGE IN FREQUENCY OF CLIMAXES WITH SPOUSE FOR FEMALE ORDER GROUPS

Source	SS	df	MS	F	p
Between groups	68.78	1.00	68.78	4.96	< .05
Within groups	651.14	47.00	13.85		
Total	719.92	48.00			

Table 20

ANALYSIS OF VARIANCE FOR D (2-1) CHANGE IN TOTAL FREQUENCY OF CLIMAXES FOR FEMALE ORDER GROUPS

Source	SS	df	MS	F	p
Between groups	120.09	1.00	120.09	4.74	< .05
Within groups	1,190.32	47.00	25.33		
Total	1,310.41	48.00			

The order effects reported above represent four instances of marginally significant results among a total of 72 analyses performed, within which approximately four significant *F*-ratios could have been expected to occur by chance. Therefore, it was concluded that order effects had exercised minimal influence upon changes in daily questionnaire variables.

Short-term effects. It had been anticipated that, with a few possible exceptions, each subject in the present sample would have had ample opportunity for coitus with his spouse immediately following film-viewing. Consequently, it was decided to analyze the immediate effects of viewing erotic films upon marital sexual activity, as measured by Scale E. This variable was selected as a criterion measure of arousal effects because it subsumed the greatest percentage of total sexual activity reported by subjects. Moreover, since both spouses attended film showings together, it appeared likely that they would remain together following film-viewing and thus have the opportunity for sexual contact. Inspection of the data indicated that only two instances of extramarital activity were reported for the days on which films were viewed; all other joint activity on those days involved spouses as partners. In order to partial out effects of merely attending an interesting film, it was considered important to analyze results not only for experimental subjects who viewed erotic films, but also for control subjects who viewed nonerotic films. Each subject's mean Scale E score for the four days when films were shown was first compared by means of correlated *t*-tests with his mean Scale E score for the other 24 days in Phase 2. Separate tests were performed for each sex grouping of experimental and control subjects. The results indicated that experimental subjects' mean sexual activity levels on film-viewing nights exceeded those reported for the rest of the phase at very high levels of significance for both males ($t = 5.31$, $df = 48$, $p<.001$) and females ($t = 4.19$. $df = 48$, $p<.001$). In contrast, differences for control subjects did not remotely approach significance.

Detailed inspection of these data revealed that 37 of the 49 males who viewed erotic films (77%) and 30 of their spouses (63%) reported greater frequencies of marital sexual activity on film-viewing nights as compared with seven of 17 control males (41%) and six of their spouses (35%). The higher activity scores reported by males relative to females was consistent across all four treatment groups. This discrepancy suggests that males were more complete than females in reporting the separate sexual behaviors covered by the marital activity scale; however, this tendency was not confined to film-viewing nights but was apparent throughout the study.

Pooled experimental subjects, irrespective of sex, were then compared with control subjects in terms of the proportion of marital sexual activity performed on film-viewing nights to total marital sexual activity for the phase. An independent *t*-test of the difference between the means of these proportions indicated that experimental subjects' marital sexual activity on film-viewing nights, as compared to that for control subjects, represented a significantly higher proportion of total activity for the phase ($t = 2.59$, $df = 132$, $p<.01$). Thus, it appears evident that viewing erotic films produced significant immediate increases in marital sexual activity, but viewing nonerotic films produced no significant immediate changes.

Analyses of assessment battery data

The strategy used in analyzing pre- and post-experimental assessment battery data was to analyze change scores for each of the four film-viewing groups as well as for a fifth group comprised of subjects whose participation in the study was limited to completion of pre- and post-experimental assessment batteries. Therefore, changes within groups were analyzed by means of correlated *t*-tests applied to each of the five groups separately. Changes among the five groups were analyzed by means of one-way analyses of variance. As in earlier analyses, data for each sex were treated separately. Where necessary, signs of results were transformed so that positive mean differences or significance values represented increases in a given dimension and negative values represented decreases.

Changes in sexual liberalism and romanticism scales. Correlated *t*-tests applied to pre-post change scores for the five groups on the Sexual Liberalism and Romanticism scales of the *Psychology Today* Research Questionnaire on Sex revealed no significant changes within any group for either males or females. Moreover, one-way analyses of variance performed on these change scores produced no significant effects for treatment or order of presentation.

On the basis of the above results, it was concluded that no significant pre-post change on the Sexual Liberalism or Romanticism scales had occurred within any treatment group, nor had differential change occurred between the two order groups or among the five treatment groups.

Changes on marital survey. Two summary scores were derived from this instrument, which comprised each subject's rating of his own and his spouse's adequacy on 20 dimensions of marital function. One scale represented the sum of the subject's self-ratings; the second represented the sum of his ratings of his spouse. Table 21 presents the pre- and post-experimental means for these two variables by treatment groups.

Table 21

PRE- AND POST-EXPERIMENTAL MEANS BY GROUPS AND SEX FOR MARITAL SURVEY SUMMARY SCORES[a]

		Groups									
		Males					Females				
Variable	Score	I (N=16)	II (N=16)	III (N=17)	IV (N=16)	V (N=15)	I (N=16)	II (N=16)	III (N=17)	IV (N=16)	V (N=15)
Rating of self	Pre	45.82	41.44	41.24	41.88	46.64	41.41	37.63	41.06	38.31	42.07
	Post	46.88	43.50	45.06	43.06	43.21	39.29	43.69	45.24	40.38	38.80
	Difference	-1.06	-2.06	-3.82	-1.18	3.43	2.12	-6.06	-4.18	-2.07	3.27
Rating of spouse	Pre	43.00	37.50	41.88	41.38	41.71	42.41	39.31	41.71	40.44	41.73
	Post	41.38	39.81	41.76	39.69	38.36	39.65	43.75	43.71	40.19	39.47
	Difference	-1.62	-2.31	.12	1.69	3.35	2.76	-4.44	-2.00	.25	2.26

a. Positive differences signify improvement.

For males, correlated *t*-tests of pre- and post-scores revealed that Group III had declined on the self-report scale ($t = 1.97$, $df = 15$, $p<.05$). In contrast, male controls in Group V improved on the spouse-rating scale ($t = 1.85$, $df = 14$, $p<.05$).

Group II females declined on both the self-report scale ($t = 3.46$, $df = 15$. $p<.001$) and spouse-rating scale ($t = 2.12$, $df = 15$, $p = .01$). Thus, their results

indicated that they rated themselves and their spouses as less adequate marital partners at the end of the study than at the beginning. In contrast, female controls in Group V perceived themselves as *more* adequate than previously (t = 2.02, df = 14, $p<.05$). This finding coincides with the finding (cited above) that males in Group V significantly increased their ratings of their spouses from the beginning to the end of the study. Since Group V subjects had minimal contact with the study, their changes appear to reflect extra-experimental factors.

Four one-way analyses of variance for repeated measures were performed for change scores on the two variables, separately by sex. Only the analysis of females' changes on self-report attained the .05 probability level. Results for this analysis are summarized in Table 22.

Table 22

ANALYSIS OF VARIANCE FOR CHANGES IN FEMALES' SELF-RATING SUMMARY SCORE

Source	SS	df	MS	F	p
Between groups	1,022.84	4	255.71	3.34	< .05
Within groups	5,815.04	76	76.51		
Total	6,837.88	80			

As will be noted from Table 22, female subjects in Groups I and V increased their self-rating on the marital survey; all other groups of female subjects declined, with Group II exhibiting the largest decrement. From these results, it would appear that this differential change cannot be readily related to subjects' assignment to a specific treatment condition, since no clear pattern of change is discernible among subjects who saw erotic films as compared to those who saw nonerotic films or no films at all.

Changes on Marriage Council of Philadelphia Questionnaire. The following five summary scales, derived from the Marriage Council of Philadelphia questionnaire (a measure of marital sexual adjustment), were submitted to statistical analysis.

1. Sexual Satisfaction Scale (Self). This scale sums the number of sexual activities with which the subject expressed satisfaction.

2. Sexual Satisfaction Scale (Spouse). This scale sums the number of sexual activities that the subject reported were satisfactory to his spouse.

3. Certainty Scale. This scale sums the number of instances in which the subject was unwilling to make some judgment about his spouse's feelings concerning specific sexual activities, but instead replied "Do not know." The lower the score, the higher the degree of expressed certainty.

4. Sexual Versatility Scale. This scale sums the frequencies with which subjects reported engaging in a variety of sexual activities. Since this scale assigns low scale values to high frequencies (Always = 1), the lower the score the higher the degree of versatility in marital sexual activity.

5. Accuracy Scale. This scale represents the sum of the instances in which the subject's judgment of his spouse's feelings about a specific sexual activity coincided with his spouse's self-report. Pre-post means and change scores for the above scales are presented in Table 23.

Table 23

PRE- AND POST-EXPERIMENTAL MEANS FOR SUMMARY VARIABLES ON MARRIAGE COUNCIL OF PHILADELPHIA QUESTIONNAIRE

		Groups									
		Males					Females				
Variable	Score	I (N=16)	II (N=16)	III (N=17)	IV (N=17)	V (N=15)	I (N=17)	II (N=16)	III (N=17)	IV (N=16)	V (N=15)
Sexual satisfaction scale (self)	Pre	11.56	12.06	12.24	11.06	12.40	11.12	12.56	12.41	12.75	12.20
	Post	12.25	12.69	12.70	11.70	13.27	12.19	13.44	12.47	13.12	12.20
	Difference	-.69	-.63	-.46	-.64	-.87	-1.07	-.88	-.06	-.37	0
Sexual satisfaction scale (spouse)	Pre	10.75	11.50	11.41	10.94	10.93	10.12	12.19	12.47	12.38	10.53
	Post	10.38	12.94	11.94	11.18	12.20	9.75	12.25	10.76	11.53	11.20
	Difference	.37	-1.44	-.53	-.24	-1.27	.37	-.06	1.71	.85	-.67
Certainty scale[a]	Pre	2.31	1.62	1.41	1.82	2.07	2.75	1.50	1.12	2.00	2.07
	Post	2.06	.94	.76	2.00	1.33	3.88	1.38	2.65	2.82	1.67
	Difference	.25	.68	.65	-.18	.74	-1.13	.12	-1.53	-.82	.40
Sexual versatility scale[a]	Pre	21.31	20.07	19.88	20.24	19.60	20.06	20.62	19.41	19.00	20.60
	Post	20.94	19.75	20.12	21.12	19.67	20.75	20.75	20.65	19.94	21.47
	Difference	.37	.32	-.24	-.88	-.07	-.69	-.13	-1.24	-.94	-.87
Accuracy scale	Pre	9.88	10.25	10.76	10.35	9.73	10.19	10.94	11.24	10.06	10.47
	Post	9.94	11.25	10.27	10.12	11.47	10.06	11.75	10.33	9.94	10.47
	Difference	-.06	-1.00	.49	.23	-1.74	.13	-.81	.91	.12	0

a. Lower scores signify higher level of junction.

One-way analyses of variance were performed on these change scores in order to evaluate group and order effects. Of 20 analyses performed, none attained the .05 level of significance. Thus, the scattered changes detected within some individual groups by the correlated *t*-tests were merely suggestive of trends rather than indicative of differential change among the five treatment groups or two order groups on any of the five variables.

In summary, analyses of change scores for assessment battery data revealed only a few scattered changes within groups and only one significant change among groups. Therefore, it was concluded that only minimal differential change on assessment battery variables had occurred among the five groups as a function of differences in the experimental procedure.

Opinion Survey data

The major dependent measures for which results have been presented above were designed to assess changes in subjects' attitudes and behavior resulting from participation in the study. However, the investigators augmented these measures by eliciting participants' self-report of (*a*) their motives for volunteering, (*b*) their reactions to various components of the experimental procedure, and (*c*) perceived changes in themselves and their spouses that they attributed to participation. The

Opinion Survey, a 14-item inventory, surveyed these areas. It was administered in its entirety in the post-experimental battery to all subjects who had viewed either erotic or nonerotic films and in slightly altered form to the 15 Group V couples who neither viewed films nor completed daily questionnaires. Thus, some questions were submitted to 81 couples and others to 66 couples. One male subject inadvertently failed to complete the instrument and could not be reached before data-processing; therefore results for only 80 males were analyzed. Since certain items required the subject to respond only if he felt that participation in the study had changed him or his spouse in some manner, the number of respondents will be found to vary from item to item.

Subjects' motives for participation in the study. In attempting to evaluate the comparability of the present sample to larger groups in the general population, consideration was given to subjects' reported motives for volunteering. Therefore, Item 1 of the Opinion Survey asked subjects to rank-order from among seven alternatives their first, second, and third most important motives for participation in the study or to indicate additional motives by free response. As may be seen from the percentages listed in Table 24, both males and females agreed that learning about their own and others' sex lives was their primary motive for participation, with 80% of the males and 70% of the females ranking it as first, second, or third in importance. A desire to advance science appeared to be the second most influential motive, with approximately 56% of each sex grouping including it within their three rankings. Although only 5% of males and 8.6% of females ranked the desire to earn some money as first in importance, 27.5% of males and 53.1% of females included it within their three rankings. The desire to improve their own sex life was ranked first, second, or third by 46.3% of males, in

Table 24

SUBJECTS' RANKINGS OF RELATIVE IMPORTANCE OF MOTIVES FOR PARTICIPATION IN STUDY

	Subjects' ranking by percentages of sample for each sex					
	Males (N = 80)			Females (N = 81)		
Motive	First	Second	Third	First	Second	Third
Advance science	21.2	21.2	13.8	23.5	18.5	14.8
Learn more about own and others' sex lives	51.4	20.0	13.7	34.6	24.7	11.1
Earn money	5.0	5.0	17.5	8.6	19.8	24.7
Improve own sex life	6.3	25.0	15.0	3.7	11.1	9.9
For kicks	3.7	7.5	8.7	9.9	8.6	11.1
See the films	0	2.5	13.7	0	1.2	6.2
Because spouse wanted to	8.7	11.2	7.5	12.3	6.2	4.9
Other	3.7	0	2.5	7.4	3.7	9.9
Did not answer	0	7.6	7.6	0	6.2	7.4

contrast to only 24.7% of females. The least frequently reported motive was the desire to see the films, which was not ranked first by anyone, and was ranked second by only 2.5% of males and 1.2% of females. More females than males reported as their first motive that they entered the study because their spouses wanted to; however, the percentages across ranks indicate little difference between the sexes, with 27.4% of males and 23.4% of females ranking this motive as first, second, or third. Although these percentages suggest that there was relative equality of interest by both sexes in joining the study, response to Item 3, which directly asked which spouse was more eager to join, clearly indicated greater eagerness on the part of females. As compared to only 13.7% of males, 30.9% of females perceived themselves as more eager; 22.5% of males as compared to 16% of females perceived their spouse as more eager; and 63.7% of males as compared to 53.1% of females perceived both self and spouse as equally eager.

In summary, although there appear to be some sex differences in the degree of importance subjects attached to certain motives, substantial proportions of both sex groupings appeared to be most strongly attracted to the study as a personal learning experience and as an opportunity to advance science. The somewhat lower rankings given to earning money, seeing the films, and joining the study "just for kicks" do not necessarily indicate that subjects were not attracted by those aspects of the study; however, these rankings do suggest that other motives were stronger. On the strength of the importance attributed by subjects to learning from the study and contributing to science, it is logical to assume that they attempted to execute questionnaires accurately and conscientiously. Furthermore, the relatively lower rankings given to seeing the films and participation "just for kicks" suggest that the sample was relatively free of "swingers" who might have exhibited unrepresentative attitudinal or behavioral patterns.

Variables relevant to subjects' reporting. Steps had been taken to prevent subjects from forming preconceptions concerning the nature and goals of the study and thereby responding in a biased fashion. In order to ascertain the extent to which subjects had formed such preconceptions, they were asked on Item 2 of the Opinion Survey to rate four phrases on a five-point Likert scale in terms of the degree of accuracy with which these phrases described the study (with a rating of five signifying "very accurate"). As may be seen from Table 25, both males (mean rating = 3.9) and females (mean rating = 4.0) clearly rated the term "a survey of marital sexual behavior" as most accurate. In contrast, the term "a psychological experiment" received a markedly lower rating by males (mean rating = 3.3) and females (mean rating = 3.5), although this term was perceived by the experimenters as best characterizing the study.

Although the present sample contained a number of individuals who were employed in research settings, it was considered probable that the term "psychological experiment," as used in reference to the present study, might not be readily comprehensible to them; therefore, subjects were asked (in Item 13) to

Table 25

SUBJECTS' RATINGS OF ACCURACY OF TERMS DESCRIBING STUDY[a]

Descriptive term	Mean rating: Males (N = 86)	Mean rating: Females (N = 81)
a. A survey of marital sexual behavior	3.9	4.0
b. A survey of marital sexual behavior and of attitudes toward sexy movies	3.1	3.2
c. A psychological experiment	3.3	3.5
d. A test of a new technique of reporting behavior	3.2	3.4

a. Items were rated on a five-point scale: 5 = very accurate, 4 = rather accurate, 3 = fairly accurate, 2 = rather inaccurate, 1 = very inaccurate.

describe in their own words what they believed to be the main goals of the study. Although the replies varied in wording, most of them could be categorized by one or the other of the four phrases listed in Table 26. As may be seen from Table 26, these phrases were selected because they are almost identical to the terms that

Table 26

DISTRIBUTION BY PERCENTAGES OF MALE AND FEMALE SUBJECTS' FREE-RESPONSE DESIGNATION OF MAIN GOALS OF STUDY

Goals	Percentages: Males	Percentages: Females
To survey marital sexual behavior	66.2	76.5
To survey marital sexual behavior and attitudes toward sexy movies	17.7	12.3
To perform a psychological experiment	1.3	5.0
To test a new technique of reporting behavior	6.3	2.5
Failed to respond	8.5	3.7
Total	100%	100%

subjects were asked to rate in Item 2. Table 26 also reveals that only 1.3% of males and 5.0% of females identified the main goal of the study as experimental. Almost all subjects indicated that they viewed the study as a survey. Thus, it appears clear that most subjects did not perceive the experimental procedure as an attempt to manipulate their behavior, and it is thus improbable that subjects, on the whole, attempted to bias their responses in an effort to influence the outcome.

The extent to which subjects were confident that their anonymity would be respected was presumed to be a second factor influencing the accuracy of their

reporting. Responses to Item 12, which asked subjects to rate on a five-point Likert scale their degree of confidence that their anonymity had been respected, indicated a good deal of confidence. Of 79 male respondents, 51 were highly confident, 24 were moderately confident, 4 were uncertain, and 1 was moderately doubtful. Of 79 female respondents, 61 were highly confident, 14 were moderately confident, 4 were uncertain and 2 were highly doubtful. Given values of 5 for "Highly Confident" and 4 for "Moderately Confident," the mean rating for males was 4.6 and for females 4.7.

Item 4 asked subjects to rate their degree of accuracy in responding to each instrument. As may be seen in Table 27, subjects reported answering all instruments with roughly the same degree of accuracy. Given a value of 4 for "Very Accurate" and 3 for "Rather Accurate," ratings ranged from 3.2 to 3.4.

Table 27

SUBJECTS' RATINGS OF OWN ACCURACY IN COMPLETING QUESTIONNAIRES[a]

Questionnaire	Mean rating: Males (N = 80)	Mean rating: Females (N = 81)
Psychology Today research questionnaire	3.4	3.2
Marriage Council of Philadelphia questionnaire	3.3	3.3
Daily report sheet	3.4	3.4
Marital survey	3.3	3.3

a. Items were rated on a four-point scale: 4 = very accurate, 3 = fairly accurate, 2 = somewhat accurate, 1 = slightly accurate.

In summary, most subjects perceived themselves as having responded accurately, felt confident that their anonymity would be respected, and appeared to have regarded the study more as a survey of marital behavior than as a psychological experiment. The above indications for accurate reporting are consistent with the previously cited findings for dyadic agreement, which indicated that subjects had achieved high levels of accuracy in reporting those variables which were analyzed dyadically.

Effects of participation in study on subjects behavior. Although viewing films constituted the major experimental manipulation in the study, it soon became apparent from comments made by a number of subjects in the free response section of the daily questionnaire that other aspects of the procedure (for example, completing daily questionnaires) might also be influencing subjects' behavior. In order to ascertain the relative contribution to change made by each procedural component, Item 9 of the Opinion Survey asked each subject who felt that any aspect of the study had to any extent changed his own or his spouse's sexual patterns to rate on a four-point Likert scale the degree to which each of six components of the procedure had contributed to change. Table 28 presents mean ratings for each component and indicates the number of subjects who reported it.

Table 28

SUBJECTS' RATINGS OF EXTENT TO WHICH EACH COMPONENT OF EXPERIMENTAL PROCEDURE INFLUENCED SEXUAL PATTERNS OF SELF AND SPOUSE[a]

Procedural component	Mean rating for self				Mean rating for spouse			
	Males	N[b]	Females	N[b]	Males	N[b]	Females	N[b]
a. Filling out questionnaires at start of study	1.6	50	1.4	48	1.6	48	1.3	47
b. Filling out daily reports	2.0	47	1.7	46	2.0	45	1.6	45
c. Seeing the movies	1.8	45	1.4	45	1.6	40	1.6	45
d. Just being in the study	1.9	53	1.4	52	1.9	49	1.5	50
e. Contact with other participants	1.1	42	1.0	45	1.2	40	1.1	44
f. Talking to research staff	1.0	39	1.0	45	1.1	38	1.0	44

a. Items were rated on a four-point scale: 4 = very much, 3 = much, 2 = somewhat, and 1 = very little.
b. Number of subjects indicating that a given item had affected their own or their spouse's sexual patterns.

Since only those who had completed daily questionnaires were asked to respond to this item, a maximum of 66 males and 66 females could have designated any component as influential. Actual numbers for each sex ranged from 38 to 44. A scale value of 1 signified "Very Little;" a scale value of 2 signified "Somewhat." Interestingly, "Completing daily questionnaires" was rated highest as a source of change by both males (mean rating = 2.0) and females (mean rating = 1.7). Males also rated it higher than any other component in terms of its effect on their spouse (mean rating = 1.9). Females rated "Completing daily questionnaires" and "Seeing the movies" equally (mean rating = 1.6) as the most important influences upon their spouse. "Just being in the study" was rated by males as the second most influential source of change for self (mean rating = 1.9) and for their spouse (mean rating = 1.9) and "Seeing the movies" as third most influential for self (mean rating = 1.8). A fourth component—"Filling out questionnaires at start of study"—was rated by both male and female subjects about as highly for self and spouse as "Seeing the movies," although two additional components—"Contact with other participants" and "Talking to research staff"—were rated as relatively less influential than the first four.

Since the major focus of the present study is the investigation of the effects of the erotic films on behavior, it is noteworthy that subjects rated this component as relatively unimportant both in motivating them to volunteer for the study and in changing their sexual patterns. In fact, only eight males and four females rated "Seeing the movies" as contributing "much" or "very much" to change. Since the data did not differentiate between subjects who had seen erotic films and subjects who had seen nonerotic films, it was decided to analyze data for these groups separately in order to ascertain whether erotic films had been rated more influential than nonerotic films in changing subjects' sexual patterns.

As may be seen from the results presented in Table 29, subjects in all treatment groups which viewed erotic films tended to regard the films as contributing more to changing their own and their spouses' sexual patterns than did those in groups

Table 29

MEAN RATINGS[a] AND DISTRIBUTION OF RESPONDENTS BY GROUP AND SEX FOR SUBJECTS REPORTING THAT VIEWING FILMS CHANGED SEXUAL PATTERNS OF SELF OR SPOUSE

				Changed self		Changed spouse	
Treatment group	Sex	N	Type of film viewed	No. of respondents	Mean rating	No. of respondents	Mean rating
I	M	16	Erotic	10	1.25	10	1.25
	F	16	Erotic	13	1.43	11	1.50
II	M	15	Erotic	13	1.73	11	1.66
	F	16	Erotic	9	.93	8	.81
III	M	17	Erotic	15	1.23	11	.64
	F	17	Nonerotic	12	.70	14	1.47
IV	M	17	Nonerotic	10	.58	8	.47
	F	17	Nonerotic	11	.64	10	.64

a. Mean ratings are based on total group numbers by sex rather than on number of respondents. No response = 0, very little = 1, somewhat = 2, much = 3, very much = 4.

which saw nonerotic films. It is interesting to note, however, that roughly as many subjects in the control group as in some of the experimental groups responded to the item, although in every instance except one they rated the influence of the nonerotic films as "very little." Since mean ratings for each group were derived by dividing summated ratings of those responding by the total number of subjects in the group, means below 1.0 (the lowest scale point) were obtained for all groups that saw nonerotic films. However, means for experimental groups were not much higher, ranging from .93 to 1.73. Interestingly enough, the highest mean rating among experimental groups was exhibited by Group II males, and the lowest was exhibited by their spouses.

In summary, then, most subjects reported that no individual component of the study had been more than "somewhat" influential in changing their own or their spouses' sexual patterns. Furthermore, they tended not to differentiate to any extent in their evaluations of the four most highly-rated components.

Items 7 and 8 of the Opinion Survey asked each subject who felt that participation in the study had changed either his own or his spouse's sexual patterns to select from among 14 alternatives those dimensions of change which he felt applied to himself or his spouse or to indicate additional changes by free response. He was also asked to indicate which change for himself and which for his spouse he considered most important. Tables 30 and 31 present the results.

As may be seen from the tables, "Increased openness in discussing sex" was reported by both sexes as the most frequent and most important change for both themselves and their spouses. Of the males in the study, 42.5% reported this change for themselves and 43.8% reported it for their spouses; 17.5% ranked it as most important for themselves and 21.2% as most important for their spouses. Of the females, 39.5% reported this change for themselves and 29.6% for their

Table 30

CHANGES IN OWN SEXUAL PATTERNS ATTRIBUTED BY SUBJECTS TO PARTICIPATION IN STUDY

	Change	Percentage of sample responding		Percentage of sample ranking as most important	
		Males	Females	Males	Females
a.	Lowered inhibitions toward spouse	23.7	21.0	6.3	7.4
b.	Increased inhibitions toward spouse	3.7	6.2	0	0
c.	Increased satisfaction with marital sex life	16.2	12.3	6.3	2.5
d.	Decreased satisfaction with marital sex life	5.0	6.2	0	2.5
e.	Increased urge to try new techniques	23.7	21.0	5.0	3.7
f.	Increased desire for extramarital sex	11.2	3.7	2.5	0
g.	Increased frequency of extramarital sexual activity	0	1.2	0	1.2
h.	Increased frequency of masturbation	0	3.7	0	0
i.	Increased frequency of awareness of sexual arousal	26.2	18.7	5.0	4.9
j.	Increased openness in discussing sex	42.5	39.5	17.5	11.1
k.	Disruption of sex life	5.0	6.2	1.2	0
l.	Disruption of general marital relationship	0	3.7	0	1.2
m.	Desire for marital counseling or therapy	1.2	11.1	1.2	3.7
n.	Other changes	6.3	8.6	2.5	2.5

Table 31

CHANGES IN SPOUSES' SEXUAL PATTERNS ATTRIBUTED BY SUBJECTS TO PARTICIPATION IN STUDY

	Change	Percentage of sample responding		Percentage of sample ranking as most important	
		Males	Females	Males	Females
a.	Lowered spouse's inhibitions toward subject	27.5	7.4	11.2	1.2
b.	Increased spouse's inhibitions toward subject	3.7	0	1.2	0
c.	Increased satisfaction with marital sex life	11.2	3.7	0	1.2
d.	Decreased satisfaction with marital sex life	3.7	4.9	1.2	1.2
e.	Increased urge to try new techniques	20.0	30.9	2.5	4.9
f.	Increased desire for extramarital sexual activity	2.5	3.7	0	0
g.	Increased frequency of extramarital sexual activity	1.2	0	1.2	0
h.	Increased frequency of masturbation	1.2	1.2	0	0
i.	Increased frequency of awareness of sexual arousal	16.2	16.0	3.7	1.2
j.	Increased openness in discussing sex	43.8	29.6	21.2	13.6
k.	Disruption of sex life	5.0	2.5	3.7	1.2
l.	Disruption of general marital relationship	1.2	1.2	0	1.2
m.	Desire for marital counseling or therapy	1.2	2.5	1.2	1.2
n.	Other changes	2.5	4.9	1.2	3.7

spouses; 11.1% reported it as most important for themselves and 13.6% as most important for their spouses. Thus, there was substantial agreement among subjects on the relative frequency and importance of this change although more males than females reported the change for both themselves and their spouses.

The second most frequent and important change reported was "Lowered inhibitions," which was reported for themselves by 23.7% of males and 21% of females and for their spouses by 27.5% of males but only 7.4% of females. Thus males tended to see more change in this dimension among females than the females themselves; in contrast, relative to males' self-reports, females grossly underestimated the extent of male change. A comparable relationship may be seen in subjects' ranking of the importance of this change. An almost equal percentage of males (6.2%) and females (7.4%) ranked it as the most important change in themselves. However, as compared to a mere 1.2% of females, 11.2% of males ranked it as the most important change in their spouses. Here again, relative to their spouses' self-report, males tended to overestimate and females to underestimate the extent of change in their spouses. A change related to lowered inhibitions—"Increased urge to try new techniques"—was reported for themselves by 23.7% of males and 21% of females and for their spouses by 20% of males and 30.9% of females. Despite the greater proportion of males than females who reportedly joined the study to improve their sex lives, approximately as many females as males appeared willing to experiment with innovations. Thus, it appears that results for the present sample did not support the common social stereotype of the male as the initiator of sexual behaviors.

Only one other change for themselves—"increased frequency of sexual arousal"—was reported by substantial proportions of both males (26.2%) and females (18.7%). This change was also reported for their spouses by 16.2% of males and 16% of females.

A small proportion of both males (16.2%) and females (12.3%) reported that participation in the study had made their marital sex life more satisfying; 11.2% of males, but only 3.7% of females, reported the same change for their spouses.

There was little consensus on any other change. An increased desire for extramarital sex was reported by 11.2% of the males; however, few males reported a comparable increase in their spouses, and few females reported an increase for either self or spouse. Of females, 11.1% reported that the study had made them desire marital counseling or therapy; however, only 1.2% of males reported the same change. When subjects were asked directly in Item 11 whether or not they had found participation in the study harmful in any way, two males and 11 females responded affirmatively. Two of these females were members of the treatment group in which only males saw erotic films, and three were members of the group in which all subjects saw nonerotic films. Thus, 5 of the 11 female respondents did not see erotic films, although both male respondents did. Only one subject—a female who viewed nonerotic films while her spouse viewed erotic films—cited the films as a harmful influence, stating that ". . . the movie experiment caused a fight and a blowup." It was ascertained that she was angered

by her husband's stating that he had been aroused by portions of the films depicting activities that she regarded as aversive. All other objections to the study fell into two categories that were apparently related to the content of the daily questionnaire and to the demand characteristics of the daily reporting procedure. Five females and one male stated that the procedure inhibited spontaneous sexual activity by making them aware that they would have to remember and record details; five females and one male reported that the procedure directed their attention to shortcomings in their own sexual patterns. The specific comments of the latter group suggest that dissatisfaction was engendered both by the necessity for attending to frequency of activity and by subjects' comparison of their own sexual repertoires with the extensive repertoire of sexual behaviors listed on the questionnaire. It is noteworthy that only one of the 132 subjects in the active sample regarded the films as harmful and that she did not herself view the films.

Item 9 of the Opinion Survey asked subjects to indicate for themselves and for their spouses the degree to which participation in the study helped or harmed their sexual and general marital relationship. Mean ratings, as presented in Table 32, indicate that subjects rated the study as exercising a helpful rather than harmful influence upon their own and their spouses' marital and sexual functioning.

Table 32

SUBJECTS' RATING OF EFFECTS OF STUDY UPON SELF AND SPOUSE[a]

	Mean rating for self		Mean rating for spouse	
Area affected	Males (N = 80)	Females (N = 81)	Males (N = 80)	Females (N = 81)
Marital sexual relationship	3.3	4.3	3.4	3.2
General marital relationship	3.3	3.2	3.3	3.2

a. Items were rated on a five-point scale: 5 = very helpful, 4 = moderately helpful, 3 = neither helpful nor harmful, 2 = moderately harmful, 1 = very harmful.

As may be noted from the above free responses and from the responses presented in Tables 30, 31, and 32, only a negligible percentage of subjects reported changes which could be construed as at all harmful to personal or marital functioning.

The data reported above did not allow inferences about the relative effectiveness of the several treatment conditions in producing specific dimensions of change. Therefore, it was decided to tabulate, by sex and treatment groups, the results for those changes that had been designated by substantial proportions of the sample. Although resultant cell frequencies were too low for statistical analysis, the results provide some basis for comparison among experimental conditions. Table 33 presents the percentages by treatment groups of male and female subjects who reported each of five of the most frequently reported changes for self and each of four for spouse. These percentages were computed by

Table 33

MAJOR CHANGES IN OWN AND SPOUSE'S SEXUAL PATTERNS REPORTED BY SUBJECTS WHO SAW EROTIC FILMS, NONEROTIC FILMS, OR NO FILMS

Change	Percentage of group reporting											
	Report for self						Report for spouse					
	Subjects who viewed erotic films		Subjects who viewed nonerotic films		Subjects who viewed no films		Subjects who viewed erotic films		Subjects who viewed nonerotic films		Subjects who viewed no films	
	M (N=48)	F (N=32)	M (N=17)	F (N=34)	M (N=15)	F (N=15)	M (N=48)	F (N=32)	M (N=17)	F (N=34)	M (N=15)	F (N=15)
Lowered inhibitions	27.08	25.0	23.53	14.71	13.33	26.67	31.25	12.5	41.18	5.88	20.0	6.67
Increased marital satisfaction[a]	16.67	12.5	29.41	11.76	0	13.33	–	–	–	–	–	–
Increased urge to try new techniques	25.0	25.0	35.29	20.59	6.67	13.33	18.75	28.13	41.18	38.24	6.67	20.0
Increased frequency of awareness of sexual arousal	29.17	28.13	35.29	17.65	6.67	0	20.83	23.88	17.65	17.65	6.67	0
Increased openness in discussing sex	41.67	53.13	58.82	26.47	26.67	40.0	45.83	34.38	82.35	20.59	20.0	40.0

a. Frequencies for spouses were too low to tabulate.

sex for each of the following groupings: (*a*) subjects who viewed erotic films, (*b*) subjects who viewed nonerotic films, and (*c*) subjects who viewed no films. Thus, they provide some basis for estimating the extent to which (*a*) questionnaire batteries plus erotic films plus daily reports versus (*b*)questionnaire batteries plus daily reports plus nonerotic films versus (*c*) questionnaire batteries only, accounted for differential change in the five variables analyzed. As may be seen from Table 33, male subjects in the nonerotic film-viewing group surpassed all other groupings in proportionate frequency of reporting four of five changes for self and three of four changes for spouse. Admittedly, frequency of reporting is a very rough measure, since it does not take into account the magnitude of change for each subject. Nevertheless, the superiority of male subjects who viewed nonerotic films is consistent with the stability of their performance on daily questionnaire variables, as revealed by correlated *t*-tests reported above. On the other hand, female subjects who viewed erotic films surpassed all other female groupings in proportionate frequency of reporting four of five variables for self. Paradoxically, of females who saw no films, and therefore had no association with the study other than completing daily questionnaires, 40% reported positive change for both self and spouse in terms of increased openness in discussing their sex lives.

The foregoing results indicate that males in the erotic film-viewing condition reported the changes under investigation with lower proportionate frequency than did males in the group which viewed nonerotic films; therefore other aspects of the procedure (perhaps completing daily questionnaires) are presumed to have produced the most extensive change for males on the variables reported above. However, the higher proportionate frequency with which females viewing erotic films reported these changes relative to females in other groups suggests that they may have been differentially influenced by viewing erotic films.

Film-rating data

Several analyses were performed on the Film Rating Sheets which were completed by subjects after viewing each erotic film. A favorability summary scale was first derived by totaling the instrument's 21 variables. Before totaling, a few items that were worded in a negative direction and negatively intercorrelated with other items were reverse-scored. Furthermore, as may be noted from Tables 34 and 35, which present mean ratings for males and females across films, mean scores for these items were transformed by subtracting them from a constant. Thus, in every case, the lower the mean rating for any item, the higher the degree of favorability it signifies. The questionnaire also asked subjects to report physiological responses experienced during film-viewing.

Ratings across films. One-way analyses of variance were applied to each of the film-rating variables and the derived global favorability scale across the seven films. The results revealed highly significant differences among subjects, mean ratings of the seven films for most of the film-rating variables. As is shown in Tables 34 and 35, 19 of the 21 film-rating variables yielded significant *F*-ratios at the .05 level or beyond for male subjects, and 15 of the 21 yielded significant *F*-ratios for female subjects. As can be seen from these tables, the film *Unfolding*

Table 34

MEANS AND F-RATIOS OF FILM RATING VARIABLES FOR MALE SUBJECTS ACROSS FILMS[a,b]

Variables	Film 1 Female masturbating	2 Intercourse	3 Female homosexuals	4 Group sex	5 Male homosexuals	6 Sado-masochism	7 Unfolding	F-ratios
Attractiveness of								
1. Male actor		3.55		3.51	4.76	5.00	3.36	15.1***
2. Female actor	3.06	3.73	3.33	3.47		4.40	2.52	14.5***
3. Setting	3.51	4.33	4.28	4.55	4.45	4.94	2.42	20.9***
4. Photography	2.88	4.00	4.22	4.67	4.10	4.92	2.74	16.7***
5. Sexual technique	3.52	3.27	3.76	3.71	4.82	4.98	2.84	14.3***
Extent actors portrayed								
6. Spontaneity	3.39	2.71	3.57	3.71	3.59	4.08	2.16	8.9***
7. Tenderness	4.52	3.92	4.55	4.94	4.78	6.22	2.04	28.9***
8. Sexual skill	3.33	2.94	3.35	3.08	3.67	4.44	2.62	7.3***
Extent that subject								
9. Shared feelings of actor (M)		3.16		4.06	5.65	5.88	2.98	31.5***
10. Shared feelings of actor (F)	4.20	3.69	4.45	4.63		5.76	2.98	10.7***
11. Experienced anxiety	3.33	3.14	3.35	3.61	2.34	3.08	2.98	0.92
12. Experienced embarrassment	2.26	2.10	2.60	2.29	3.12	2.58	1.48	4.6***
13. Was attentive	2.59	2.59	2.82	2.73	3.88	3.24	2.64	5.4***
14. Was interested	2.76	2.60	2.76	2.78	4.00	3.46	2.66	6.17***
15. Experienced sexual fantasies	4.19	3.88	4.06	4.02	5.80	5.64	4.16	9.66***
16. Was "turned off"	2.69	2.48	3.02	2.59	4.80	4.42	1.82	16.3***
Extent to which film								
17. Presented new ideas about sexual practices	5.84	5.37	5.22	4.90	6.02	5.78	5.50	2.17
18. Seemed realistic	3.35	2.78	3.33	3.41	3.41	4.38	3.22	4.04***
19. Made subject want to see more sex films	3.84	3.51	3.96	3.80	5.37	4.64	3.62	6.13***
20. Made subject not want to see more sex films	2.71	2.88	3.14	3.04	4.04	3.44	2.46	2.96**
21. Made subject want to inhibit feelings	2.90	2.61	3.00	2.82	3.04	2.88	2.32	0.95
Favorability scale	3.62	3.39	3.98	3.73	4.47	4.59	2.92	19.4***

a. df for most variables is 6/348.

b. Scores on variables 11, 12, 16, 20, and 21 have been subtracted from a constant so that for all variables the lower the score the more favorable. Scale values range from 1 ("extremely attractive" or "very much") to 7 ("extremely unattractive" or "almost none"),

*$p < 0.05$.

**$p < 0.01$.

***$p < 0.001$.

Table 35

MEANS AND F-RATIOS OF FILM RATING VARIABLES FOR FEMALE SUBJECTS ACROSS FILMS[a,b]

Variables	Film 1 Female masturbating	2 Inter-course	3 Female homosexuals	4 Group sex	5 Male homosexuals	6 Sado-masochism	7 Unfolding	F ratios
Attractiveness of								
1. Male actor		3.94		4.03	4.47	5.38	3.25	10.9***
2. Female actor	3.31	4.76	4.15	4.30		4.84	2.81	9.92***
3. Setting	3.94	4.88	4.61	4.54	4.53	5.03	2.19	16.9***
4. Photography	3.69	4.38	4.94	4.45	4.63	5.31	2.06	17.98***
5. Sexual technique	4.47	3.53	4.85	4.36	4.72	5.38	2.66	8.96***
Extent actors portrayed								
6. Spontaneity	3.66	2.84	3.58	3.67	3.47	3.88	1.69	5.41***
7. Tenderness	5.19	4.09	4.82	4.94	5.12	6.41	1.66	23.6***
8. Sexual skill	4.13	2.75	3.15	2.58	3.38	4.00	2.41	5.03***
Extent that subject								
9. Shared feelings of actor (M)		4.97		5.30	5.56	6.06	3.12	9.63***
10. Shared feelings of actor (F)	4.75	4.52	5.63	4.96		5.69	3.06	6.87***
11. Experienced anxiety	2.44	2.62	3.03	2.88	2.91	3.81	2.53	1.59
12. Experienced embarrassment	2.84	2.78	3.79	3.52	3.94	3.47	1.78	4.13***
13. Was attentive	3.63	2.88	3.15	2.76	3.25	2.97	2.25	1.74
14. Was interested	3.59	2.84	3.45	3.18	3.69	3.06	2.22	2.06
15. Experienced sexual fantasies	5.50	4.75	5.58	5.21	6.12	6.16	4.53	3.26**
16. Was "turned off"	3.78	3.47	4.79	4.12	4.94	5.25	2.00	8.33***
Extent to which film								
17. Presented new ideas about sexual practices	6.09	5.66	5.70	5.58	5.97	5.91	6.34	0.81
18. Seemed realistic	4.00	2.97	4.15	4.00	3.53	4.69	2.50	4.00***
19. Made subject want to see more sex films	5.66	4.94	5.30	4.94	5.59	5.44	4.06	2.61**
20. Made subject not want to see more sex film	4.12	3.87	4.22	4.36	4.59	4.56	2.84	2.08
21. Made subject want to inhibit feelings	2.72	2.59	3.12	3.39	3.19	2.97	2.16	1.39
Favorability scale	4.22	3.94	4.68	4.44	4.54	4.93	2.84	14.5***

a. df for most variables is 6/225.

b. Scores on variables 11, 12, 16, 20, and 21 have been subtracted from a constant so that for all variables the lower the score the more favorable. Scale values range from 1 ("extremely attractive" or "very much") to 7 ("extremely unattractive" or "none" or "almost none").

*$p < 0.05$.
**$p < 0.01$.
***$p < 0.001$.

was rated most favorably and the film depicting sadomasochistic activity was rated least favorably on the summary scale by both males and females.

The ratings given *Unfolding* merit further comment. The mean score for males on the "turn you off" variable was 1.82. Since 1.0 would be the highest score attainable if each subject had responded that the film had repelled him "very little or not at all," the obtained mean indicates that few male subjects found the film in any way objectionable. Similarly, females' mean score of 2.0 indicates a comparable degree of acceptance on their part. In contrast, other films were rated as considerably less favorable.

Differences between the sexes. Although male and female subjects assigned similar ratings to some of the films, they also exhibited strong differences. Table 36, which presents results for the differences between the mean ratings of male and female subjects by film and variable, clearly emphasizes the differences between males and females. As can be seen from Table 36, in many instances male subjects assigned various films more favorable ratings than did female subjects. For example, males were significantly more attracted to the female actors in the intercourse and group sex films. As compared to female subjects, males also rated the female masturbation film significantly higher on its ability to hold their interest and attention, as well as to arouse their sexual fantasies. However, relative

Table 36

RESULTS OF INDEPENDENT t-TESTS FOR DIFFERENCES BETWEEN MALES (N = 49) and FEMALES (N = 32) FOR FILM RATINGS[a,b,c]

Variables	Film 1 Female masturbating	2 Inter-course	3 Female homosexuals	4 Group sex	5 Male homosexuals	6 Sado-masochism	7 Unfolding
Attractiveness of							
1. Male actor		1.29		1.60	-0.89	1.39	-0.33
2. Female actor	1.00	3.54***	2.44*	3.14**		1.40	1.15
3. Setting	1.53	2.02*	0.96	0.00	0.26	0.35	-0.77
4. Photography	3.15**	1.24	1.91	-0.67	1.69	1.10	-2.02*
5. Sexual technique	3.03**	0.75	2.77**	1.79	-0.26	0.97	-0.69
Extent actors portrayed							
6. Spontaneity	0.67	0.41	0.00	0.00	-0.33	-0.50	-2.15*
7. Tenderness	1.50	0.42	0.60	0.00	0.92	0.65	-1.73
8. Sexual skill	1.87	-0.66	-0.50	-1.42	-0.77	-0.33	-0.91
Extent that subject							
9. Shared feelings of actor (M)		4.18***		2.87**	0.20	0.51	0.33
10. Shared feelings of actor (F)	1.18	1.90	2.45*	0.74		-0.17	0.17
11. Experienced anxiety	-2.25*	-1.11	-0.67	-1.63	0.14	1.62	-1.04
12. Experienced embarrassment	1.54	1.91	2.37*	2.82**	1.66	2.10*	1.09
13. Was attentive	2.73**	0.87	0.83	0.00	-0.49	-0.86	-1.07
14. Was interested	2.16*	0.66	1.63	1.02	-0.75	-1.20	-1.19
15. Experienced sexual fantasies	2.87*	1.84	3.36**	2.59*	0.99	1.53	0.81
16. Was "turned off"	2.54*	2.15	3.52***	3.27**	0.28	1.72	0.57
Extent to which film							
17. Presented new ideas about sexual practices	0.71	0.69	0.95	1.44	-0.14	0.30	2.40*
18. Seemed realistic	1.37	0.48	1.93	1.32	0.30	0.71	-1.86
19. Made subject want to see more sex films	4.64***	3.21**	2.87**	2.57*	0.57	1.97	0.96
20. Made subject not want to see more sex films	2.97**	2.02*	1.96	2.48*	1.04	2.23*	0.92
21. Made subject want to inhibit feelings	0.41	0.00	0.26	1.21	0.33	0.20	-0.44

a. df for most variables = 81.
b. Negative t-value indicates that female ratings are more favorable than male.
c. Variables 11, 12, 16, 20 and 21 have been reverse-scored.
*p < 0.05.
**p < 0.01.
***p < 0.001.

to males, females perceived the film *Unfolding* as significantly more attractive photographically, more spontaneous, and more informative about sexual practices. On the other hand, female subjects were significantly more "turned off" by four of the seven films than were males. It is noteworthy that, while both male and female subjects tended to deny being embarrassed by most of the films, for four of the seven films, females reported lower levels of anxiety than males, while for one film this tendency reached statistical significance. Self-ratings of anxiety are difficult to interpret because they do not appear to covary systematically with ratings of variables such as aversiveness or favorability, as might logically be expected. Furthermore, anxiety is one of the few variables that failed to discriminate significantly among films.

Table 37 summarizes the differences between the ratings of the various films by male and female subjects as expressed in the favorability summary scale means. Results indicate that, in comparison to females, males rated four of the seven films as significantly more favorable.

Table 37

MEANS, STANDARD DEVIATIONS AND t-VALUES FOR COMPARISONS BY FILM OF MALE AND FEMALE SUBJECTS' SUMMATED RATINGS OF FAVORABLENESS

	Film						
	1 Female masturbating	2 Inter-course	3 Female homosexuals	4 Group sex	5 Male homosexuals	6 Sado-masochism	7 Unfolding
X males	3.62	3.39	3.98	3.73	4.47	4.59	2.92
SD males	0.97	0.86	1.21	0.90	0.85	0.80	0.97
N	51	51	49	49	49	50	50
X females	4.22	3.94	4.68	4.44	4.54	4.93	2.84
SD females	0.99	0.92	1.18	1.16	1.03	0.98	0.84
N	32	32	33	33	32	32	32
t score	2.69**	2.73**	2.56*	3.08**	0.33	1.70	−0.38[a]

a. −t indicates females more favorable than males.
*p < 0.05 for 2-tailed test of significance.
**p < 0.01 for 2-tailed test of significance.

Order effects. Analyses of variance were also performed on the derived favorability scale to determine whether the order in which subjects viewed films differentially affected their ratings of each film. These results are presented for male and female subjects separately in Table 38. Results indicate that female subjects who saw films depicting standard practices first were significantly less

Table 38

ANALYSIS OF VARIANCE FOR EFFECTS OF ORDER OF FILM PRESENTATION ON FAVORABILITY RATINGS

Source	SS	df	MS	F
Males				
Between groups	1.74	1	1.74	1.48[a]
Within groups	407.5	346	1.18	
Females				
Between groups	6.55	1	6.55	4.67*[b]
Within groups	314.3	224	1.40	

[a]Group 1 $\overline{X}$ = 3.88 and Group 2 $\overline{X}$ = 3.74.
[b]Group 1 $\overline{X}$ = 4.39 and Group 2 $\overline{X}$ = 4.05.
*p < .05.

likely to view films as favorable than were female subjects who saw films depicting nonstandard practices first ($F = 4.67$, $df = 1,346$, $p<.05$). Thus, prior exposure to relatively aversive material appeared to elevate female subjects' subsequent rating of more benign films. In contrast, prior exposure to more benign films appeared to depress the evaluation of subsequent films depicting relatively more aversive content.

Arousal ratings of activities. In addition to being asked to rate various dimensions on the Film Rating Sheets, subjects who had viewed erotic films were

asked on the Opinion Survey administered at the end of the study to rate (on a five-point Likert scale) the degree to which they were aroused or repelled by each of seven activities depicted by the films they had viewed. Table 39 below presents mean ratings. The activities were: (*a*) intercourse, (*b*) oral-genital contact, (*c*) Lesbian acts, (*d*) male homosexual acts, (*e*) group sex, (*f*) sadomasochistic acts, and (*g*) female masturbation. Intercourse was depicted in four of the films shown,

Table 39

MALE AND FEMALE SUBJECTS' MEAN RATINGS[a] OF SEXUAL AROUSAL BY FILMED ACTIVITY

	Males				Females		
Filmed activity	Group I (N = 16)	Group II (N = 15)	Group III (N = 17)	Mean rating (males)	Group I (N = 16)	Group II (N = 16)	Mean rating (females)
Intercourse	1.81	1.73	1.76	1.77	2.44	2.75	2.60
Lesbian acts	3.25	2.86	2.76	2.96	3.63	4.06	3.85
Oral-genital contact	2.50	1.93	2.29	2.24	2.75	2.81	2.78
Male homosexual acts	4.13	3.40	3.94	3.82	3.68	4.25	3.97
Group sex	2.88	2.00	2.76	2.55	3.75	4.06	3.91
Sadomasochistic acts	4.31	3.87	4.24	4.14	4.38	4.62	4.50
Female masturbation	2.38	2.53	2.18	2.36	3.56	3.56	3.56

a. 1 = greatly aroused, 2 = slightly aroused, 3 = no reaction, 4 = mixed arousal and repulsion, 5 = repelled.

oral-genital contact in six, group sex in two, and female masturbation, Lesbian acts, male homosexual acts, and sadomasochistic acts in one each. Since several of the activities appeared in more than one film, subjects' ratings of these activities do not allow firm conclusions as to the specific film that most strongly influenced their judgments. However, the extent to which a specific filmed activity was rated as arousing appears to bear a fairly close relationship to the rating of the corresponding film in terms of favorability and capacity for arousing sexual fantasy. For example, as may be seen in Tables 34 and 35, subjects of both sexes rated *Unfolding* and the film designated "Intercourse" as most favorable. Furthermore, females rated these two films as most arousing of sexual fantasy. Males agreed on the "Intercourse" film but rated *Unfolding* fourth in degree of arousal properties. However, both sexes rated the activities of intercourse and oral-genital contact—the dominant themes portrayed in the two films—as most arousing. Moreover, both sexes agreed in rating the male homosexuality and sadomasochism films as least favorable and least conducive to sexual fantasy and the corresponding activities as least arousing. Apparently the high arousal ratings assigned by males to filmed portrayals of intercourse and oral-genital contact were based mainly on their response to the "Intercourse" film, unlike females' ratings, which appear to be based on *Unfolding* as well. From these results it may be seen that the film context within which a given activity is depicted may affect the degree to which it will arouse certain categories of subjects.

Inspection of the mean ratings in Table 39 indicates that for all activities except intercourse, males' mean ratings fell between the scale points "slightly aroused" and "no reaction." For females, most ratings fell between "no reaction" and "mixed arousal and repulsion." Males tended to rate each activity as more arousing than did females; however, both sexes rated depictions of "standard" activities as more arousing than depictions of "nonstandard" activities.

Reports of arousing or aversive features. If one considers the definitions of the scale points on the rating scale, it would be reasonable to regard 3.5 as the midpoint and to classify all higher scale scores as "unfavorable" and all lower scale scores as "favorable." On the basis of this classification, we found that male subjects rated five of the seven films unfavorably on the summary scale, while females rated only *Unfolding* favorably. One may substantiate this difference between the sexes, as well as the general tendency of both sexes to rate films unfavorably, by comparing the frequencies with which subjects reported that various features of the films had "turned (them) on" or "turned (them) off." Reports of arousing features totaled 88 for females and 165 for males across seven films. In contrast, reports of aversive features across seven films totaled 164 for females and 202 for males. Since fewer females than males viewed the erotic films, it is first necessary to convert scores for each sex to mean number of reports per subject by dividing male subjects' totals by 49 and female subjects' totals by 32. Inspection of Table 40, which presents the above results, indicates

Table 40

TOTAL INCIDENCE BY SEX ACROSS SEVEN FILMS OF SUBJECTS' REPORTS OF AROUSING OR AVERSIVE FILM CONTENT

	Arousing		Aversive	
Content area	Females N = 32	Males N = 49	Females N = 32	Males N = 49
General quality of whole film	11	21	51	57
Oral-genital activity	15	30	16	12
Closeup of genitals	4	8	2	8
Lesbian contact	0	3	6	2
Homosexual contact	0	4	0	7
Intercourse	8	29	0	0
Whipping	0	0	19	28
All others	50	70	70	88
Totals	88	165	164	202
Mean number of reports per subject	2.75	3.35	5.13	4.12

(*a*) that more subjects reported aversive features than arousing features, (*b*) males, as compared to females, reported a higher mean number of arousing features, and (*c*) females, relative to males, reported a higher mean number of aversive features. Table 40 also reveals several qualitative response differences between the sexes. First, females more frequently than males found Lesbian content aversive; males,

on the other hand, were more likely than females to respond adversely to male homosexual content. Second, males appeared more permissive toward oral-genital contact than did females. Finally, although 19 males and 28 females found the whipping in the sadomasochistic films aversive, no subjects of either sex reported the activity as arousing. These findings are consistent with the results reported above for the Opinion Survey ratings of specific filmed activities.

Relationship of physiological responses to rating variables. The frequency with which pooled males and pooled females who viewed erotic films reported specific physiological responses to each film was converted to percentages based on the total number of each sex grouping (N = 49 for males and N = 32 for females). Table 41 presents these percentages for each of 10 physiological responses and mean percentages by film computed across the 10 response categories. Inspection

Table 41

PERCENTAGES OF MALE (N=49) AND FEMALE (N=32) SUBJECTS REPORTING PHYSIOLOGICAL RESPONSES DURING FILM-VIEWING

	Film													
	1		2		3		4		5		6		7	
Physiological response	Female masturbation		Intercourse		Female homosexual acts		Group sex		Male homosexual acts		Sado-masochism		Unfolding	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Increased heart rate	32.65	15.63	36.74	25.00	40.82	18.75	46.94	18.75	18.37	21.88	18.37	21.88	22.45	18.75
Increased breathing rate	16.33	12.50	20.41	12.50	14.29	12.50	26.53	15.63	8.16	21.88	12.24	15.63	8.16	18.75
Dry mouth	6.12	3.13	14.29	9.38	10.20	0.00	12.24	5.88	12.24	3.13	12.24	6.25	6.12	9.38
Erection	42.86	-	57.15	-	44.90	-	55.11	-	16.33	-	24.49	-	42.86	-
Genital sensations	44.90	37.50	46.94	53.13	44.90	37.50	57.15	59.38	22.45	31.25	32.65	37.50	40.82	43.75
Muscle tension	14.29	15.63	16.33	12.50	18.37	18.75	18.37	15.63	18.37	9.38	18.37	15.63	4.08	21.88
Muscle relaxation	2.04	3.13	0	6.25	0	3.13	0	3.13	2.04	6.25	0	3.13	2.04	9.38
Flushing	18.37	18.75	16.33	18.75	18.37	6.25	24.49	12.50	10.20	15.63	10.20	9.38	4.08	6.25
Sweating	2.04	3.13	4.08	6.25	4.08	0	2.04	0	2.04	0	4.08	3.13	2.04	3.13
Other	0	6.25	2.04	6.25	2.04	9.38	2.04	3.13	2.04	9.38	2.04	9.38	2.04	3.13
Mean percentage	17.96	12.85	21.43	16.68	19.79	11.82	24.49	14.89	11.22	13.20	13.46	13.55	13.47	14.93

of Table 41 reveals that males and females could be compared on eight of the 10 categories listed (omitting "erection" and the category designated "other" for which very low frequencies were obtained). For seven of these eight categories, males usually reported higher proportionate frequencies than did females; however females reported higher proportionate frequencies of genital sensations than did males for five of the seven films. Interestingly, the two films for which males (relative to females) reported higher proportionate frequencies of genital sensations were the only films without male actors—the female masturbation and female homosexuality films. One exception to the males' customary pattern was observed. For the film *Unfolding*, female subjects' proportionate frequencies of reporting exceeded those for males on seven of eight physiological variables. This difference coincides with the relatively higher ratings reported for females as compared to males for other dimensions of this film.

It is interesting to note that genital responses to the seven films were reported by as many as 54.90% of females for one film (portraying group sexual activity). These results may be compared with those of Schmidt and Sigusch (1970) who

found that 72% of the female college students in their sample reported some sort of physiological response to viewing visual erotic stimuli. The smallest percentage of genital response reported by females was 31.25% for the film depicting male homosexual activity. Males reported both genital sensations and erections with almost equal frequency; therefore, it appears likely that, in many instances, respondents who reported erections also may have reported "genital sensations."

In order to investigate the relationship among the more frequently reported physiological variables and to compare them with those film-rating variables that seemed most important, it was decided to rank-order by film subjects' mean ratings of favorability, aversiveness, arousal of sexual fantasy, and arousal of anxiety, as well as the proportional frequency of reporting erection (for males), genital sensations, increased heart rate, and mean physiological response. Table 42 presents these rank-orderings by film.

Table 42

RANK ORDERING BY MALE (N=49) AND FEMALE (N=32) SUBJECTS OF FILMS ON VARIOUS FILM-RATING VARIABLES

	Film													
	1		2		3		4		5		6		7	
Scale variables	Female masturbation		Intercourse		Female homosexual acts		Group sex		Male homosexual acts		Sado-masochism		Unfolding	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Favorability summary scale	3	3	2	2	5	6	4	4	6	5	7	7	1	1
Aversiveness[a]	3	3	2	2	5	5	4	4	6	6	7	7	1	1
Arousal of sexual fantasies	5	4	1	2	3	5	2	3	7	6	6	7	4	1
Anxiety[a]	5	1	4	3	6	6	7	4	1	5	3	7	2	2
Physiological variables														
Increased heart rate	4	7	3	1	2	6	1	4	7	2	6	3	5	5
Erection	4	-	1	-	3	-	2	-	7	-	6	-	5	-
Genital sensations	4	6	2	2	3	7	1	1	7	7	6	4	5	3
Mean physiological response	4	6	2	1	3	7	1	2	7	5	5	4	6	3

a. The higher the rank the lower the degree of aversiveness or anxiety; thus, a ranking of 1 would indicate the *least* amount of aversiveness (or anxiety).

After inspecting the rating variables and noting that aversiveness and anxiety have been reverse-scaled, some systematic relationships among variables may be observed. For example, both male and female subjects rated *Unfolding* as most favorable, least aversive, and next to least anxiety-arousing. Females also rated it as most arousing of sexual fantasy.

Favorability and aversiveness exhibit a high degree of negative association across films. In 10 of 14 instances, a given film exhibits identical ranks for both variables, with the rank-order for arousal of fantasy exhibiting almost as high a degree of consistency.

Furthermore, comparing responses for males and females, we find that both sexes achieved substantial agreement in rank-ordering films in terms of overall favorability and aversiveness, and to a slightly lower extent, arousal of sexual fantasy. The lower degree of consistency for the arousal variable is primarily a result of males' relativelv lower arousal ratings of *Unfolding*.

Inspection of the rankings for the anxiety variable reveals reasonably close association between low levels of anxiety and aversiveness and high levels of favorability and arousal of sexual fantasy (except for three anomalous instances).

Males' reported anxiety was disproportionately high for the group sex film, which was rated moderately favorably, and disproportionately low for the sadomasochistic and male homosexuality films, which were rated least favorably. Females, however, reported anxiety levels for all films which coincided fairly closely (in rank order) with the ordering of favorability scores. The three paradoxical results found for males may reflect the very restricted range of anxiety ratings reported by them. By and large, they tended to report lower anxiety levels than females. Moreover, males' mean ratings spanned a range of only .78 of a scale point, as compared to females' ratings, which spanned a range of 1.67. Obviously the narrow range of males' ratings precluded precise discriminations among closely clustered ratings, especially in terms of rank-ordering. Despite this limitation, however, ordinal comparison does reveal that females, to a great extent, and males, to a lesser extent, reported lower anxiety levels for films judged generally favorable and arousing than for films judged less favorable and arousing.

Examination of the rankings of proportional frequency of reporting physiological responses indicates that, for several films, relatively high rank-order of physiological arousal variables was associated with relatively high rank-order of rating variables, and vice versa. In six instances, however, only a modicum of association was observed. For example, although females rated the female masturbation film third in terms of general favorability and lowest in terms of anxiety, they reported a relatively low frequency of physiological response to this film, while the sadomasochism film elicited from females much higher frequencies of physiological response than one would have expected from the relatively low favorability rating it received. In addition, both sexes tended to respond to the group sex film with relatively high frequencies of physiological response as compared to the moderate rating of favorableness achieved by this film. On the other hand, although both sexes rated *Unfolding* highest in terms of favorableness and related variables, this film elicited relatively low frequencies of physiological response from them, although the disparity was greater for males than for females. It appears conceivable that physiological arousal may sometimes be inhibited by the poetic quality of a film, as in the case of *Unfolding*; conversely, a film that is rated as aversive, esthetically poor, or even anxiety-provoking, and whose central activity is rated as nonarousing by subjects may nevertheless elicit strong physiological concomitants of arousal. Thus, the present data provide suggestive evidence that the various concomitants of sexual arousal—esthetic, affective, and physiological—may exhibit varying degrees of concordance, depending upon the stimulus configuration which elicits them, although further study is required to determine the boundary conditions for producing varying degrees of congruence among the several response modalities.

Film Experience Survey data

The Film Experience Survey, which was administered to all subjects at the end of the fourth week of the study, asked each respondent to rate on a four-point Likert scale the frequency of his previous exposure to each of eight categories of erotic film and to rate on a five-point scale the degree to which he was usually aroused while viewing. Table 43 presents mean ratings, standard deviations, and results of chi-square comparisons between sexes and among treatment groups for experience data.

Table 43

MEANS, STANDARD DEVIATIONS, AND CHI-SQUARE TESTS OF SUBJECTS' RATINGS OF PREVIOUS EXPERIENCE WITH EROTIC FILMS

Activity	Mean	SD	x^2/df between sexes	x^2/df among groups
Intercourse	3.18	.82	8.24/2*	8.43/4
Oral-genital contact	3.48	.77	12.02/2**	9.01/4
Lesbian acts	3.48	.77	11.66/2**	9.03/5
Male homosexual acts[a]	3.79	.59		
Group sex	3.63	.76	9.09/2*	6.73/2*
Sadomasochistic acts[a]	3.76	.70		
Intercourse with animals[a]	3.87	.56		
Female masturbation	3.57	.90	6.21/2*	2.34/2

a. Score distributions did not permit statistical analysis.
*$p < .05$.
**$p < .01$.

Since a rating of 4 signified that the individual had never seen a film of a given type and a rating of 3 signified that he had seen a given type of film only "once or twice," one may see from the mean ratings and small ranges of variability presented in Table 43, that, on the whole, subjects' prior experience with most categories of erotic film had been negligible. Furthermore, results of chi-square analyses revealed that treatment groups did not differ among themselves in terms of previous exposure to any category of erotic film except group sex. On the other hand, in all categories for which score distributions permitted statistical analysis, females reported significantly less frequent exposure than did males. Because of the relative inexperience with erotic films reported by most subjects, few were able to answer questions dealing with usual level of arousal while viewing. Therefore, arousal data did not permit statistical analysis.

Each subject was also asked on the initial administration of the Film Experience Survey to indicate on a seven-point Likert scale who, in his opinion, should be legally permitted to see each of eight listed categories of erotic film and was again asked to make this judgment at the conclusion of the study.

Pre-experimental ratings of permissiveness were subjected to one-way analyses of variance among treatment groups (separately for males and females). Since no significant *F*-ratios were obtained, it was concluded that the treatment groups did not initially differ among themselves in terms of attitudes toward legal regulation of erotic films.

Pre-post difference scores for pooled experimental subjects (who saw erotic films) were subjected to correlated *t*-tests separately by sex, as were pre-post results for pooled control subjects (who saw nonerotic films or no films). Table 44 presents pre- and post-experimental means and Table 45 presents results of *t*-tests, with negative values signifying reduced permissiveness.

Table 44

PRE- AND POST-EXPERIMENTAL MEANS FOR MALE AND FEMALE SUBJECTS' PERMISSIVENESS RATINGS[a] BY FILM CONTENT

Activity	Score	Groups									
		Males					Females				
		I (N=16)	II (N=16)	III (N=17)	IV (N=17)	V (N=15)	I (N=16)	II (N=16)	III (N=17)	IV (N=17)	V (N=15)
Intercourse	Pre	3.88	4.80	4.00	4.71	4.47	3.63	4.31	4.29	4.35	3.80
	Post	4.56	4.87	4.41	3.71	4.53	3.88	4.56	2.94	3.06	4.07
	Difference*	0.68	0.07	0.41	-1.00	0.06	0.25	0.25	-1.35	-1.29	0.27
Oral-genital contact	Pre	3.81	4.80	3.76	4.18	4.33	3.06	3.94	4.29	3.59	3.53
	Post	4.19	5.27	4.24	3.59	4.33	3.56	4.56	2.82	2.71	3.87
	Difference*	0.38	0.47	0.48	-0.59	0.00	0.50	0.62	-1.47	-0.88	0.34
Lesbian acts	Pre	3.69	4.87	3.71	4.00	4.13	3.38	4.13	4.12	3.41	3.20
	Post	4.19	5.27	4.12	3.53	3.80	3.50	4.38	2.71	2.59	4.00
	Difference*	0.50	0.40	0.41	-0.47	-0.33	0.12	0.25	-1.41	-0.82	0.80
Male homosexual acts	Pre	3.69	4.87	3.59	4.00	4.13	3.44	4.13	4.06	3.41	3.20
	Post	4.19	5.20	4.12	3.47	3.67	3.50	4.38	2.71	2.59	4.00
	Difference*	0.50	0.33	0.53	-0.53	-0.46	0.06	0.25	-1.35	-0.82	0.80
Group sex	Pre	3.31	4.87	3.82	4.12	4.27	3.44	3.94	3.76	3.53	3.20
	Post	4.19	5.20	4.12	3.41	3.87	3.50	4.38	2.59	2.53	3.87
	Difference*	0.88	0.33	0.30	-0.71	-0.40	0.06	0.44	-1.17	-1.00	0.67
Sado-masochistic acts	Pre	3.06	4.80	3.53	3.53	3.67	3.06	3.81	3.47	3.41	2.93
	Post	4.19	5.20	4.06	3.24	3.47	3.00	4.31	2.59	2.24	3.47
	Difference*	1.13	0.40	0.53	-0.29	-0.20	-0.06	0.50	-0.88	-1.17	0.54
Intercourse with animals	Pre	2.94	4.67	3.35	3.29	3.67	3.06	4.13	3.41	3.12	3.20
	Post	3.81	5.07	3.76	3.06	3.53	2.81	4.31	2.35	2.35	3.47
	Difference*	0.87	0.40	0.41	-0.23	-0.14	-0.25	0.18	-1.06	-0.77	0.27
Female masturbation	Pre	3.69	4.87	3.71	4.00	4.13	3.06	4.00	4.06	3.59	3.33
	Post	4.19	5.27	4.24	3.47	4.27	3.50	4.44	2.65	2.59	3.93
	Difference*	0.50	0.40	0.53	-0.53	0.14	0.44	0.44	-1.41	-1.00	0.60

a. Subjects were asked their opinion as to who should be permitted to see films depicting each activity listed above. 1 = no one; 2 = scientists and interested professionals; 3 = any married person, 21 or over; 4 = anyone 21 or over; 5 = anyone 18 or over; 6 = anyone under 18 with parental approval; 7 = anyone.

*Positive differences signify increases in permissiveness.

As may be seen from the tables, male experimental subjects became significantly more permissive toward seven of eight categories after viewing erotic films. Male control subjects, on the other hand, exhibited no significant change on seven variables, but became significantly less permissive toward films depicting group sex. Inspection of means in Table 44 indicated that Group IV males who saw nonerotic films tended to become less permissive toward most categories, as

did Group V males who saw no films, although their decrements were smaller than those for Group V. As a result, separate correlated *t*-tests were run for Group IV males; however, no significant pre-post changes were found. Correlated *t*-tests were also applied to change scores for females. Since these analyses sought to determine the effects of actual exposure to erotic films on subjects' permissiveness toward exhibition of similar material, all female subjects who saw erotic films were treated as experimental subjects and all others were treated as controls. As may be seen from Table 45, female subjects who saw erotic films achieved no significant change on seven of eight variables but became significantly more permissive toward filmed portrayals of oral-genital contact. On the other hand, pooled female subjects who saw nonerotic films or no films became significantly less permissive toward all eight activities. Again, differential change patterns for female subjects who viewed nonerotic films and female subjects who viewed no films were noted in Table 44; therefore separate correlated *t*-tests were applied to (*a*) Group III females, who viewed nonerotic films while their husbands viewed erotic films, (*b*) Group IV females, who viewed nonerotic films with their spouses, and (*c*) Group V females, who saw no films. Inspection of means in Table 44 and results in Table 45 indicates that decrements surpassed the .05 level in five of eight categories for Group III and three of eight for Group IV. In contrast, Group V females, who saw no films, tended to become more permissive toward all eight categories, with this tendency surpassing the .05 level of significance for three categories.

Table 45

RESULTS OF CORRELATED t-TESTS FOR PRE-POST PERMISSIVENESS RATINGS BY FILM CONTENT

	Males		Females				
				Controls (nonerotic films only)		(no films)	
Activity	Experimentals (N=48)	Controls (N=32)	Experimentals (N=32)	Pooled controls (N=49)	Group III[a] (N=17)	Group IV[b] (N=17)	Group V (N=15)
Intercourse				-3.31***	-2.13*	-2.56*	
Oral-genital contact	2.15*		2.03*	-2.82***	-2.38*		
Lesbian acts	2.06*			-2.59**	-2.22*		2.35*
Male homosexual acts	2.18*			-2.54**	-2.15*		2.35*
Group sex	2.15*	-1.85*		-2.43*			2.20*
Sadomasochistic acts	2.80***			-2.07*		-1.77*	
Intercourse with animals	2.44**			-2.00*			
Female masturbation	2.32*			-2.89***	-2.26*	-1.76*	

a. Wives viewed nonerotic, husbands viewed erotic films.
b. Both spouses viewed nonerotic films.
* = .05.
** = .01.
*** = .005.

To investigate differential change in permissiveness between the sexes, change scores for pooled male subjects were compared with those for pooled female subjects by means of a one-way analysis of variance; however, no significant differences were found.

One-way analyses of variance were then applied to permissiveness change scores for male and female order groups to ascertain whether permissiveness had been

differentially affected by the order in which subjects viewed erotic films. For males no significant effects were obtained. However, females who saw standard films first (as compared to females who saw nonstandard films first) became significantly more permissive toward depictions of intercourse (F=7.15, df=1, 30, $p<.05$), oral-genital contact (F=5.18, df=1, 30, $p<.05$), sadomasochistic acts (F=4.96, df=1, 30, p=.05), and female masturbation (F=7.03, df=1, 30, $p<.05$). From the above results, it appears that first viewing relatively benign films produced differential changes in permissiveness toward the three activities generally rated most favorably by the sample and the activity generally rated least favorably.

Finally, differential changes among treatment groups were analyzed by means of one-way analyses of variance performed separately for males and females. No significant changes were found for males. However, as had been expected from results of correlated t-tests for females, highly significant differences were found between female subjects who saw erotic films or no films on the one hand and female subjects who saw nonerotic films on the other. Significant differences were obtained for the following six variables: intercourse (F=3.29, df=4,76, $p<.01$), oral-genital contact (F=3.76, df=4,76, $p<.01$), Lesbian acts (F=2.98, df=4,76, $p<.05$), male homosexual acts (F=2.75, df=4,76, $p<.05$), group sex (F=2.56, df=4,76, $p<.05$), and female masturbation (F=3.60, df=4,76, $p<.01$). It is noteworthy that no change occurred toward intercourse with animals, an activity that was not depicted in the erotic films presented, or sadomasochistic activity, which was depicted in the film rated most unfavorably. To summarize, female subjects viewing erotic films tended to beome slightly more permissive toward most categories of filmed activity; however, when the substantial decrements achieved by females who saw nonerotic films were compared with the slight to moderate increments achieved by females who saw the erotic films or no films, significant differences among treatment groups were observed. On the other hand, male subjects exhibited no significant differential change in permissiveness as a function of differing treatment conditions, although male subjects viewing nonerotic films showed a slight nonsignificant tendency toward reduced permissiveness.

DISCUSSION

Results of the present study indicate that despite the relative lack of prior experience with explicitly erotic films reported by a large proportion of the sample, exposure to four sessions of "stag" films produced only brief transitory increases in subjects' sexual behavior rather than sustained changes. For the most part, subjects appeared to maintain preexisting frequencies and repertoires of sexual behavior. To be sure, a number of them reported that they had become more open in discussing sex with their spouses or less inhibited in their marital sexual activity; however, most subjects who reported these changes attributed them to aspects of the study other than viewing erotic films (for example, being

required to complete daily questionnaires). Certainly, the results do not suggest that exposure to the films incited subjects to engage in impulsive, bizarre, or antisocial sexual acts or to replace existing sexual patterns with deviant ones, although the assumptions underlying existing censorship regulations evidently anticipate such outcomes. Since present results did not support these assumptions, it therefore becomes important to examine the data and methodology in detail in order to determine the extent to which results can be generalized.

Daily questionnaire results

The major finding from the daily questionnaire data was that exposure to erotic as compared to nonerotic films produced no important changes in subjects' sexual behavior except to increase the rate of marital sexual activity on film-viewing nights. This conclusion is based on analyses of the patterns of sexual activity delineated by the more than 11,000 daily reports collected from 66 couples throughout the 12 weeks of the study. These reports presented a unique and detailed record of the rhythms of marital interaction and sexual behavior of the present sample.

Careful examination of the daily questionnaires revealed that patterns tended to remain relatively stable over time but that a broad range of situational factors did create temporary increases or decreases in subjects' frequencies of various activities or in the degree of sexual gratification experienced. For example, subjects would frequently report in the free response section of daily questionnaires that their sexual activity had been temporarily interrupted or impaired by minor disruptions such as the presence of house guests, quarreling with their spouses, emotional stress, fatigue, or work commitments. Conversely, subjects occasionally reported that they had been sexually stimulated by specific events or experiences. Males usually reported being aroused by stimuli commonly associated with erotic arousal, for example, alcoholic beverages or social interaction with attractive females other than their spouses. In contrast, females more often reported being sexually aroused by ego-bolstering activities (such as "getting dressed up" or "getting a new hair-do") or by experiences that pleasurably altered their routine (such as "having dinner at a nice place"). Thus, both males and females indicated that they could be sexually aroused or inhibited by a broad range of environmental stimuli, varying in degree of erotic explicitness. However, reports of inhibiting factors were far more frequent than reports of stimulating factors. In fact, the composite picture that emerged from the data suggests that married couples in the present sample were unlikely to achieve dramatic increases either in frequency, innovations in technique, or level of gratification during the course of their 12 weeks' participation in the study.

Masters and Johnson (1966, pp. 260-270) cite monotony of a repetitious sexual relationship with a single partner and preoccupation with career and economic pursuits as two major factors that commonly lead to diminished frequency of marital sexual activity. Since subjects had been married at least 10

years and since they were concentrated in occupations requiring considerable involvement, it is reasonable to assume that for some proportion of the sample the factors cited above exercised a measure of control over the frequency and variety of marital sexual activity. Although it is impossible to identify all the factors which, taken together, served to maintain subjects' continuing sexual patterns, changes in these patterns from the beginning to the end of the study were minimal, reflecting, for the most part, a slightly downward trend. Moreover, the failure to find statistically different changes for experimental as compared to control subjects indicated that exposure to erotic films produced no significant sustained alteration of these patterns. The finding that subjects who viewed erotic films relative to those who viewed nonerotic films engaged in significantly greater frequencies of marital sexual activity on film nights is consistent with the results of the Hamburg studies summarized in the introduction to this report (Sigusch et al., 1970; Schmidt & Sigusch, in press; and Schmidt et al., 1969). These investigators found significant increases in masturbation and nonsignificant increases in other sexual activities performed by college students in the 24 hours following as compared with the 24 hours preceding exposure to visual erotic stimuli. Furthermore, as reported above, numerous laboratory studies of sexual arousal reviewed by Cairns (1968), Cairns et al. (1962), and Mann (1971) indicate that exposure to visual erotic stimuli frequently produces short-term arousal. Therefore, it is understandable that subjects would translate such arousal into increased marital activity on film-viewing nights, just as unmarried subjects in the Hamburg studies translated it into increased masturbation and petting.

The pattern of within-group changes summarized in Table 12 requires interpretation. As has been reported, results of the within-group correlated *t*-tests indicated that both control and experimental subjects declined progressively, and usually moderately, on a number of daily questionnaire summary scales but that experimental subjects, females in particular, exhibited many more significant decrements than did control subjects. When treatment groups were compared with one another, however, only two tests of differential change attained significance. This relative absence of significant differential change among treatment groups notwithstanding, it is apparent that experimental subjects declined more steeply on a number of measures than did control subjects. This finding may be explained by examining it within the context of the experimental procedure.

To begin with, comments made by subjects on daily questionnaires completed in the first and second weeks of the study indicated that a number of them were aroused by the initial novelty of participation, the reading of detailed instructions for completing daily questionnaires, and the task of completing questionnaires. These factors, coupled with the advent of the Christmas holidays, which occurred at that time, may well have increased the frequency of several dimensions of subjects' overt and covert sexual behavior above customary levels. For example, subjects' comments definitely established that some couples were encouraged to experiment with new techniques, such as anal intercourse, after noticing

references to these techniques on daily questionnaire forms. However, after subjects presumably began to habituate to the novel reporting procedures, all groups began to decline on many variables from Phase 1 activity levels, which may well have been atypically elevated. As may be noted from the phase means in Table 8, experimental subjects declined only slightly on most measures in the film-viewing phase; however, the additional declines achieved in the final phase resulted in significant differences between Phase 1 and Phase 3 scores on a number of daily questionnaire summary scales. In contrast, control subjects' declines from Phase 1 levels proceeded at a slower rate. The discernibly steeper rate at which experimental subjects declined—possibly to frequencies of activity already established before they began daily reporting—becomes explicable if one considers that experimental subjects were constrained to continue four weeks of daily reporting after having completed what they may have considered the potentially most interesting part of the study—seeing the erotic films. Furthermore, experimental subjects' responses on Film Rating Sheets indicated that they had found the actual experience of viewing only mildly arousing and interesting and, in fact, many of them had found it somewhat aversive. On the other hand, control subjects may have harbored pleasurable expectations of seeing erotic films at the end of the study, and these expectations may have helped to decelerate their decline in activity. Therefore, it is entirely conceivable that control subjects received more effective stimulation from the anticipation of viewing erotic films than did experimental subjects from the actual experience. However, it appears that neither anticipation nor actual viewing was able to maintain the overall higher levels of sexual activity which were achieved during the initial phase, when subjects were probably responding to the novel experience of participating in the study and the erotic connotations of the reporting procedure.

On the basis of the foregoing, if one assumes that anticipation of viewing erotic films decelerated the rate at which sexual behaviors declined to probable pre-experimental baselines, the results achieved by Group III females are paradoxical. As will be recalled, the daily questionnaire means summarized in Table 8 indicate that this treatment group achieved decrements generally of larger magnitude than those achieved by other treatment groups. In fact, it is apparent that Group III females contributed disproportionately to the significant declines achieved by experimental subjects. To be sure, one might expect that the prospect of seeing erotic films would stimulate this group to the same extent that it would stimulate control subjects. However, in contrast to control subjects who were to see the films *with their spouses* at the end of the study, Group III females were to see the films *alone*. As has been stated, their husbands had been assigned to see erotic films while Group III females were viewing nonerotic films. Thus, the anticipation of seeing erotic films *alone* may have exercised an aversive rather than a titillating influence. Furthermore, it is conceivable that the husbands, after viewing some of the films, for example, the sadomasochistic one, may have described the experience in terms that may have reinforced their wives' misgivings about seeing the films. The assumption that Group III females had acquired a

negative set toward erotic films gains support from the finding which indicated that, relative to their initial views, Group III females by the end of the study had become much more restrictive toward legal exhibition of erotic films. Moreover, this group achieved a greater increase in restrictiveness than did any other group. Finally, it is also quite conceivable that the relatively greater declines in marital activity and function exhibited by Group III females reflected, at least in part, their chagrin at being excluded from viewing the films with their husbands. Subjects in this experimental condition experienced a situation analogous to one that sometimes arises in the natural environment—the situation in which the husband attends a stag film or entertainment without his wife. Therapists who have dealt with this situation in family therapy sessions—as have two of the present investigators—can attest to the enduring resentment it can arouse in a wife and the adverse effects of such resentment on marital interaction. We may thus conclude that the steep downward trend exhibited by Group III females might plausibly be attributed to the effects of being prevented from seeing erotic films with their spouses.

One final aspect of daily questionnaire within-group changes worthy of discussion is the nature of the variables affected. From Table 12, it may be seen that all but three of the significant changes occurred in various dimensions of marital sexual activity, such as (*a*) performing, wanting to perform, or fantasizing marital sexual activity; (*b*) marital coitus in unusual positions; and (*c*) climaxes with spouse. Significant decrements in total frequency of climax were also related to marital activity, since a large proportion of climaxes reported by subjects occurred with spouses. If one takes into account the finding that the activity reported throughout the study was predominantly marital, the pattern of changes reported above is not unexpected. However, four significant within-group changes occurred which were not directly related to marital activity. First, female experimental subjects exhibited a decrement in use of erotic material between Phase 2 and Phase 3, which appeared to reflect a slightly increased use of erotic material in Phase 2, as compared to the other two phases. Although the data do not provide ready explanations for the increased use in Phase 2, the sharp decrement in Phase 3 appears to coincide with tendencies toward decreased use exhibited by all male and female experimental treatment groups. This decrease may plausibly be attributed to satiation associated with viewing the experimental films. Comparable results were reported in a recently completed study by Howard, Reifler, and Liptzin (1971), who found that their sample of college males lost interest in erotica after repeated exposures.

Second, female experimental subjects decreased in desire for extramarital activity from Phase 1 to Phase 2, and also decreased in fantasizing about extramarital activity from Phase 1 to Phase 3 and Phase 2 to Phase 3.

These last three changes are consistent with the progressive declines exhibited by experimental subjects in reporting desire and fantasy for a broad range of activities.

The finding that procedural variations produced no differential change in behaviors reported on daily questionnaires will now be considered. Since the major manipulation (viewing erotic versus nonerotic films) was not sufficiently powerful to affect subjects' behavior significantly, it would not be expected that variations in instructions would do so. Perhaps if the present sample had been composed of individuals manifesting sexual problems such as extreme timidity and inhibition, the additional reassurance provided by the "therapeutic" instructions might have facilitated changes in their behavior following exposure to the films. For the present sample, however, informing subjects that erotic films had been used to improve marital sexual adjustment made no discernible differences in their daily questionnaire reports of their sexual behavior. On the other hand, as has been discussed above, Group III subjects, who were assigned to a treatment condition that simulated the life situation in which husbands attend stag films without their wives, tended to exhibit more extensive decrements in marital activity and function than did any other groups.

Opinion survey results

The questionnaire administered after the conclusion of daily reporting to determine subjects' overall reactions to participation in the study yielded a number of interesting results. Most subjects viewed the study as having exerted a positive effect on their general marital and marital sexual relationships. It is particularly noteworthy that a large percentage of subjects reported increased openness in discussing sex with their spouses as the most important and frequent change in their sex lives attributable to participation in the study, since therapists generally view this dimension of marital interaction as the major prerequisite to a satisfactory sexual relationship (Masters & Johnson, 1970). The pattern of results does not permit one to conclude that the increased openness reported was due specifically to the influence of the erotic films, since subjects also cited other aspects of participation as important determinants of change, and because control as well as experimental subjects reported increased openness. However, it is highly probable that couples' discussion of the films they had seen also provided opportunities for discussion of their own sexual interaction. Of course, couples presumably discussed other aspects of the procedure as well, for example, daily reporting, and thus created additional opportunities for discussion of their sexual relationship.

In addition to providing a basis for conversations about sexual matters, viewing the erotic films may have facilitated openness between spouses by reducing sexual inhibitions. Some subjects had reported experimenting with new techniques after reading references to them on the questionnaire. Conceivably, the research context within which these references were encountered may have provided some measure of endorsement for variations in technique which some couples may have previously hesitated to attempt. It appears probable that some couples were similarly influenced by depictions of variations in technique in the experimental

films, so long as these variations did not violate their criteria of acceptable sexual behavior.

The finding that subjects rated completing daily questionnaires as the most influential aspect of the study in producing change suggests that daily questionnaires might be used by therapists to facilitate change in various dimensions of individual, dyadic, or family functioning. For example, if the therapist wished to reduce quarreling in a given family, he might well require each family member to complete a daily questionnaire dealing with details of family quarrels. By thus focusing his clients' attention upon the target behavior, he could continue to maintain some measure of control over their behavior outside the consulting room. Similarly, the therapist might *increase* the frequency of desired behaviors through the use of an appropriate questionnaire.

Film rating results

Several aspects of film rating results require elaboration. First, it was found that both male and female subjects tended to rate most of the experimental films relatively low in terms of their capacity to arouse sexual fantasy. Since makers of stag films presumably produce them for the express purpose of arousing sexual fantasies and since they are legally prohibited on the assumption that they arouse "prurient interest," this finding appears somewhat anomalous. It is commonly assumed that explicit depictions of sexual activity, comparable to those presented in the experimental films, constitute highly arousing stimuli; however, the results of the present study as well as those of another recent investigation do not support this assumption. Levitt (1969) found that his college male subjects rated relatively innocuous photographs of nude females as more arousing than explicit depictions of various activities, such as cunnilingus, female masturbation, and group sex. Levitt commented upon this finding, as follows:

> It is imprudent to assume that the dynamic properties of a fantasy sexual stimulus are perfectly related to its structural properties. A relatively innocent or inoffensive stimulus may be more arousing than stimuli which are more blatantly sexual (p. 258).

Schmidt et al. (1969) reported a similar finding. Their college male subjects rated photographs of girls in swimsuits as more arousing than photographs of female genitals.

In the present study, female subjects rated *Unfolding*—a rather poetic film which represented a female cinematographer's conception of a woman's sexual fantasies—as more arousing of sexual fantasies than any of the other six more explicit films. Males, on the other hand, found the undiluted depictions of intercourse, group sex, and Lesbian films (in that order) more arousing of sexual fantasy than *Unfolding*. However, comparing *Unfolding* with the other films is probably not a good test of the effects of undiluted explicitness, since *Unfolding* differs from the other films in many other dimensions, including technical excellence and the

attractiveness of the actors. Male and female subjects agreed in rating it first on most dimensions, although, as has been stated, only females rated it most arousing of sexual fantasy. In rating the other six films, both males and females tended to rank the relative arousal properties of each film in an order corresponding rather closely to the rank-ordering of overall favorability. Since judgments about the technical excellence of a film, the attractiveness and skill of its actors, and a variety of other factors, as well as responses to film content, all contributed to favorability ratings, it may be seen that the ratings of a film's arousal properties are related in a complex manner to a variety of structural characteristics of the film. The disagreement between the sexes in ranking the arousal properties of *Unfolding* constitutes a special case, since *Unfolding* is unique in several respects. Like the other films, it does present explicit closeups of intercourse; however these closeups are briefer, are usually photomontages, and are interspersed with shots of seascapes, dream sequences, and other fantasy material.

The finding that males were relatively less aroused by *Unfolding* than females is consistent with results of previous research summarized by Cairns (1968). He reported that females appear to be aroused by less direct, more subtle depictions of sexuality, while males are less likely to be aroused by such "romantic" stimuli but respond more strongly to explicit depictions of sexual relations or female nudity. It is important to remember, however, that even though males, relative to females, ranked *Unfolding* lower, they assigned it a higher absolute arousal rating than did females. Thus they were certainly not unaffected by it. Obviously, more study is needed to determine whether stable response characteristics of a given erotic stimulus differentially arouse groups of males as compared to equivalent groups of females. As for *Unfolding*, it is difficult to determine the extent to which its departure from unrelieved explicit depictions of sexual activity accounted for its differential arousal effects upon the sexes, as compared to the relative influence of other dimensions of the film upon these differences.

It is equally difficult to evaluate the effects of unrelieved explicitness in the natural environment. The typical stag film is more starkly explicit but less technically excellent than, for example, an X-rated Swedish erotic film that may be exhibited in commercial theaters. Moreover, the X-rated film usually features more attractive actors and maintains interest through its story line.

The present study made no attempt to assess the effects of X-rated films. However, as many philosophers, behavioral scientists, and novelists have suggested, veiled nudity or subtly presented and partially revealed sexual activity are probably more effective in producing and maintaining arousal than are starkly explicit representations of these themes (e.g., France, 1933). Thus, if X-rated films had been included, they might have produced higher levels of arousal than the more explicit films. If a film's capacity to stimulate sexual arousal is the basis for its legal prohibition, the possibility that the more subtle and more technically excellent films (which are legal) would prove more arousing than the more explicit ones (which are illegal) raises interesting questions about the validity of the assumptions underlying present censorship regulations.

Whatever the role of explicitness in determining the arousal properties of a visual erotic stimulus, film rating results clearly indicate that, at best, the explicit stag films used in the present study were rated by most subjects as only moderately arousing, while the lowest-rated films were rated as actually aversive.

These films were also rated as technically mediocre, poorly acted, and uninteresting by a large proportion of subjects. Comments made to the investigators by a number of subjects and the investigators' personal experiences tended to corroborate these judgments. A number of subjects stated that, after a few moments' viewing, they found the unrelieved presentation of sexual activity repetitious and boring. In previewing the films and viewing them during experimental showings, the investigators also found their attention wandering after a short period of viewing. As has been cited above, results of a study by Howard et al. (1971) are consistent with the above impressions. These investigators found that subjects' interest in visual erotica became satiated after a few exposures. Since the stimuli used in the present study were selected as representative of commercial stag films currently available, their relative lack of success in stimulating sexual fantasy suggests that many individuals would be attracted by them only so long as they remain taboo and relatively inaccessible. In contrast, if they became readily available, many individuals would find their interest in them waning after a few exposures. That is not to say that films incorporating erotic themes would fail to sustain interest and stimulate sexual arousal, if the erotic aspects of the film were subtly and aesthetically presented within an interesting plot line. However, it is unlikely that stark presentations of sexual activities alone would remain very attractive or arousing to most individuals after the effects of the initial novelty of viewing such films had subsided.

One factor which appeared to influence subjects' judgments of a particular film was the nature of the activity portrayed. For example, they rated films portraying male homosexuality and sadomasochism lowest in terms of overall favorability and capacity to arouse sexual fantasy. Furthermore, they assigned the lowest arousal ratings to these two filmed activities, both of which are generally regarded as deviant by white, middle-class Americans. Therefore, what appears to be involved in subjects' judgments is a reflection of prevalent social practices. In fact, the rank-ordering of favorability and arousal properties for the seven films appears to coincide fairly well for both males and females with the degree to which the practices depicted are accepted by white, middle-class society. Thus, the films depicting heterosexual intercourse are rated most favorably, followed by those depicting female masturbation and sexual activity involving two females and a male, and female homosexuality. Male homosexuality and sadomasochistic activity are rated lowest. It appears then that responses of the present sample were shaped by prevailing social attitudes toward the several activities depicted. Since few subjects reported homosexual or sadomasochistic behavior in their own repertoires, it may be logically assumed that most subjects evaluated these activities negatively. Levitt (1969) reported comparable results for his male

college student sample. Of 19 categories of photographs rank-ordered in terms of arousal properties, the nine categories ranked lowest involved themes with homosexual or masochistic implications. Thus, both male college students and married couples appeared to be more aroused by conventional than by nonstandard sexual activities. This finding does not support the prevalent assumption that exposure to portrayals of nonstandard activities or object choices tends to arouse interest in these activities. On the contrary, it would appear that normally socialized individuals are more likely to be aroused and attracted by materials portraying object choices and activities which coincide with established social practices than by materials portraying activities which deviate from normal social practices. Female homosexuality constitutes an exception, however. It is interesting to note that the film depicting female homosexuality was rated as more attractive and arousing by both male and female subjects than was the film depicting male homosexuality. Moreover, both sexes were "turned off" more by the male than by the female homosexuality film. These results appear to reflect the more stringent attitudes generally directed toward male as opposed to female homosexuality. Of course, films depicting female homosexuality are standard offerings at "adult" theaters catering to males; therefore the significantly higher ratings for arousal and significantly lower ratings for aversion given by males, relative to females, for this category are unremarkable. In fact, males also reported sharing the feelings of the Lesbian actresses and being attracted by their sexual techniques to a significantly greater degree than did females. However, no comparable cross-sex effect was found for females in their ratings of the male homosexuality film. The sexes did not differ significantly in rating any dimension of this film but rather agreed in finding it aversive.

The finding that female subjects tended to rate films as less favorable and less arousing than did males accords to some extent with the results reported by Schmidt and Sigusch (1969), who compared responses of male and female college students to slides and motion pictures depicting a variety of erotic themes. In the present study, female subjects also reported a higher number of aversive features and a lower number of arousing features in the films than did males. It would appear that females in the age range of those in our study had been reared for the most part during a period in which it was considered far less appropriate and acceptable for females than for males to exhibit interest in visual erotica. In fact, until recently, it was commonly believed that women were largely unaffected by such stimuli (Kinsey et al., 1953). A few years ago, a female in conventional circles who exhibited an interest in such material might well have been regarded as deviant. Furthermore, female subjects reported significantly lower frequencies of prior exposure to all categories of erotic films than did males. As a result of these factors, one would expect females', as compared to males', responses to the erotic films to be more inhibited. In the Schmidt and Sigusch study, the female subjects, who were considerably younger than those in the present sample, assigned only slightly lower mean ratings to the stimuli than did males, with the average ratings by both sexes clustering around "moderately arousing." However, 42% of these

females found the slides and films more stimulating than did the median male. Differences between males and females in the present study were substantially greater. Schmidt and Sigusch, comparing their results with the finding of Kinsey et al. (1953) that females were much less responsive than males to visual erotica, concluded that the greater stimulability exhibited by their subjects reflected changes in sexual mores. Citing opinions and findings of a number of investigators who maintain that the double-standard ethics that governed many aspects of sexual behavior at the time of the Kinsey study are far less pronounced today, Schmidt and Sigusch posited that, as a result, sex-conditioned differences in response to visual erotica are diminishing. They also suggested that, as females become exposed more frequently to these materials, they develop stronger arousal responses to them. It appears likely that the female subjects in the present study were aroused to a greater degree than would have been common at the time of the Kinsey study, even though their responses appear to have fallen short of those exhibited by the college females studied by Schmidt and Sigusch. It would be interesting to ascertain whether additional exposures to visual erotica, sufficiently spaced to minimize satiation effects, would result in increased arousal levels for the present group of female subjects, or whether earlier social learning influences would remain dominant.

As noted, Cairns in his 1968 review of prior research suggests that females are more readily aroused by subtly depicted eroticism than are males, while males respond more strongly to explicit depictions. In the present study, five films were commercial products made for male consumption; one (the "Intercourse" film) was a home movie originally made by a couple for their own use but subsequently distributed for general consumption; and one (*Unfolding*) was produced by a female with female viewers in mind. Two of the commercial stag films (male homosexuality and sadomasochism) were so aversive to both male and female subjects that they failed to produce arousal that differed significantly for males relative to females; however, males found the other three (female masturbation, female homosexuality, and group sex) significantly more arousing than did females. On the other hand, neither the "Intercourse" film (a home movie made for personal consumption), nor *Unfolding* (a film made for female viewers) elicited significantly different arousal ratings from the two sex groupings. Thus, although females rated the arousal properties of each of the seven somewhat lower than did males, the differences only attained significance for three films, all of which were expressly produced to cater to male tastes. This finding suggests the possibility that females in the present sample may have approached males in arousal potential more closely than results indicate, but that the specific films used were predominantly designed to arouse males. Had more films similar to *Unfolding* and the "Intercourse" film been used in place of the male-oriented stag films, females' mean ratings of arousal might have more closely approximated those for males.

Subjects' self-reports of physiological responses to viewing the experimental films must be regarded merely as suggestive results. As Zuckerman (1969), in his

extensive review of the physiological measures of sexual arousal, points out, instrument measurement of such responses is difficult to interpret, since measures of central nervous system activation often fail to differentiate between sexual excitation and other forms of arousal, such as embarrassment, anxiety, guilt, or fear. He notes that even the penile plethysmography is subject to distortion by random or voluntary movement or adaptation effects. In the present study, the fact that subjects were required to report physiological changes at the same time that they made several qualitative judgments about a film obviously created even greater opportunity for inaccuracy. Subjects might very well have failed to recognize a physiological change that would have been detected by an appropriate measuring device. Conversely, they may have erroneously reported a response that did not occur. Furthermore, their self-reports yielded only a rough assessment of perceived frequency of various physiological reactions to the films without indicating more specific dimensions, such as magnitude or duration. In view of the above limitations, it is interesting to note from Table 42 how closely the relative frequencies with which subjects reported major physiological responses to each film parallel the rank-ordering of the films in terms of favorability and arousal properties. This finding suggests that self-report of physiological arousal might serve as a useful adjunct to instrumental measurement. Cairns (1968) and Mann (1970) stress the need for multiple rather than single measures of sexual arousal. Therefore, it might be useful for future investigators to compare subjects' self-reports of the occurrence or nonoccurrence and their estimates of the magnitude of certain physiological responses with data obtained by instrumental measurement and with subjects' estimated level of subjective arousal.

One final aspect of film rating results merits discussion. Although procedures used to recruit the present sample were designed to maximize homogeneity, both male and female subjects exhibited greater variability in rating films than is apparent simply from inspection of mean ratings. Thus, the task of selecting films to arouse the hypothetical average male or female is complicated by the finding presented in Table 40 that certain activities were found arousing by a sizable number of male and female subjects and aversive by a sizable number of other male and female subjects, as for example oral-genital contact. In fact, additional study might disclose some dimension or set of dimensions, for example, sexual experience or attitudes, that might predict a subject's response to a given stimulus more accurately than would his sex.

Results for film experience survey

Female subjects' judgments as to who should be permitted by law to view each category of filmed activity underwent significant changes as a function of treatment condition. Although males who viewed erotic films became significantly more permissive toward all eight categories of film than they had been before, they did not change significantly relative to control males. Since few subjects had reported extensive prior experience with stag films, presumably most individuals

had formed their attitudes toward them largely on the basis of unverified preconceptions. Therefore, male experimental subjects' significant increases in permissiveness relative to initial attitudes suggest that they found the actual experience of viewing more innocuous than their preconceptions and consequently modified their original estimates of the potential harmfulness of such films. Howard et al. (1971) reported that their male subjects also became more permissive after repeated exposures to pornography. On the other hand, our male subjects who saw nonerotic films and, to a lesser extent, the male subjects who saw no films, achieved numerous small nonsignificant decrements in permissiveness, probably because they had not been given an opportunity to disconfirm their preconceptions. In contrast, female experimental subjects achieved numerous small nonsignificant increases in permissiveness, although only one significant increase (toward oral-genital contact) was achieved relative to initial attitudes.

The smaller increases in permissiveness achieved by females, as compared to males, probably reflect sex-conditioned differences, as previously discussed, and coincide with their relatively less favorable ratings of the films. Furthermore, attitudes of females toward pornographic films, as reported in the initial assessment battery, indicated that their inhibitions toward viewing erotic films were more extreme than those for males; as a result, their attitudes would be expected to be more resistant to positive change. Finally, since their prior experience with erotic films had been more limited than that reported by males, they would presumably require a greater number of exposures than males to reduce their inhibitions toward viewing explicit depictions of sexual activity. It should be noted, however, that for reasons not immediately apparent, a control group of females who saw no films tended to become more permissive, with this increase relative to original ratings reaching significance for three categories.

These sex-conditioned differences notwithstanding, females viewing the erotic films did not become more restrictive toward them than they had been originally, but instead, tended to regard them more tolerantly. Thus, despite contraindications for positive change, females who viewed the erotic films, although they may have found some of them rather aversive, presumably became convinced that such films were less potentially harmful than they had originally assumed.

On the other hand, the control females who viewed nonerotic films, like their male counterparts, were given no opportunity to disconfirm their preconceptions, a circumstance which may well account for the finding that pooled female control subjects exhibited pre-post decreases in permissiveness toward all eight categories. Apparently viewing nonerotic films in the same room and on the same night as subjects who were viewing erotic films triggered their fantasies and fears and hardened their original opposition to legal exhibition of erotic films. Moreover, the female subjects whose husbands viewed nonerotic films without them became even more restrictive than those who saw nonerotic films with their husbands, possibly because husbands' verbal feedback about the films may have reinforced their preexisting negative attitudes.

The above results suggest certain tentative conclusions about the formation and maintenance of societal attitudes toward control of erotica, as well as toward other highly charged social issues. First, it is likely that many individuals who strongly support legal suppression of erotica may regard explicit erotica as morally or aesthetically repugnant, with the result that they avoid exposure to it. Conceivably then, like control subjects in the present study, these individuals may well have formed their attitudes toward the potential effects of erotica on the basis of little or no personal exposure to it. However, as Kronhausen and Kronhausen (1959) commented, numerous individuals from a wide range of occupations and backgrounds feel called upon to express opinions about pornography in an authoritative manner, although these individuals frequently have little support for their pronouncements in terms of personal experience, research data, or professional expertise. As a result, the newspapers and other media carry an abundance of news items and articles reflecting uninformed conclusions about pornography. The present popularity of censorship as a social issue has increased the flood of publicity dealing with the subject. Thus, individuals who themselves have had little or no experience with pornography may find their unverified preconceptions reinforced by arguments from equally uninformed sources. On the other hand, if individuals were given the opportunity to view a representative sample of the suppressed materials and to judge on the basis of their own response whether or not these materials were likely to produce harmful effects, the result might be quite different. Even those individuals who would be likely to find the typical pornographic offerings boring, tasteless, and aesthetically aversive, might nevertheless conclude that they did not constitute a potential danger to society warranting legal prohibition. In fact, they might even reach the conclusion that explicit pornography of the type now prohibited by law contains the means for its own extinction. Ben-Veniste (1968), who investigated the Danish experience with legalization of pornography, reported that new classes of material enjoyed a brief period of popularity after reaching the market but that interest soon waned and sales declined. As has been stated, Howard et al. (1971) found comparable evidence for satiation in their sample of college males. These investigators reported that all subjects were initially interested in seeing pornography, and were even willing to pay for the privilege. However, nine weeks after cessation of a series of daily exposures to pornography, all subjects reported being bored with pornography to the point of refusing opportunities to view it. The above evidence then suggests that unrestricted access to various classes of pornography might tend to extinguish individuals' interest in it. Conversely, it is equally plausible that denying individuals the opportunity to experience pornography directly might maintain or even facilitate their interest in it, whether that interest took the form of erotic curiosity, anxiety, or condemnation.

One additional aspect of subjects' attitude change deserves comment, namely the finding that female subjects viewing standard before nonstandard films became significantly more permissive toward numerous categories of films than did subjects viewing films in reverse order. Individuals with little prior exposure to

explicitly erotic films may find that the experience of viewing serves to reduce minor sexual anxieties. In fact, the National Sex and Drug Forum, sponsored by the Glide Memorial Methodist Church of San Francisco, has effectively used massive exposure to erotic films as a means of reducing sexual guilt and anxiety with groups of counselors, church educators, and others (National Sex and Drug Forum, in press). In using such procedures, it would be expected that graded exposure to stimuli in hierarchical order of innocuousness would be a more effective approach to positive attitude change than first exposing viewers to material generally considered most deviant and aversive, such as the sadomasochistic films. The finding reported above appears to support this expectation.

Methodological and sampling considerations

The present study was in part a test of a relatively untried procedure: the use of daily self-reports to survey a variety of behaviors over an extended period. The procedure proved to have both advantages and limitations. One advantage was its ease of administration. Obviously, if interviewers had been used to collect equivalent data, the task would have been many times more costly and difficult. It was found that participants were usually prompt in mailing questionnaires. Only on a few occasions was it necessary to remind subjects of overdue questionnaires. Furthermore, no subject dropped out of the study voluntarily. However, two couples were eliminated because they were unable to attend the experimental films, in one case because of a change in work schedule and in the other because of the wife's hospitalization for surgery.

On the basis of Opinion Survey results and the high level of dyadic agreement exhibited in the daily reports, it was concluded that, on the whole, subjects had reported candidly and accurately. Initially the investigators had considered it very important to give subjects elaborate assurances that their anonymity and privacy would be safeguarded. However, in contrast to the investigators, subjects evidenced little preoccupation with this issue. On the whole, they appeared to regard their sexual activities as legitimate areas of human behavior, worthy of study. It appears important for the investigator in the field of human sexuality to communicate to his subjects his own commitment to this viewpoint. In order to insure candor in his subjects, the investigator should, of course, scrupulously safeguard their privacy, as was done in the present study; however, he should also avoid the error of overestimating the degree of subjects' reticence to report their sexual experience. The accomplishments of the Institute for Sex Research and the Reproductive Biology Research Foundation indicate that both normal and deviant populations will report candidly on their sex life if the proper climate of acceptance, respect, and trust is established. Originally, the investigators had also believed that subjects would report more candidly about sexual behavior on an anonymous self-report questionnaire than they would in an interview. In view of the general lack of concern for privacy and anonymity exhibited by subjects, the investigators now believe that equally candid information could have been elicited by a skilled interviewer. Of course, the opportunity for probing allows the

interviewer to elicit more detailed information than is possible with a self-report instrument (Kinsey et al., 1948, pp. 41-59).

On the other hand, the previously mentioned general advantage of being able to obtain detailed information from a number of subjects over an extended time-period led to the use of the self-report procedure for reasons of economy and efficiency. Although, as indicated, this procedure was found to be generally satisfactory to an extent that surpassed original expectations, some inherent disadvantages require comment. First, a self-report questionnaire as complex as the one used in the present study probably could be completed with high efficiency only by reasonably well-educated subjects with prior experience in executing questionnaires. In order to report accurately, each subject was required to make reasonably precise discriminations (e.g., between wanting to perform or fantasizing about performing a specific behavior or between usual and unusual coital positions). He was also required to recall and report a wide range of behaviors, including relatively ephemeral ones such as daydreams. Moreover, it was necessary to report promptly in order to maximize recall. Although many subjects in the present sample were compelled to make brief trips in conjunction with their work, they usually continued to mail questionnaires during these trips. The reliability with which subjects fulfilled their commitments to the project indicated an exceptionally high level of motivation. Given the relatively high economic level of the present subjects, it appears logical that motives other than the small payment for participation prompted their sustained cooperation. Conceivably, the present procedure might have worked less efficiently with groups differing in background characteristics from the present sample. Of course, the lack of previous experience with the procedure makes the question of its applicability to other types of samples a question for empirical investigation. However, the present investigators believe that the application of the procedure to poorly educated groups, without pre-testing or perhaps some training period, might produce more inaccurate protocols than those obtained from the present sample. Even with the present sample, the investigators had no guarantee that errors in interpretation of instructions and laxity in reporting did not introduce some distortion; however, results of dyadic agreement data suggest that marital coitus, at least, was accurately reported. It nevertheless appears likely that subjects may have become less efficient in reporting the more elusive activities, namely the covert behaviors of desiring or fantasizing about sexual activity, as they began to tire of the daily reporting task and to habituate to the novelty of participating in the study. In fact, the lower frequencies of covert behaviors reported for all treatment groups toward the end of the study support this assumption. Since all groups presumably received equal opportunity to experience the effects of habituation and fatigue associated with repeated executions of the daily questionnaire, as well as the initially stimulating effects upon sexual behavior produced by reading the handbook and executing the novel procedure, there is no reason to believe that the behavior of any film-viewing group was differentially influenced by the reporting procedure. Of course, groups that

viewed no films were exempt from completing daily questionnaires. Thus, it is assumed that any differences detected among groups represented actual differences in activity rather than artifacts of the reporting procedure. On the other hand, as discussed previously, control subjects' expectations of seeing the erotic films at the conclusion of the study might have differentially influenced actual levels of sexual activity for them as compared to experimental subjects. Furthermore, it is conceivable that progressive laxity in reporting may have spuriously depressed absolute levels of some activities reported by all groups during the last few weeks of the study.

The technique of requiring husband and wife to report separately on behaviors presumed to require joint participation, as well as on essentially individual behaviors, yielded data that merit additional dyadic analyses. Although assessing the associations between various dimensions of the reports submitted by each husband and wife fell outside the primary focus of the present study, secondary analysis of such data should yield interesting insights into the dynamics of marital interaction. Simply studying the discrepant perceptions and conceptualizations within dyads that could be extracted from the present data should in itself be a fruitful and interesting enterprise. Plans are being made to undertake such analysis as well as to study the relationships of various measures of marital interaction to patterns of sexual activity.

The effects of the experimental setting upon subjects' responses to the erotic films require comment. Ideally, it would have been preferable to show the films under conditions approximating the natural environment. For example, if subjects could have viewed the films in the anonymous darkness of an art theater or in the home of a friend, the setting would have more closely approximated the typical setting in which persons usually view such films. Practical considerations precluded using such natural settings. Instead, films were exhibited in a small auditorium at a research institute. Several experimental studies of human sexual arousal demonstrate that the social context within which individuals view erotic stimuli affects their level of arousal to some extent (Clark, 1952; Leiman & Epstein, 1961; Martin, 1964). Therefore, it appears probable that the research setting and context within which the present subjects viewed films might have been slightly less conducive to arousal than the surroundings and context typically associated with viewing stag films. Furthermore, the presence of a mixed audience, in contrast to the more typical all-male audience, also may have influenced response somewhat, although the effects of audience composition on individual subjects is not known. Some subjects commented that they would have found the films more arousing if they had been able to view them with their wives in the privacy of their bedroom; others who viewed films with their wives commented that so doing inhibited response, while some of those who viewed films alone commented that they would have become more aroused if their wives had viewed the films with them. From these random comments to the investigators, it appears that preferences for viewing conditions varied from individual to individual. Thus, like other aspects of response to erotic stimuli,

responses to setting and social context appear to be idiosyncratic. This suggestive evidence supports the argument that it is difficult to predict the nature of a stimulus to which specific individuals may respond, although admittedly there are certain categories of stimuli that arouse many individuals. On the other hand, certain stimuli or situational contexts that have little or no effect on most subjects may prove highly arousing to some.

The major goals of the present study were (*a*) to investigate subjects' immediate responses to a representative sample of legally prohibited erotic films under conditions approximating those in the natural environment, and (*b*) to survey their effects upon subsequent sexual and marital behavior. Although it is likely that differences between the experimental procedure and setting, on the one hand, and the natural environment, on the other, may have influenced arousal and behavior to some small extent, the investigators believe that they did not grossly alter the quality or magnitude of subjects' reactions from what they would have been under more naturalistic conditions. Therefore, what remains to be determined is the extent to which the present sample might be considered representative of larger groups within the general population.

Analyses of the background characteristics of the sample, as well as the subjective impressions gained by the investigators through interviews and other interactions with subjects, support the conclusion that the present sample was representative of a substantial group within the general population. That group might be described as consisting of middle-class, urban, white, moderately conservative to moderately liberal Americans of above-average education who have been married at least 10 years. Their counterparts can be found in cities and towns throughout America. Although some degree of self-selection is inevitable in any study involving volunteers, several considerations support the conclusion that this factor did not appear to produce a grossly biased sample. First, the original advertisement did not specify that the study involved sexual behavior. Second, very few of those who replied to the advertisement refused to participate when they learned that the study dealt with sexual behavior or erotic films. Third, subjects' assessment battery data gave no indication that they were thrill-seekers or that, as a group, they exhibited any characteristics deviating from what would be expected of individuals from comparable backgrounds. It is obvious, however, that they did not constitute a cross-section of the general population. In fact, the practical necessity for restricting the size of our sample precluded studying an adequate cross-section and dictated the decision to concentrate on a relatively homogeneous group.

It is noteworthy, however, that no major differences in response were found for the present subjects as compared to college student subjects studied by the Hamburg investigators or by a number of other experimenters (Mann, 1971). Nevertheless, the present results, despite their concordance with results for other types of samples, can only be legitimately used to predict responses of groups exhibiting background characteristics similar to those of the present sample. It would be unsound to use them as a basis for predictive statements about other

groups differing in age, marital status, socioeconomic or educational level, ethnic composition, or other demographic variables. Only empirical investigation of additional samples can provide data for predicting the group behavior of large segments of the population, since prior evidence indicates the probability of cross-cultural and intraclass differences (Kinsey et al., 1948).

Moreover, the weight of experimental evidence indicates that individuals within a relatively homogeneous group exhibit variations not only in terms of the stimuli that arouse them but also in the degree of arousal that they attain (Levitt & Brady, 1965). It is also apparent that fairly subtle situational factors, mood states, and other variables extraneous to the specific stimulus may alter an individual's typical response patterns. The variability exhibited by the present sample, which was fairly homogeneous in composition, and by comparably homogeneous samples studied by previous investigators, demonstrates that individual responses within a sample may deviate sharply from group means.

Implications for future research and social change

The results of this study suggest many directions for additional research. Numerous studies now being completed under contract to the Commission on Obscenity and Pornography will supply data relevant to various problems in the area of pornography other than those investigated in the present study. Because of the almost complete lack of prior research in this area, however, many questions will remain to be investigated. Several suggested areas for future research are described below.

1. It is important to conduct longitudinal studies of the effects of exposure to erotica upon the behavior of a wide range of subjects differing from the present subjects in demographic characteristics.

2. The comparative effects of a wide variety of erotic materials should be studied, including relatively subtle and less explicit categories. In addition to using existing materials, investigators might create new materials which would enable them to study a wider range of stimuli than is currently possible.

3. The possibility of therapeutic use of erotic films for married couples manifesting sexual problems should be explored. Such films could be used both to instruct couples in sexual technique and also to reduce anxieties concerning sex by carefully exposing couples to a series of films arranged in ascending order of explicitness.

4. The personality characteristics and behavior patterns of individuals who become bored with pornography after a few exposures should be compared with personality and behavior variables for subjects who regularly use pornography. Studies of this type might help to resolve the conflict between the view that pornography instigates sexual acting out and the opposing view that it serves as a substitute for sexual activity.

5. The effects of various situational factors, such as setting, social context, audience composition, and other variations occurring in natural environments should be assessed.

6. The use of daily questionnaires to enable therapists to focus patients' attention on target behaviors should be studied. Subjects in the present study reported that completing daily reports influenced their sexual behavior.

Hopefully, results of present and future investigations will enable legislators to make informed decisions about the control of pornography. Behavioral scientists have often reiterated that no amount of research can definitely prove that pornography might not facilitate antisocial behavior in some individuals. Repeated findings that subjects had not acted out after viewing pornography would not completely rule out the possibility that *some* individuals not included in the experimental samples might respond differently. However, if researchers were consistently to find no detrimental effects following exposure, such findings might, in time, influence the attitudes of the general public and legislators in the direction of permissiveness. Conceivably, some legislators might then become more willing to liberalize present censorship regulations, even in the absence of definitive evidence that pornography was completely harmless. Such action could be considered analogous to the cost decision made by legislators who approve construction of a public swimming pool, despite the possibility that someone might be injured while using it.

Since the present study focused on middle-class adults, its results are particularly relevant to existing censorship laws. Proponents of censorship frequently stress the danger that pornography is presumed to pose to minors. However, it is probable that the middle-class adult has many more opportunities than do minors to encounter certain kinds of erotic materials. For example, owners of bars and theaters featuring sex exploitation films, as well as exhibitors of X-rated films, usually appear to be quite vigilant in excluding under-age individuals, since failure to comply with minimum age regulations might result in revocation of their licenses. Furthermore, such entertainments are usually sufficiently expensive so that they are relatively inaccessible to lower-income individuals. Thus, the finding that the middle-class married adults in the present study appeared to incur no ill effects as a result of viewing pornography would indicate that their counterparts who are now permitted to view somewhat less explicit but comparable materials in the natural environment are unlikely, as a group, to be harmed by the experience. Moreover, in view of the relatively weak arousal effects exercised by the explicitly erotic films, one might argue that such adults could be safely permitted to view even more explicit materials than are now legally permissible. In fact, the typical illegal film may prove to be less arousing than many currently legal ones. It is unlikely that permitting exhibitors to show more explicit films would change existing policies toward exclusion of minors, especially if exhibitors committing infractions were faced with revocation of their licenses. In fact, one would expect clandestine exhibitors, operating

outside the law, to be less concerned than licensed exhibitors with excluding minors.

It is generally assumed that pornography is harmful to minors, despite the almost complete lack of empirical evidence relevant to its effects upon them. Although other societies, for example the Trobriand Islanders (Malinowski, 1929), have allowed young children both to witness sexual activity and to participate in sexual play, own own society has traditionally invoked strong taboos against such activities. Apparently a high proportion of the present subjects (most of whom were parents) shared these taboos. Even though experimental subjects, after viewing the films, became more permissive toward allowing adults and adolescents to view erotic films, most subjects felt that younger children should be prohibited from doing so. In the United States, it would probably be impossible to investigate the effects of erotica on samples of children without incurring the opposition of those who would be morally outraged by the breach of existing taboos. Thus, unless the climate of opinion were to change, our society is likely to continue to act on the assumption that pornography is harmful to minors.

Although the results of the present study are not directly applicable to children, they do permit conclusions about the effects of pornography on socialized adults. Within the boundary conditions of the experiment, exposure to explicitly erotic films did not appear to produce harmful effects on subjects' behavior. On the other hand, it was not possible to demonstrate that viewing the films was specifically beneficial to subjects, since benefits reported may have resulted from other components of the procedure. It was demonstrated, however, that preventing individuals from viewing erotic movies served to increase their negative appraisals of them. It is hoped that these results when viewed in conjunction with those of other empirical studies will provide some basis for understanding a relatively unexplored area of human behavior and that the questions this study has raised will encourage additional research.

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Psychological Reactions to Pornographic Films

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ABSTRACT

Two pornographic films portraying face-to-face intercourse and oral-genital sex between the same couple were viewed by 194 single males and 183 single female undergraduates. The films were moderately sexually arousing, and the males were more aroused than the females by the film of oral-genital sex. Females, high-sex-guilt subjects, and less sexually experienced subjects rated the films as more pornographic, disgusting and offensive. High-guilt subjects saw the oral-genital sex as abnormal. Males reported more affective arousal indicative of general activation and approach tendencies while women reported larger increases in negative affects after viewing the films. The subjects had more sexual fantasies and conversations about sex in the 24 hours after the film than in the 24 hours before, but they did not increase their frequencies of masturbation, heterosexual petting, oral-genital sex, or coitus. Females, high-sex-guilt subjects, and less sexually experienced subjects had more mild increases in unpleasant emotional and vegetative states in the 24 hours following the films. Sex calloused attitudes toward women decreased after viewing the films. Attitudes toward premarital sex became more liberal for the sexually experienced subjects two weeks after viewing the films.

INTRODUCTION

The study of psychological reactions to erotic stimuli is still in its infancy. Schmidt and Sigusch (1970) made a great stride forward when they began to investigate reactions to explicitly sexual films, since previous research had been limited usually to the use of pinups and occasionally to slides of sexual activity.

The present research is an extension of their work in Germany. Psychological reactions of single, American undergraduate males and females to explicitly sexual

movies as a function of sex guilt and sex experience were studied. The study was designed to answer a number of questions. How sexually arousing is the viewing of explicitly sexual films? What sorts of affective states accompany the viewing of such films? Are the films viewed as pornographic, disgusting, offensive, or enjoyable? Are there any changes in sexual behavior attributable to increased levels of erotic arousal in the 24 hours following viewing? Are there changes in emotional and vegetative states during a 24-hour period after viewing the films? Are there any changes in opinions toward sex which are influenced by viewing films and persist over a two-week period? Are there different reactions to coitus and to oral-genital sex? What sort of differences in reactions exists between the sexes? Does a disposition to guilt over sex influence reactions? Do reactions vary with the level of premarital sexual experience? Are males with sex calloused attitudes toward women more likely to be "triggered" into sexual activity? Do such films contribute to an increase in sex calloused attitudes?

METHOD

Subjects

The subjects were 194 single, undergraduate males and 183 single, undergraduate females who were enrolled in introductory psychology. They were primarily freshmen or sophomores. They participated in the experiment as one alternative way of meeting some of their course requirements. They were largely unaware of the exact nature of the experiment until they arrived at the designated location.

Procedure

Subjects participated in same-sex groups of approximately 30. When they arrived they anonymously completed the Rotter Incomplete Sentences Blank and the sex-guilt subscale of the Mosher Forced-Choice Guilt Inventory. They were then given the following informed consent form:

> In January 1968, the President appointed a Commission on Obscenity and Pornography which the Congress charged with four tasks, which included studying the effect of obscenity and pornography upon the public. The present research is being funded by the Commission on Obscenity and Pornography to study psychological reactions to pornography. In particular, this research is investigating reactions to pornographic films. Participation in this research is completely voluntary. If you choose to participate you will, in addition to filling out questionnaires, view one or more pornographic films which may explicitly depict such sexual behaviors as masturbation, clothed or nude petting, oral-genital relations, and coitus in a variety of positions. Different sexual behaviors appear in different films, but all of the films are explicitly sexual. If you wish to participate it is necessary that we obtain your informed consent on this form. All subjects will be anonymous.

> The purpose of this research can be met without any personal identification of the respondents, but we do want participating subjects to be fully informed as to the purpose and procedures involved in exposing them to pornography. In addition to the usual journal publication of such research, the Commission will publish this research and its other findings, and thus it will become available to the general public. This will enable you to read the findings of this and similar scientific investigations. While we wish to obtain samples that are reasonably representative of the population at large, ethical considerations dictate that we not only obtain informed consent, insure anonymity, and emphasize the voluntary nature of participation, but that we also ask potential subjects who might have untoward reactions to pornography to decline participation. If you have been arrested for a sex offense, are under psychiatric care, believe that you may have a sex problem, have strong moral objections to viewing pornography for any purpose, or simply do not care to participate, then do not sign this form. If you wish to participate, you may indicate that you have given your informed consent by signing below.

All questions were answered and subjects were assured they could withdraw without prejudice and would receive appropriate credit for their participation to this point. No males and four females withdrew. The ISB and guilt inventory were given prior to the informed consent so as not to bias responses and in the belief that scores might differentiate volunteers from nonvolunteers, but the group situation apparently made it difficult for the subjects to decline participation in spite of the experimenter's intentions and reassurances.

The male subjects then completed the Sex Questionnaire, sex experiences inventory, Athanasiou's liberal-conservative sexual attitudes and romantic love inventories, and one version of the measure of sex calloused attitudes toward women. The female subjects completed the sex questionnaire, sex experiences inventory, Athanasiou's liberal-conservative sexual attitudes and romantic love inventories, and measures of guilt over sexual behavior and guilt over sexual fantasies and feelings. Only the individual difference data from the Mosher Forced-Choice Guilt Inventory, the sex questionnaire, the sex experiences inventory, and sex callousness will be considered in this report.

The groups of subjects were alternately assigned to view either Schmidt and Sigusch's (1970) Petting II or Coitus I film. After viewing the film, they completed a physiological reaction form, an affective reaction form, and a film reaction form. Male subjects completed a second version of the measure of sex calloused attitudes toward women. The subjects were then given instructions about their 24-hour and two-week followup questionnaires. They were thanked and debriefed. None of the subjects appeared upset by the experience. Two letters expressing concern about the experiment from a parent and an alumnus were received by the University administration, which had played a very active role in ensuring the ethical and judicious use of human subjects. Twenty-four hour

followups were returned by 186 males and 176 females. Two-week followups were returned by 180 males and 175 females.

Films

The films used were supplied by the Commission on Obscenity and Pornography and were obtained from the Institute of Sex Research in Hamburg, Germany. In reproducing the films a difference in the number of cycles per second in the electrical currents of Germany and the United States led to a slight speed-up of the films which was noticeable and distracting enough to elicit spontaneous comments from the subjects. Both films portrayed the same man and woman in the same physical setting with a nearly identical sequence of undressing and foreplay. Schmidt and Sigusch have designated these films Petting II and Coitus I. Petting II portrayed the couple undressing one another, kissing and manual genital petting, cunnilingus, and fellatio to ejaculation. Coitus I portrayed the couple undressing one another, kissing and manual genital petting, and face-to-face coitus. The films were in color and technically better than the average pornographic film. While no one has, to the best of my knowledge, done a systematic survey of styles and themes of pornographic films, some comments about the representativeness of these films in comparison to films viewed from the extensive collection of the Institute of Sex Research at Indiana University might be helpful in providing some perspective. These films were limited to essentially normal, heterosexual behaviors between a couple, although some would regard fellatio and cunnilingus as a deviation. There were no appeals to fetishism, sadomasochism, homosexuality, profaning the sacred, or other such activities. There were fewer genital closeups and more affection than is typical of much pornography. In my opinion these particular films would have more appeal to the sexually experienced, uninhibited adult of both sexes than would most pornography, which is oriented toward a male audience and more "kinky" sex.

Measures

Mosher Forced-Choice Guilt Inventory. Mosher (1961, 1966, 1968) constructed sentence completion, true-false, and forced-choice measures of three aspects (sex guilt, hostility guilt, and morality-conscience) of the personality disposition of guilt for males and females. The forced-choice inventories were constructed from male (Mosher, 1966) and female (Mosher, 1968) completions given to sentence completion stems. An internal consistency item analysis was used to select forced-choice alternatives. The following are examples of sex guilt items:

As a child, sex play . . .
A. was a big taboo and I was deathly afraid of it.
B. was common without guilt feelings.

When I have sexual desires . . .
A. they are quite strong.
B. I attempt to repress them.

The Sex-Guilt subscale (Mosher, 1966) constructed from male completions consists of 28 items whose weighted scores can range from -45 to +37. The corrected split-half reliability for the scale is .97. A multitrait-multimethod matrix provided some evidence for convergent and discriminant validity. The Sex-Guilt subscale (Mosher, 1968) constructed from female completions consists of 39 items with a possible range from +64 to -61. The corrected split-half reliability is .95. Using the multitrait-multimethod matrix procedure, Mosher (1966, 1968) demonstrated convergence between the different measures of the same aspect of guilt and differentiation from such variables as anxiety and social desirability. The construct validity of the measure of sex guilt is supported by data from several investigations. In a perceptual defense task, high-sex-guilt males were less influenced by situational cues relevant to the probability of censure from the experimenter than were low-sex-guilt subjects (Mosher, 1965). High-sex-guilt males gave fewer sexual responses to double-entendre word-association stimuli such as "screw" or "rubber" than did less guilty males (Galbraith, Hahn, & Leiberman, 1968; Galbraith & Mosher, 1968). Lamb (1968) found that following sexual arousal, high-guilt subjects reduced their discomfort by rating sexual cartoons as humorous and enjoyable. Galbraith (1969) investigated correlates of sex guilt with Thorne's Sex Inventory and found sex guilt positively correlated with Repression of Sexuality, negatively correlated with Sex Drive and Interest, and negatively correlated with Promiscuity and Sociopathy. Mosher and Greenberg (1969) observed the relationship of the disposition of sex guilt to the occurrence of affective states in females after reading an erotic literary passage. High-sex-guilt girls reported an increase in the episodic state of guilt compared to their prereading state and to the postreading state of low-guilt girls. Mosher and Cross (1970) found that sex guilt was negatively correlated with the level of premarital sexual experience and conservative premarital sexual standards in college men and women. Mosher (1971) found that more guilty males were less likely to endorse the use of force or other exploitative tactics as a legitimate means to gain intercourse and that they reported using fewer exploitative tactics and with less success in gaining coitus than was true of less guilty college men.

Sex Experiences Inventory. A list of sex experiences which Brady and Levitt (1965) had found formed a Guttman scale for men was administered to the subjects, who simply circled any experience which they had had. The sex experience score was the number of the 12 sexual behaviors in which the subjects had engaged previously. The sexual experiences were:

Kissing,
kissing with tongue contact,
manual manipulation of clad female breast by a male,
manual manipulation of unclad female breast by a male,

manual manipulation of female genitalia by a male,
oral contact with female breast by a male,
manual manipulation of male genitalia by a female,
heterosexual intercourse: ventral-ventral,
oral contact with male genitalia by a female,
oral contact with female genitalia by a male,
heterosexual intercourse: ventral-dorsal,
homosexual relations.

Sex calloused attitudes. Mosher (1971) developed a measure of sex calloused attitudes toward women which was positively correlated with the reported use of force and other exploitative tactics to gain coition by college men with their dates. In the present study, four alternative measures of sex calloused attitudes, consisting of 15 items each in a five-point Likert format, were used. The four equivalent forms were administered before viewing the pornographic film, after viewing the pornographic film, 24 hours later, and two weeks later. While all male subjects completed each form once, the order of their administration was counterbalanced across time so that one fourth of the males completed a specific alternative form at each time. The scores from the first administration prior to viewing a film were used as an individual difference measure in the analysis of the male data. The scores from all four administrations were used as a dependent variable to study the influence of the films and other variables on changes in sex calloused attitudes.

Sex questionnaire. The sex questionnaire consisted of 39 items taken from the Research Questionnaire on Sex developed by Robert Athanasiou and Phillip Shaver for *Psychology Today*. A report based on a sample of over 20,000 questionnaire returns will soon appear in *Psychology Today*.

Physiological reactions. Immediately following the film, the subjects completed the physiological reaction form. The degree of sexual arousal was rated on a seven-point scale from 1 (no sexual arousal at all) to 7 (very strong sexual arousal). The males indicated whether they had had a partial erection, full erection (and for how long), pre-ejaculatory secretion, or an ejaculation. The females indicated whether they had no, mild, moderate, or strong genital sensations, breast sensations, vaginal lubrication, or an orgasm.

Affective reactions. The subjects were instructed that we were interested in any changes in feelings or mood that they may have noticed from before the film to the present moment. Thirty adjectives describing various affective or mood states were presented, and subjects rated their reactions as: 0 = no change; +1 = mild increase; -1 = mild decrease; +2 = moderate increase; -2 = moderate decrease; +3 = strong increase; or -3 = strong decrease. The majority of the adjectives were taken from Schmidt and Sigusch (1970).

Film reactions. The subjects rated reactions to the film on five seven-point rating scales. The first rating inquired whether the sexual behavior was definitely normal (1) to definitely abnormal (7). The four remaining ratings inquired

whether the film was not at all pornographic, or disgusting, or enjoyable, or offensive (1) to extremely pornographic, or disgusting, or enjoyable, or offensive (7).

Twenty-four-hour followup. Twenty-four hours after viewing the films the subjects opened an envelope containing a followup questionnaire and completed it. Of course, they were asked not to open the envelopes containing the followup questionnaires until the appropriate time. The procedure was patterned after the one used by Schmidt and Sigusch (1970). Subjects answered questions concerning which of 12 sexual behaviors they had engaged in during the 24-hour period before and the 24-hour period after viewing the film. Next they compared eight emotional and vegetative reactions in the 24-hour periods before and after viewing the film using the same rating procedure described above for affective reactions. Male subjects completed a third version of the measure of sex calloused attitudes toward women.

Two-week followup. The major portion on the two-week followup questionnaire presented four attitude items concerning premarital sexual intercourse, extramarital sexual intercourse, standards of sexual behavior, and a rating of own sexual attitudes as compared to the average person. These same items were included in the sex questionnaire completed prior to viewing the film. Subjects also reported any new sexual behavior in which they had engaged and any beneficial or detrimental changes attributable to viewing the films.

RESULTS

Male data

The first section of the results is devoted to the analysis of the data of the 194 male participants. Of the male subjects, 99 saw the Coitus I film and 95 saw the Petting II film. Individual difference measures were partitioned at the median for the analysis of variance procedures. Omission of items led to a slight variability in the number for various cells or comparisons. Most of the statistical analyses were computed by an IBM 360 computer.

Table 1

MEAN, STANDARD DEVIATIONS, AND INTERCORRELATIONS OF SEX GUILT, SEX CALLOUSNESS, AND SEX EXPERIENCE FOR MALES

			Intercorrelations	
Inventories	Means	SD	Sex callousness	Sex experience
Sex guilt	−17.30	14.65	−0.33**	−0.37**
Sex callousness	41.15	9.04		0.19**
Sex experience	7.06	3.27		

SD = standard deviation.
**$p < 0.01$.

Table 1 contains the means, standard deviations, and intercorrelations among sex guilt, sex experience, and sex callousness. Sex guilt was negatively correlated with sex experience and sex callousness and there was a small but significant positive correlation between sex callousness and sex experience. Table 2 presents the percentage of males engaging in each of the sex experiences and correlations with sex guilt and sex callousness. Sex guilt was negatively correlated with each of the heterosexual experiences while sex callousness was positively correlated with only a few of the heterosexual experiences. Approximately half of the males had engaged in coitus.

Table 2

MALE SEX EXPERIENCE PERCENTAGES AND INTERCORRELATIONS WITH INVENTORIES

		Inventories	
Sex experience	% of 194 males participating	Sex guilt	Sex callousness
Kissing	98	−0.30**	0.15*
Tongue kissing	91	−0.17*	0.07
Clad female breast	88	−0.26**	0.08
Unclad female breast	76	−0.26**	0.11
Manipulation of female genitals	69	−0.32**	0.17*
Oral-breast contact	72	−0.23**	0.12
Manipulation of male genitals	62	−0.28**	0.14*
Ventral-ventral intercourse	49	−0.37**	0.27**
Fellatio	40	−0.28**	0.13
Cunnilingus	36	−0.22**	0.01
Ventral-dorsal intercourse	18	−0.28**	0.20**
Homosexual relations	07	−0.04	0.03

*p < 0.05.
**p < 0.01.

Sex questionnaire. Table 3 contains the intercorrelation of items from the sex questionnaire with sex guilt, sex callousness and sex experience. The frequencies of response endorsement to views on the Sex Questionnaire revealed that these single males held liberal sexual standards and views about sex, and in particular emphasized free choice in sexual behaviors. About half of the males believed premarital intercourse was all right for both young people and consenting adults without any necessary affection or love, and 70% believed men and women should be free to decide for themselves about premarital and extramarital sexual intercourse. Of the males, 69% asserted contraceptive techniques and devices should be available to anyone, and 61% believed abortion should be legally available upon demand by a woman. Only 4% believed that recent Supreme Court decisions about censorship and pornography have seriously threatened moral standards, while 59% believed the Supreme Court decisions have established reasonable guidelines, and 37% believed the rulings have been too restrictive. When asked if it is important that the government strongly enforce existing sex

Table 3

INTERCORRELATIONS OF SEX QUESTIONNAIRE WITH SEX GUILT, SEX CALLOUSNESS, AND SEX EXPERIENCE

Sex questionnaire		Inventories		
		Sex guilt	Sex callousness	Sex experience
1.	Love and sex linked	0.52**	–0.18*	–0.15*
2.	Premarital intercourse	0.56**	–0.18*	–0.24**
3.	Feel about past premarital intercourse[a]	0.21*	0.09	0.12
4.	Supreme Court decisions	–0.24**	0.03	0.02
5.	Extramarital intercourse	0.46**	–0.18*	–0.02
6.	Access to contraceptives	0.23**	–0.02	–0.18*
7.	Legal abortion	0.39**	–0.10	–0.13
8.	Manuals of sexual intercourse	0.32**	–0.04	–0.16*
9.	Standard of sexual behavior	0.41**	–0.04	–0.16*
10.	Religious	–0.41**	0.10	0.05
11.	Family's annual income	0.01	–0.13	0.06
12.	Political views	0.33**	0.05	–0.11
13.	Age at first intercourse[a]	0.05	0.02	–0.02
14.	Partner for first intercourse[a]	–0.20*	0.01	0.01
15.	Times with first partner[a]	–0.05	0.06	0.36**
16.	Number of premarital sex partners	–0.34**	0.14	0.61**
17.	How often engage in intercourse	–0.35**	0.14*	0.55**
18.	Experience with intercourse[a]	0.21*	0.00	–0.17
19.	Imagined partner was someone else[a]	–0.02	–0.03	–0.00
20.	Prevented from expressing sexuality			
	A. Fear of pregnancy	–0.09	0.12	0.26**
	B. Fear of disease	–0.06	0.20**	0.11
	C. Social disapproval	0.22**	–0.07	–0.06
	D. Guilt feelings	0.24**	–0.07	–0.09
	E. Religious or other moral grounds	0.37**	–0.15*	–0.12
21.	Rate your sex life	0.07	0.04	0.50**
22.	Method of contraception[a]			
	A. None	0.07	0.06	–0.15
	B. Rhythm	–0.04	–0.09	0.22*
	C. Withdrawal	–0.03	0.00	0.09
	D. Diaphragm	–0.08	0.02	–0.11
	E. Foam, jelly or other chemical means	–0.10	–0.16	0.03
	F. Condom	0.12	–0.07	–0.08
	G. I.U.D.	0.00	0.00	0.00
	H. Pill	–0.18	–0.10	0.13
23.	Have erotic dreams	0.04	0.04	0.10
24.	Seen pornography	0.29**	–0.09	–0.12
25.	Response to pornography	0.19*	–0.07	–0.13
26.	Homosexual experience	0.11	0.01	–0.15*
27.	Masturbation frequency	0.15*	0.06	0.04
28.	Partner orally stimulated your genitals	0.27**	–0.09	–0.64**
29.	Orally stimulated partner's genitals	0.29**	0.01	–0.63**
30.	Anal intercourse	0.24**	–0.13	–0.38**
31.	Own sexual attitudes	0.48**	–0.18*	–0.41**
32.	Girl lose respect	–0.40**	0.14*	0.33**
33.	Young people healthier attitudes	0.33**	–0.17*	–0.11
34.	Sex is for fun	0.32*	–0.18*	0.03
35.	Homosexual excluded from society	–0.23**	–0.12	0.03
36.	Element of homosexuality	0.15*	0.05	0.08
37.	Government enforce sex laws	–0.43**	0.05	0.12
38.	Difference between conduct and desires	0.06	–0.04	0.09
39.	Guilty about reading sex	–0.33**	0.12	0.25**

a. The N was 98 for questions requiring coital experience.
*p < 0.05.
**p < 0.01.

laws, 76% disagreed. Finally, 86% of the males viewed young people as having healthier attitudes toward sex than their parents.

In the context of generally liberal and libertarian views, sex guilt was negatively correlated with such outlooks and with sexual behavior. Males who scored higher on a dispositional measure of guilt over sex had less often engaged in intercourse, and if they had participated, it was with fewer partners, less frequently, and the partner was more liable to be an intimate rather than a casual date. Coitally experienced high-sex-guilt men reported finding intercourse less pleasant and had more regret about participating. Males who scored higher on sex guilt masturbated less, and were less likely to have engaged in fellatio, cunnilingus, and anal intercourse. High-guilt males reported that social disapproval, guilt feelings, and religious or moral training had prevented them from freely expressing their sexuality. Their responses indicated that they were more religious and more politically conservative than low-guilt males. High-sex-guilt males held more conservative standards about premarital and extramarital intercourse and the dissemination of sexual information, contraceptive devices, and legalized abortions. They were more liable to believe the Supreme Court decisions threatened moral standards and to agree that the government should strongly enforce existing sex laws. Their views toward homosexuality were more negative. High-sex-guilt males were less likely to obtain pornography voluntarily, had a less positive response to it, and reported feeling guilty about viewing or reading it.

Sex calloused attitudes were less often correlated with items from the sex questionnaire. In general males with sex calloused attitudes tended to have more liberal premarital and extramarital sexual standards, to engage in intercourse more often, to view love and sex as separate, and to be prevented from freely expressing their sexuality by fear of disease.

The more sexually experienced males were more satisified with their sex lives and, of course, moderate correlations were obtained between sex experience and questions concerning specific sexual practices. The more sexually experienced males held somewhat more liberal standards and felt less guilt about pornography, but these relationships were less strong than those existing for sex guilt.

Table 4

FREQUENCIES OF MALE PHYSIOLOGICAL REACTIONS

Degree of sexual arousal						
No sexual arousal at all						Very strong sexual arousal
1	2	3	4	5	6	7
1	13	28	26	45	13	4

Physiological reactions	Yes	Uncertain	No
Partial erection	152	1	40
Full erection/less than 3 minutes	44	6	142
Full erection/3–6 minutes	37	6	149
Full erection/more than 6 minutes	8	5	179

Sexual arousal. Table 4 presents the frequencies of male physiological reactions to the film. The mean for the males was 4.2 which was a moderate level of sexual arousal. Most males reported having at least a partial erection in response to viewing the films. There were no film differences or differences as a function of sex experience. From Table 5 it can be seen that high-sex-guilt males were more liable to report a partial erection than low-guilt males. Low-guilt males may have checked "No" on this item to indicate they had a full erection. A total erection score based upon a partial-complete dichotomy and time in full erection permitted the use of a 4-point continuum. Highly sex calloused males reported having a stronger penile erectile response than less calloused males.

Table 5

SUMMARY OF MEANS, STANDARD DEVIATIONS, AND SIGNIFICANT F RATIOS OF MALE PHYSIOLOGICAL REACTIONS AS A FUNCTION OF SEX GUILT AND SEX CALLOUSNESS

Physiological reaction	High sex guilt		Low sex guilt		F ratios
	M	SD	M	SD	
Partial erection	1.70	0.71	1.46	0.89	4.20*
Physiological reaction	High sex callousness		Low sex callousness		
	M	SD	M	SD	
Total erection	1.84	1.18	1.43	1.06	6.06*

M = Mean.
SD = Standard deviation.
*p < 0.05.

Table 6

MEANS, STANDARD DEVIATIONS, AND SIGN TESTS OF INCREASES OR DECREASES IN AFFECTIVE STATES FOR MALES

Affects	Means	Standard deviations	z ratio
Interested	1.19	1.33	9.62***
Peaceful	−0.44	1.35	3.74***
Eager for contact	1.36	1.16	11.12***
Attracted	0.93	1.34	11.04***
Repelled	−0.54	1.41	4.48***
Excited	1.39	1.09	11.92***
Shocked	−0.31	1.32	0.89
Irritated	−0.35	1.19	4.40***
Pepped-up	1.14	0.98	11.40***
Emotional	0.87	1.01	9.88***
Restless	0.76	1.05	7.82***
Impulsive	0.69	0.91	9.13***
Bored	−1.04	1.40	14.61***
Aggressive	0.65	1.09	8.01***
Driven	0.62	0.98	7.48***
Wilder	0.56	1.05	7.55***
Disinhibited	0.18	1.13	2.97**
Jumpy	0.32	1.05	5.82***
Disgusted	−0.30	1.37	1.29
Angered	−0.49	1.14	5.04***

Table 6 (Continued)

Affects	Means	Standard deviations	z ratio
Benumbed	−0.15	0.92	0.66
Depressed	−0.44	1.24	3.30***
Anxious	0.93	1.02	10.32***
Serene	−0.41	1.16	4.18***
Ashamed	−0.38	1.10	2.93**
Happy	0.46	1.01	6.47***
Loving	0.37	1.12	5.22***
Embarrassed	−0.32	1.20	1.57
Affectionate	0.47	1.12	6.70***
Guilty	−0.39	1.14	1.57

Note: The reported z ratios are based on a sign test comparing the number of males who reported increases with the number of males reporting decreases in the affective state.
**p < 0.01.
***p < 0.001.

Table 7

SUMMARY OF MEANS AND SIGNIFICANT F RATIOS OF MALE AFFECTIVE REACTIONS AS A FUNCTION OF FILMS

Affects	Coitus I		Petting II		F ratios
	Mean	SD	Mean	SD	
Peaceful	−0.15	1.30	−0.22	1.39	5.05*

SD = Standard deviation.
*p < 0.05.

Table 8

SUMMARY OF MEANS AND SIGNIFICANT F RATIOS OF MALE AFFECTIVE REACTIONS AS A FUNCTION OF SEX GUILT

Affects	High sex guilt		Low sex guilt		F ratios
	Means	SD	Means	SD	
Jumpy	0.50	1.08	0.14	0.99	5.83*
Benumbed	−0.01	0.91	−0.28	0.91	4.26*
Depressed	−0.24	1.25	−0.64	1.20	4.95*
Ashamed	−0.17	1.01	−0.59	1.15	7.50**
Embarrassed	−0.12	1.18	−0.53	1.20	5.95*
Guilty	−0.20	1.14	−0.59	1.12	5.96*

SD = Standard deviation.
*p < 0.05.
**p < 0.01.

Affective states. The males reported significant changes by Sign test for 25 of the 30 adjectives used as probes for affective states as can be seen in Table 6. The males reported moderate increases in such states as "excited," "eager for

contact," "interested," and "pepped-up." Males reported a general heightened state of emotional arousal and that they felt more aggressive, driven, impulsive, and wilder. There were significant decreases in "angered," "depressed," and "ashamed," but while the five affects "shocked," "disgusted," "benumbed," "embarrassed," and "guilty" decreased, they were the only five affects not to change significantly after viewing the pornographic films.

Of the 30 adjectives presented to the subjects, the main effect of films was significant on only one occasion, well within chance. Males who viewed Coitus I reported a significantly greater decrease in peacefulness than males who viewed Petting II (Table 7).

Sex guilt was a significant main effect with six adjectives (Table 8). High-sex-guilt males increased in feeling jumpy more than low-sex-guilt males. High-sex-guilt males decreased significantly less than low-sex-guilt males in feeling benumbed, depressed, ashamed, embarrassed, and guilty. Sex guilt was related to feeling depressed, ashamed, embarrassed and guilty, but the males report a significant decrease rather than an increase in these affects after viewing the film.

Sex callousness had a significant influence on 18 of the 30 affective states. The results are shown in Table 9. Males who held more sex calloused attitudes toward women reported feeling significantly more interested, eager for contact, attracted, excited, impulsive, aggressive, driven, anxious, and wilder in response to the films than did the males holding fewer sex calloused attitudes. The more calloused

Table 9

SUMMARY OF MEANS, STANDARD DEVIATIONS, AND SIGNIFICANT F RATIOS OF MALE AFFECTIVE REACTIONS AS A FUNCTION OF SEX CALLOUSNESS

Affects	High sex callousness		Low sex callousness		F ratios
	Mean	SD	Mean	SD	
Interested	1.39	1.20	0.98	1.43	4.66*
Eager for contact	1.61	0.96	1.11	1.28	8.89**
Attracted	1.17	1.20	0.69	1.42	5.97*
Repelled	−0.81	1.26	−0.27	1.50	7.40**
Excited	1.57	0.88	1.20	1.25	5.44*
Irritated	−0.56	1.24	−0.14	1.10	6.43*
Impulsive	0.85	0.86	0.53	0.93	5.96*
Bored	−1.27	1.41	−0.81	1.36	5.22*
Aggressive	0.90	1.01	0.40	1.12	11.10**
Driven	0.80	0.93	0.43	0.99	7.22**
Wilder	0.79	0.92	0.33	1.12	9.86**
Disgusted	−0.49	1.30	−0.09	1.42	4.43*
Benumbed	−0.31	0.92	0.02	0.89	1.41*
Anxious	1.16	0.96	0.70	1.03	10.43**
Ashamed	−0.56	1.16	−0.20	1.00	5.22*
Happy	0.64	0.97	0.28	1.01	6.64*
Loving	0.55	1.11	0.19	1.11	5.16*
Embarrassed	−0.56	1.20	−0.08	1.17	8.06**

SD = Standard deviation.
*$p < 0.05$.
**$p < 0.01$.

males reported significantly greater decreases after viewing the film in such negative affects as feeling repelled, irritated, bored, disgusted, ashamed, benumbed, and embarrassed. The males who scored higher on sex calloused attitudes also showed significantly greater increases in "happy" and "loving" than less calloused males. There were no significant interactions with films involving sex callousness, just as there were none involving sex guilt.

While sex experience yielded no significant main effects, it interacted with films to produce the 10 significant interactions shown in Table 10. The interactions followed the same pattern. High-sex-experience males showed a greater increase in such positive affects as feeling attracted, pepped-up, emotional, impulsive, wilder, anxious and affectionate or a greater decrease in such negative affects as feeling repelled, bored, and disgusted when they viewed the Petting II film rather than the Coitus I film, whereas the less sexually experienced men exhibited the reverse pattern—greater increase in positive affects and decrease in negative affects in response to the Coitus I film than to the Petting II film.

Table 10

SUMMARY OF MEANS AND SIGNIFICANT F RATIOS OF MALE AFFECTIVE REACTIONS AS A FUNCTION OF INTERACTION OF FILMS BY SEX EXPERIENCE

Affects	Coitus I				Petting II				F ratios
	High sex experience		Low sex experience		High sex experience		Low sex experience		
	M	SD	M	SD	M	SD	M	SD	
Attracted	0.67	1.39	0.95	1.33	1.40	1.28	0.82	1.26	4.99*
Repelled	−0.29	1.44	−0.70	1.24	−0.97	1.39	−0.38	1.46	6.28*
Pepped-up	0.98	1.01	1.27	0.93	1.45	0.96	0.96	0.94	7.83**
Emotional	0.65	1.03	1.09	1.04	1.03	1.03	0.81	0.94	5.04*
Impulsive	0.56	0.89	0.81	0.85	0.93	1.05	0.55	0.02	5.82*
Bored	−0.75	1.37	−1.40	1.28	−1.35	1.33	−0.83	1.50	8.37**
Wilder	0.40	0.86	0.81	1.07	0.70	1.24	0.43	1.03	4.97*
Disgusted	−0.28	1.36	−0.53	1.26	−0.55	1.34	0.08	1.45	4.94*
Anxious	0.81	1.03	1.07	0.88	1.23	1.17	0.74	0.96	6.54*
Affectionate	0.35	1.03	0.58	1.12	0.77	1.21	0.26	1.11	5.27*

M = Mean.
SD = Standard deviation.
*$p < 0.05$.
**$p < 0.01$.

Film ratings. The seven-point ratings of the films revealed that the males regarded the films as moderately pornographic ($M = 4.50$) and enjoyable ($M = 4.35$), slightly disgusting ($M = 3.11$) and offensive ($M = 2.75$), and the sexual behavior as relatively normal ($M = 2.81$).

There were significant main effects but no interactions for films, sex guilt, sex callousness, and sex experience. The sexual behavior in the Coitus I film was viewed as more normal and the film was rated less pornographic, disgusting, and offensive than the Petting II film (Table 11). Males who were high on sex guilt or

Table 11

SUMMARY OF MEANS, STANDARD DEVIATIONS, AND SIGNIFICANT F RATIOS OF MALE FILM RATINGS AS A FUNCTION OF THE FILMS

Film ratings	Coitus I		Petting II		F ratios
	M	SD	M	SD	
Behavior abnormal	2.46	1.59	3.20	1.77	9.46**
Film pornographic	4.10	1.78	4.96	1.76	11.54***
Film disgusting	2.88	1.49	3.37	1.47	5.93*
Film offensive	2.48	1.47	3.04	1.52	7.48**

M = Mean.
SD = Standard deviation.
*p < 0.05.
**p < 0.01.
***p < 0.001.

who were less sexually experienced viewed the two films as more pornographic, disgusting, and offensive and the behavior as less normal than did the less guilty or more sexually experienced males (Tables 12 and 13). The males with the more sex calloused attitudes enjoyed the films more and saw them as less disgusting and offensive than did the men with the less calloused attitudes (Table 14).

Table 12

SUMMARY OF MEANS, STANDARD DEVIATIONS, AND SIGNIFICANT F RATIOS OF MALE FILM RATINGS AS A FUNCTION OF SEX GUILT

Film ratings	High sex guilt		Low sex guilt		F ratios
	M	SD	M	SD	
Behavior abnormal	3.29	1.82	2.32	1.44	17.47***
Film pornographic	4.94	1.67	4.06	1.86	11.94***
Film disgusting	3.65	1.43	2.56	1.36	28.97***
Film offensive	3.28	1.49	2.20	1.35	27.66***

M = Mean.
SD = Standard deviation.
***p < 0.001.

Table 13

SUMMARY OF MEANS, STANDARD DEVIATIONS, AND SIGNIFICANT F RATIOS OF MALE FILM RATINGS AS A FUNCTION OF SEX EXPERIENCE

Film ratings	High sex experience		Low sex experience		F ratios
	M	SD	M	SD	
Behavior abnormal	2.46	1.56	3.16	1.77	5.80*
Film pornographic	4.16	1.82	4.83	1.75	4.26*
Film disgusting	2.81	1.45	3.40	1.50	5.74*
Film offensive	2.47	1.48	3.02	1.51	4.73*

M = Mean.
SD = Standard deviation.
*p < 0.05.

Table 14

SUMMARY OF MEANS, STANDARD DEVIATIONS, AND SIGNIFICANT F RATIOS OF MALE FILM RATINGS AS A FUNCTION OF SEX CALLOUSNESS

Film ratings	Means				F ratios
	High sex callousness		Low sex callousness		
Film disgusting	2.84	1.42	3.37	1.54	6.85**
Film enjoyable	4.62	1.51	4.08	1.63	5.94*
Film offensive	2.51	1.42	2.99	1.58	5.57*

*$p < 0.05$.
**$p < 0.01$.

Table 15

FREQUENCIES OF MALES ENGAGING IN SEXUAL BEHAVIOR 24 HOURS BEFORE AND 24 HOURS AFTER VIEWING FILM

	Frequencies			
	Neither before nor after	Both before and after	Before but not after	After but not before
Sexy dream	135	23	13	16
Sexy fantasy	128	35	7	17
Conversations about sex[a]	48	88	13	38
Masturbated	137	22	14	13
Kissed girl	127	27	14	18
Manual breast play	156	14	9	7
Oral breast play	166	8	8	4
Manipulated female genitals	169	7	6	4
Girl manipulated my genitals	174	5	5	2
Engaged in cunnilingus	178	4	3	1
Was fellated	179	2	3	2
Coitus	173	4	7	3
Homosexual relations	186	1	0	0

a. Significant by sign test comparing males who increased with those who decreased after viewing the pornographic film ($z = 3.98$; $p < 0.001$).

Sexual behavior. The 24-hour followup questionnaire inquired about sexual behavior and emotional and vegetative states during the 24 hours before and after viewing the films. From Table 15 it can be seen that the only significant increase in sexual behavior attributable to viewing the films was an increase in conversations about sex.

Emotional and vegetative states. When the males compared the 24 hours after viewing the pornographic films with the preceding 24 hours, they reported significant changes by Sign test in five of the eight emotional and vegetative states (Table 16). More males reported increased sexual tension, internal unrest, aggressiveness, and gastrointestinal complaints, and more males reported decreased concentration capacity in the 24 hours following film viewing. All of the means of the reported changes fell within the mild increase or decrease range.

Table 16

MEANS, STANDARD DEVIATIONS, AND SIGN TESTS OF 24-HOUR EMOTIONAL AND VEGETATIVE STATES FOR MALES

States	Means	Standard deviations	z ratios
Internal unrest	0.46	0.96	6.59***
Concentration capacity	−0.22	0.92	3.08**
Sleep	−0.01	0.74	0.15
Gastrointestinal complaints	0.06	0.59	2.43*
Sexual tension	0.63	0.96	8.01***
Aggressiveness	0.46	0.83	7.22***
Nervousness	0.06	0.70	1.36
Guilt	0.02	0.69	1.14

Note: The reported z ratios compare the number of males reporting increases in the 24 hours following films with the number of males reporting decreases by sign test.
*p < 0.05.
**p < 0.01.
***p < 0.001.

Table 17 contains the relations of the individual difference measures to the males' emotional and vegetative states. High-sex-guilt males reported slight

Table 17

SUMMARY OF MEANS AND SIGNIFICANT F RATIOS FOR MALES' EMOTIONAL AND VEGETATIVE STATES 24 HOURS BEFORE AND 24 HOURS AFTER VIEWING FILMS

States	High sex guilt		Low sex guilt		F ratios
	M	SD	M	SD	
Internal unrest	0.61	0.96	0.30	0.96	4.76*
Guilt	0.13	0.77	−0.09	0.59	4.54*

	Coitus I				Petting II				
	High sex experience		Low sex experience		High sex experience		Low sex experience		
	M	SD	M	SD	M	SD	M	SD	
Sexual tension	0.53	0.88	0.81	1.02	0.82	1.05	0.48	0.93	4.71*

	High sex callousness		Low sex callousness		
	M	SD	M	SD	
Nervousness	−0.06	0.68	0.19	0.70	6.23*

	Coitus I				Petting II				
	High sex callousness		Low sex callousness		High sex callousness		Low sex callousness		
	M	SD	M	SD	M	SD	M	SD	
Internal unrest	0.57	0.89	0.31	1.12	0.29	0.91	0.70	0.89	5.43*
Guilt	0.02	0.50	−0.11	0.67	−0.06	0.75	0.26	0.79	4.86*

M = Mean.
SD = Standard deviation.
*p < 0.05.

increase whereas low-sex-guilt males reported a slight decrease in the state of guilt in the 24 hours after viewing the film compared to the 24 hours before viewing the film. The more sexually experienced males who saw the Petting II film reported a greater increase in sexual tension than those who saw the Coitus I film, while the opposite held true for the less sexually experienced males. Males with less sexually calloused attitudes reported a slight increase in nervousness while more calloused males reported a very slight decrease in nervousness. Males high on sex callousness reported a greater increase in internal unrest after viewing Coitus I as compared to Petting II, while the reverse was true for males who endorsed fewer sex calloused attitudes. Less calloused males reported a greater increase in guilt after viewing Petting II and a greater decrease in guilt after viewing the Coitus I film than did the more calloused males, who had the opposite reaction, but with less marked changes in guilt.

Table 18

SUMMARY OF ANALYSES OF VARIANCE FOR MALES OF 2-WEEK ATTITUDE CHANGE AS A FUNCTION OF FILMS AND SEX GUILT

Source	Attitude items			
	Premarital intercourse	Extramarital intercourse	Standard of sexual behavior	Rating of own sexual attitudes
A (Films)				
B (Sex guilt)	F = 44.70***	F = 39.74***	F = 19.10***	F = 39.41***
A x B				
C (Time)				
A x C				
B x C				
A x B x C				

Note: In every instance low-sex-guilt males ascribed to more liberal attitudes.
***$p < 0.001$.

Table 19

SUMMARY OF ANALYSES OF VARIANCE FOR MALES OF 2-WEEK ATTITUDE CHANGE AS A FUNCTION OF FILMS AND SEX CALLOUSNESS

Source	Attitude items			
	Premarital intercourse	Extramarital intercourse	Standard of sexual behavior	Rating of own sexual attitude
A (Films)				
B (Sex callousness)	F = 7.90**	F = 13.52***		F = 10.23**
A x B				
C (Time)				
A x C				
B x C				
A x B x C				

Note: Males with sex calloused attitudes toward women endorsed more liberal attitudes.
**$p < 0.01$.
***$p < 0.001$.

Attitude change. The two-week followup questionnaire was designed to measure attitude changes that might be attributable to viewing the pornographic film. The main effects simply reflected the fact that high-sex-guilt males, less sex calloused males, and less sexually experienced males held more conservative attitudes toward sexual behavior. The only indication of a change from before viewing the film to two weeks after is the sex experience by time interaction for premarital opinions in Table 20. The more sexually experienced males became even more liberal while the less experienced males became more conservative in their attitudes toward premarital intercourse in the two-week period following viewing the film.

Table 20

SUMMARY OF ANALYSES OF VARIANCE FOR MALES OF 2-WEEK ATTITUDE CHANGE AS A FUNCTION OF FILM AND SEX EXPERIENCE

Source	Attitude items			
	Premarital intercourse	Extramarital intercourse	Standard of sexual behavior	Rating of own sexual attitudes
A (Films)				
B (Sex experience)	F = 15.47***[a]		F = 4.61*	F = 28.58***
A x B				
C (Time)				
A x C				
B x C		F = 4.00*[b]		
A x B x C				

a. Males with more sex experience endorsed more liberal attitudes.

b. More experienced males endorsed more liberal attitudes toward premarital intercourse after (M = 2.12) than before (M = 2.38) while less experienced males increased in conservative attitudes from before (M = 3.00) to after (M = 3.10) viewing the films.

*$p < 0.05$.

***$p < 0.001$.

Four alternate forms of the measure of sex calloused attitudes toward women were administered before the film, immediately after the film, 24 hours after the film, and two weeks after the film. Table 21 reports the results of the changes in sex calloused attitudes. The main effects with the individual differences simply reflected the fact that high-sex-guilt males and less sexually experienced males held fewer sex calloused attitudes. The analysis of variance involving sex callousness as an individual difference variable divided scores before the film at the median while treating the scores after as a dependent variable. There was a monotonic decrease in sex calloused attitudes across time. The tendency to decrease across time interacted with sex guilt. Table 22 presents the appropriate means for that interaction. Low-sex-guilt males had a relatively large decrease immediately after the film and some tendency to rebound during the interval between 24 hours and two weeks.

Table 21

SUMMARY OF ANALYSES OF VARIANCE FOR MALES OF CHANGES IN SEX CALLOUSED ATTITUDES OVER TIME AS A FUNCTION OF FILMS AND INVENTORIES

Source	Inventories		
	Sex guilt	Sex callousness	Sex experience
A (Films)			
B (Inventories)	F = 20.13***[a]	F = 104.84***	F = 9.59**
A x B			
C (Time)	F = 4.43**[b]		F = 4.56**
A x C			
B x C		F = 2.72*[c]	
A x B x C			

a. All of the individual difference variables are related to sex calloused attitudes as a main effect in the expected way.
b. There is a monotonic decrease in sex calloused attitudes across time.
c. The means for this interaction are contained in Table 22 which follows.
*p < 0.05.
**p < 0.01.
***p < 0.001.

Table 22

MEANS OF SEX CALLOUSED ATTITUDES OF HIGH- AND LOW-SEX-GUILT MALES ACROSS TIME

Group	Time			
	Before film	After film	24 hours after	2 weeks after
High sex guilt	38.20	37.59	38.05	36.84
Low sex guilt	44.15	42.54	40.89	41.79

Female data

Of the 183 female subjects, 88 viewed Coitus I and 95 viewed the Petting II film. Sex guilt and sex experience were partitioned at the median for the analysis of variance procedures. The mean for sex guilt was -30.66 with a standard deviation of 23.06. The mean for sex experience was 6.47 with a standard deviation of 3.19. Sex guilt and sex experience were negatively correlated (r = .45; df = 180; p .01). Table 23 indicates that sex guilt was significantly negatively correlated with all of the heterosexual behavior except kissing for the females. Approximately one third of the girls were non-virgins.

Sex questionnaire. The college women were liberal even if somewhat less liberal than the college males. Some 22% believed that premarital intercourse was all right for both young people and consenting adults, and another 56% believed premarital intercourse was all right with love or affection. A majority (60%) believed that men and women should be free to decide for themselves about premarital and extramarital sexual intercourse. About half (49%) thought

Table 23

FEMALE SEX EXPERIENCE PERCENTAGES AND CORRELATIONS WITH SEX GUILT

Sex experiences	% of 183 females participating	Sex guilt
Kissing	99	−0.03
Tongue kissing	96	−0.13
Clad female breast	84	−0.22**
Unclad female breast	69	−0.35**
Manipulation of female genitals	60	−0.35**
Oral-breast contact	60	−0.39**
Manipulation of male genitals	54	−0.36**
Ventral-ventral intercourse	34	−0.39**
Fellatio	30	−0.36**
Cunnilingus	36	−0.39**
Ventral-dorsal intercourse	13	−0.25**
Homosexual relations	02	−0.02

**$p < 0.01$.

abortions should be legally available upon demand by a woman, and 60% believed anyone should have access to contraceptive devices and techniques. Only 5% believed recent Supreme Court decisions about censorship and pornography had seriously threatened moral standards, while 78% believed the decisions had established reasonable guidelines, and 28% viewed the decisions as too restrictive. A substantial majority (68%) disagreed with the contention that the government should strongly enforce existing sex laws. A whopping 91% of the females saw young people today as having healthier attitudes toward sex than their parents. (Correlations with sex guilt and sex experience are reported in Table 24.)

Table 24

CORRELATIONS OF SEX QUESTIONNAIRE WITH SEX GUILT AND SEX EXPERIENCE FOR FEMALES

	Sex questionnaire	Sex guilt	Sex experience
1.	Love and sex linked	0.33**	−0.26**
2.	Premarital intercourse	0.44**	−0.29**
3.	Feel about past premarital intercourse[a]	−0.25*	0.34**
4.	Supreme Court decisions	−0.24**	0.06
5.	Extramarital intercourse	0.26**	−0.18*
6.	Access to contraceptives	0.34**	−0.19*
7.	Legal abortion	0.21**	−0.33**
8.	Manuals of sexual intercourse	0.38**	−0.22**
9.	Standard of sexual behavior	0.49**	−0.28**
10.	Religious	−0.30*	0.30*
11.	Family's annual income	−0.09	0.18*
12.	Political views	0.28**	−0.15*
13.	Age at first intercourse[a]	−0.25*	−0.08
14.	Partner for first intercourse	−0.05	0.00
15.	Times with first partner[a]	−0.05	0.36**
16.	Number of premarital sex partners	−0.34**	0.47**
17.	How often engage in intercourse	−0.35**	0.57**

Table 24 (Continued)

CORRELATIONS OF SEX QUESTIONNAIRE WITH SEX GUILT AND SEX EXPERIENCE FOR FEMALES

	Sex questionaire	Sex guilt	Sex experience
18.	Experience with intercourse[a]	0.16	−0.23
19.	Imagined partner was someone else[a]	0.10	−0.17
20.	Prevented from expressing sexuality		
	A. Fear of pregnancy	−0.11	0.26**
	B. Fear of disease	0.01	−0.06
	C. Social disapproval	0.21**	−0.07
	D. Guilt feelings	0.37**	−0.17*
	E. Religious or other moral training	0.49**	−0.37**
21.	Rate your sex life	−0.16*	0.44**
22.	Method of contraception[a]		
	A. None	0.29*	−0.35**
	B. Rhythm	−0.14	0.07
	C. Withdrawal	−0.02	−0.10
	D. Diaphragm	−0.07	0.03
	E. Foam, jelly, or other chemical means	−0.02	0.16
	F. Condom	−0.24	0.23
	G. I.U.D.	−0.04	0.11
	H. Pill	−0.16	0.19
23.	Have erotic dreams	0.10	−0.14
24.	Seen pornography	0.11	−0.06
25.	Response to pornography	0.22**	−0.22**
26.	Homosexual experiences	−0.03	0.02
27.	Masturbation frequency	0.16*	−0.15*
28.	Partner orally stimulated your genitals	0.44**	−0.70**
29.	Orally stimulated partner's genitals	0.42**	−0.68**
30.	Anal intercourse	0.22**	0.27**
31.	Own sexual attitudes	0.65**	−0.51**
32.	Girl lose respect	−0.57**	0.46**
33.	Young people healthier attitudes	0.14	−0.16**
34.	Sex is for fun	0.36**	−0.11
35.	Homosexual excluded from society	−0.22**	0.07
36.	Element of homosexuality	0.23**	−0.09
37.	Government enforce sex laws	−0.43**	0.29**
38.	Difference between conduct and desires	0.05	−0.07
39.	Guilty about reading sex	−0.30**	0.25**

a. The N was 61 for responses requiring coital experience.
*$p < 0.05$.
**$p < 0.01$.

Females who scored higher on sex guilt expressed more conservative sexual standards for themselves and believed the government should enforce sex laws and censor pornography, to which they were personally less responsive and which made them feel guilty. High-sex-guilt college women were less likely to have engaged in coitus and oral-genital sex, and they masturbated less frequently. They were dissatisified with their sex lives, but they believed that engaging in sex would lose the respect of men and should be reserved for love and marriage. Fear of social disapproval, guilt feelings, and moral and religious training kept them from freely expressing themselves sexually. If they had engaged in premarital coitus, they tended to regret it, to begin at an older age, and were less likely to use contraceptives. High-sex-guilt females considered themselves to be more religious and politically conservative than low-guilt females.

The pattern of response of the more sexually experienced females to the sex questionnaire was similar to that of the low-sex-guilt females. The correlations with sexual behavior and amount and frequency of experience were higher and with sexual attitudes were lower than the comparable sex guilt correlations. The correlations reflecting negative views of homosexuality or favoring strong government response to sex law violators were small or nonsignificant. The more sexually experienced women reported that fear of pregnancy kept them from freely expressing their sexuality and denied that guilt or religious or moral training were important inhibitors. They were considerably more satisified with their sex lives than the less experienced females.

Sexual arousal. Most of the women reported at least experiencing mild genital sensations while viewing the films (Table 25). The two different films differentially affected the sexual arousal of the women (Table 26). The women who viewed the Coitus I film reported a stronger degree of sexual arousal and more genital sensations than did the women viewing the Petting II film. High-sex-guilt

Table 25

FREQUENCIES OF FEMALE PHYSIOLOGICAL REACTIONS

	Degree of sexual arousal						
	No sexual arousal at all						Very strong sexual arousal
	1	2	3	4	5	6	7
	11	39	26	44	28	9	8

Physiological reactions	Yes	Uncertain	No
No genital sensations	24	0	157
Mild genital sensations	153	1	27
Moderate genital sensations	84	3	94
Strong genital sensations	26	2	153
Breast sensations	17	4	160
Vaginal lubrication	35	18	128
Orgasm	1	6	174

Table 26

SUMMARY OF MEANS, STANDARD DEVIATIONS, AND SIGNIFICANT F RATIOS FOR FEMALE PHYSIOLOGICAL REACTIONS AS A FUNCTION OF FILMS

Physiological reaction	Coitus I		Petting II		F ratio
	M	SD	M	SD	
Degree of sexual arousal	3.86	1.45	3.37	1.59	4.27*
No genital sensations	0.14	0.51	0.38	0.79	6.37*
Mild genital sensations	1.80	0.59	1.60	0.80	4.01*
Moderate genital sensations	1.10	0.98	0.80	0.98	4.27*
Strong genital sensations	0.43	0.81	0.18	0.56	6.01*

M = Mean.
SD = Standard deviation.
*$p < 0.05$.

females tended not to have any genital response to the Petting II film whereas they reported mild genital sensations in response to the Coitus I film (Table 27). Low-sex-guilt females reported more frequent sensations in their breasts in response to the films. The more sexually experienced females reported some vaginal lubrication in response to the films when compared to the less experienced women (Table 28).

Table 27

SUMMARY OF MEANS, STANDARD DEVIATIONS, AND SIGNIFICANT F RATIOS FOR FEMALE PHYSIOLOGICAL REACTIONS AS A FUNCTION OF SEX GUILT AND INTERACTIONS BETWEEN FILMS AND SEX GUILT

Physiological reactions	Coitus I				Petting II				F ratios
	High sex guilt		Low sex guilt		High sex guilt		Low sex guilt		
	M	SD	M	SD	M	SD	M	SD	
No genital sensation	0.09	0.42	0.19	0.59	0.58	0.92	0.20	0.61	5.89*
Mild genital sensation	1.95	0.30	1.64	0.76	1.42	0.92	1.76	0.66	9.82**

	High sex guilt		Low sex guilt		
	M	SD	M	SD	
Breast sensations	0.10	0.43	0.32	0.71	6.34*

M = Mean.
SD = Standard deviation.
*$p < 0.05$.
**$p < 0.01$.

Table 28

SUMMARY OF MEANS, STANDARD DEVIATIONS, AND SIGNIFICANT F RATIOS FOR FEMALE PHYSIOLOGICAL REACTIONS AS A FUNCTION OF SEX EXPERIENCE

Physiological reactions	High sex experience		Low sex experience		F ratios
	M	SD	M	SD	
Vaginal lubrication	0.56	0.85	0.21	0.59	4.24*

*$p < 0.05$.

Affective states. The females reported significant changes by Sign test for 27 of the 30 adjectives used to elicit reports of changes in affective states as a function of watching the pornographic films (Table 29). The means of the reported changes were almost always within the mild increase or decrease range. The largest increase was in the category "excited." There were relatively large increases in the states "emotional," "restless," and "digusted" and relatively large decreases in the states "peaceful," "bored," and "serene." In general, the females were ambivalent about the films; they reported being interested and attracted but also shocked, irritated and repelled.

Table 29

MEANS, STANDARD DEVIATIONS, AND SIGN TESTS OF INCREASES OR DECREASES IN AFFECTIVE STATES FOR FEMALES

Affects	Means	SD	z ratios
Interested	0.69	1.54	7.12***
Peaceful	−0.89	1.45	6.97***
Eager for contact	0.57	1.64	5.89***
Attracted	0.12	1.62	2.37*
Repelled	0.30	1.78	2.26*
Excited	1.06	1.17	10.30***
Shocked	0.57	1.45	6.00***
Irritated	0.33	1.32	3.77***
Pepped-up	0.53	1.24	6.90***
Emotional	0.92	1.22	9.16***
Restless	0.77	1.12	8.52***
Impulsive	0.32	1.01	4.35***
Bored	−0.76	1.36	6.38***
Aggressive	0.10	1.14	2.41*
Driven	0.19	1.10	3.92***
Wilder	0.34	1.19	5.26***
Disinhibited	0.12	1.09	2.09*
Jumpy	0.60	0.96	7.42***
Disgusted	0.72	1.57	6.11***
Angered	0.08	1.13	1.74
Benumbed	0.25	1.14	4.47***
Depressed	0.10	1.16	3.47***
Anxious	0.45	1.17	6.16***
Serene	−0.74	1.35	6.19***
Ashamed	0.12	0.98	3.81***
Happy	−0.15	1.30	0.57
Loving	0.25	1.34	3.86***
Embarrassed	0.45	1.21	5.51***
Affectionate	0.37	1.40	4.14***
Guilty	0.02	1.04	1.37

Note: The reported z ratios are based upon sign tests comparing the number of females reporting increases in affects with the number reporting decreases.

SD = Standard deviation.

*$p < 0.05$.

***$p < 0.001$.

The females reported differential affective responses as a function of viewing the films (Table 30). Females who saw the Coitus I film felt significantly more interested, excited, pepped-up, restless and impulsive than the females who saw Petting II. Viewers of Coitus I felt less bored than those who saw Petting II, and viewers of Petting II felt more disgusted than those who saw Coitus I.

Sex guilt was significant as a main effect for the 14 affect adjectives reported in Table 31. High-sex-guilt females reported feeling more irritated, disgusted, benumbed, and embarrassed and less serene compared to less guilty women. Low-sex-guilt females felt more eager for contact, impulsive, loving, and affectionate than high-sex-guilt females. High-sex-guilt females reported increases in shame, depression, and guilt, while low-guilt females reported decreases in these affects as a function of viewing the films. Low-sex-guilt females reported

themselves to feel more attracted and happy while high-guilt females decreased on these feelings after viewing the films.

Table 30

SUMMARY OF MEANS, STANDARD DEVIATIONS, AND SIGNIFICANT F RATIOS FOR FEMALES' AFFECTIVE RESPONSES AS A FUNCTION OF FILMS

Affects	Coitus I		Petting II		F ratios
	M	SD	M	SD	
Interested	1.02	1.40	0.40	1.61	7.80**
Excited	1.35	0.98	0.80	1.26	10.57**
Pepped-up	0.76	1.25	0.33	1.20	5.64*
Restless	1.13	1.07	0.45	1.06	18.04***
Impulsive	0.47	1.08	0.18	0.93	4.11*
Bored	−1.05	1.34	−0.49	1.34	7.89**
Disgusted	0.42	1.46	0.99	1.63	7.25**

M = Mean.
SD = Standard deviation.
*p < 0.05.
**p < 0.01.
***p < 0.001.

Table 31

SUMMARY OF MEANS, STANDARD DEVIATIONS, AND SIGNIFICANT F RATIOS FOR FEMALES' AFFECTIVE REACTIONS AS A FUNCTION OF SEX GUILT

Affects	High sex guilt		Low sex guilt		F ratios
	M	SD	M	SD	
Eager for contact	0.19	1.80	0.93	1.39	9.94**
Attracted	−0.12	1.73	0.35	1.49	3.93*
Irritated	0.60	1.35	0.08	1.23	7.13**
Impulsive	0.15	0.99	0.48	1.01	5.25*
Disgusted	1.08	1.63	0.37	1.57	10.37**
Benumbed	0.44	1.19	0.08	1.06	4.13*
Depressed	0.30	1.26	−0.09	1.02	4.74*
Serene	−0.95	1.45	−0.52	1.23	4.35*
Ashamed	0.28	1.08	−0.04	0.86	5.08*
Happy	−0.48	1.36	0.16	1.16	12.18***
Loving	0.02	1.51	0.47	1.12	5.37*
Embarrassed	0.70	1.26	0.21	1.10	7.29**
Affectionate	0.15	1.54	0.58	1.22	4.73*
Guilty	0.18	1.15	−0.14	0.88	4.61*

M = Mean.
SD = Standard deviation.
*p < 0.05.
**p < 0.01.
***p < 0.001.

Less sexually experienced females reported feeling less peaceful and more shocked, irritated, benumbed, and ashamed than the more sexually experienced women (Table 32). After watching the films, the more experienced women felt

Table 32

SUMMARY OF MEANS, STANDARD DEVIATIONS, AND SIGNIFICANT F RATIOS FOR FEMALES' AFFECTIVE REACTIONS AS A FUNCTION OF SEX EXPERIENCE AND INTERACTIONS BETWEEN FILM AND SEX EXPERIENCE

Affects	High sex experience		Low sex experience		F ratios
	M	SD	M	SD	
Peaceful	−0.64	1.44	−1.13	1.43	5.30*
Eager for contact	0.98	1.51	0.17	1.67	12.16***
Shocked	0.31	1.53	0.82	1.32	5.90*
Irritated	0.10	1.37	0.56	1.23	5.90*
Benumbed	0.05	1.10	0.46	1.14	5.88*
Ashamed	−0.03	1.03	0.26	0.92	4.01*

	Coitus I				Petting II				
	High sex experience		Low sex experience		High sex experience		Low sex experience		
	M	SD	M	SD	M	SD	M	SD	
Bored	−0.86	1.37	−1.33	1.29	−0.71	1.41	−0.26	1.24	4.24*
Disinhibited	−0.14	1.09	0.30	1.26	0.29	1.17	0.02	0.75	4.81*

M = Mean.
SD = Standard deviation.
*$p < 0.05$.
***$p < 0.001$.

more eager for contact than those who were less experienced. The less experienced women who watched the Coitus I film reported a large decrease in boredom, but those who watched the Petting II film reported only a small decrease in boredom relative to the more experienced females.

Film ratings. As a whole the females viewed the sexual behavior in the film as more normal than not ($M = 3.20$), and the film was considered quite pornographic ($M = 5.43$), moderately disgusting ($M = 4.55$), only slightly enjoyable ($M = 2.85$), and moderately offensive ($M = 4.31$). However, the women considered the Petting II film to contain less normal sexual behavior and to be more disgusting than the Coitus I film (Table 33). In particular, high-sex-guilt females saw the sexual behavior in Petting II to be abnormal. Partitioning the sample of females at the

Table 33

SUMMARY OF MEANS, STANDARD DEVIATIONS, AND SIGNIFICANT F RATIOS OF FEMALES' FILM RATINGS AS A FUNCTION OF FILMS

Ratings	Coitus I		Petting II		F ratios
	M	SD	M	SD	
Behavior abnormal	2.59	1.75	3.74	1.96	21.12***
Film disgusting	4.20	1.66	4.86	1.85	25.69***

M = Mean.
SD = Standard deviation.
***$p < 0.001$.

median on guilt over sex yielded main effects reported in Table 34 on all five reactions to the films. High-sex-guilt females saw the behavior portrayed as less normal, and the film as more pornographic, disgusting, offensive and less enjoyable than did the females who were less disposed to guilt over sex. The more sexually experienced females rated the behavior as more normal and the films as less pornographic and disgusting than did their less experienced coeds (Table 35).

Table 34

SUMMARY OF MEANS, STANDARD DEVIATIONS, AND SIGNIFICANT F RATIOS OF FEMALES' FILM RATINGS AND A FUNCTION OF SEX GUILT AND INTERACTION BETWEEN FILMS AND SEX GUILT

Ratings	Coitus I				Petting II				F ratios
	High sex guilt		Low sex guilt		High sex guilt		Low sex guilt		
	M	SD	M	SD	M	SD	M	SD	
Behavior abnormal	2.91	1.99	2.25	1.41	4.68	1.76	2.90	1.75	4.57*
	High sex guilt		Low sex guilt						
	M	SD	M	SD					
Behavior abnormal	3.80	2.07	2.61	1.63					21.43***
Film pornographic	5.92	1.18	4.96	1.84					17.06***
Film disgusting	5.17	1.50	3.94	1.83					25.69***
Film enjoyable	2.59	1.58	3.09	1.65					4.46*
Film offensive	4.90	1.57	3.73	1.96					18.86***

M = Mean.
SD = Standard deviation.
*p < 0.05.
***p < 0.001.

Table 35

SUMMARY OF MEANS, STANDARD DEVIATIONS, AND SIGNIFICANT F RATIOS OF FEMALES' FILM RATINGS AS A FUNCTION OF SEX EXPERIENCE

Ratings	High sex experience		Low sex experience		F ratios
	M	SD	M	SD	
Behavior abnormal	2.79	2.03	3.60	1.78	8.98**
Film pornographic	5.11	1.90	5.73	1.24	6.56*
Film disgusting	4.26	1.93	4.83	1.59	5.04*

M = Mean.
SD = Standard deviation.
*p < 0.05.
**p < 0.01.

Sexual behavior. From the frequencies of sexual behavior for females 24 hours before and after viewing the film, it was clear that the films had little effect on

sexual behavior (Table 36). The females reported they had significantly more sexual fantasy and conversations about sex after viewing the films.

Table 36

FREQUENCIES OF SEXUAL BEHAVIOR FOR FEMALES 24 HOURS BEFORE AND AFTER FILM

Behaviors	Neither before nor after	Both before and after	Before but not after	After but not before
Sexy dream	149	9	9	9
Sexy fantasy[a]	124	23	8	21
Conversation about sex[b]	35	86	10	45
Masturbated	164	6	2	4
Kissed	109	33	20	14
Manual breast play	146	6	11	13
Oral breast play	154	4	7	11
Manipulated another's genitals	154	7	7	8
Another manipulated my genitals	150	5	11	10
Fellatio	166	4	3	3
Cunnilingus	167	4	2	3
Coitus	163	4	3	6
Homosexual relations	176	0	0	0

a. Significant by sign test comparing females who increased with those who decreased after viewing film ($z = 2.22$; $p < 0.05$).

b. Significant by sign test ($z = 4.58$; $p < 0.001$).

Emotional and vegetative states. As shown in Table 37, the females reported changes significant by Sign test for seven of the eight emotional and vegetative states. More females increased than decreased in sexual tension, internal unrest, nervousness, gastrointestinal complaints, aggressiveness, and concentration capacity. All of the means of the reported changes were within the range of mild increases or decreases.

Table 37

MEANS, STANDARD DEVIATIONS, AND SIGN TESTS OF 24-HOUR EMOTIONAL AND VEGETATIVE STATES FOR FEMALES

States	Means	SD	z ratios
Internal unrest	0.70	1.08	7.70***
Concentration capacity	−0.46	0.98	2.77**
Sleep	−0.04	0.73	1.15
Gastrointestinal complaints	0.22	0.77	4.18***
Sexual tension	0.63	1.12	7.98***
Aggressiveness	0.15	0.85	3.03**
Nervousness	0.25	0.88	4.95***
Guilt	0.11	0.79	2.67**

SD = Standard deviation.

Note: The reported z ratios compare the number of females reporting increases in the 24 hours following films with the number reporting decreases by sign test.

**$p < 0.01$.

***$p < 0.001$.

Neither films nor sex guilt were systematically related to any changes in emotional or vegetative states for females. Less sexually experienced females reported a larger decrease in concentration capacity than did the more experienced women (Table 38). Females with more sex experience had a slight decrease in guilt in the 24 hours after the films while less sexually experienced women reported an increase in guilt.

Table 38

SUMMARY OF MEANS, STANDARD DEVIATIONS, AND SIGNIFICANT F RATIOS OF 24-HOUR EMOTIONAL AND VEGETATIVE STATES FOR FEMALES AS A FUNCTION OF SEX EXPERIENCE

States	High sex experience		Low sex experience		F ratios
	M	SD	M	SD	
Concentration capacity	−0.11	0.97	−0.59	0.95	10.78**
Guilt	−0.07	0.89	0.30	0.67	9.99**

M = Mean.
SD = Standard deviations.
**p < 0.01.

Attitude change. The women changed some of their attitudes in the two-week period after viewing the films, although many of the results were of borderline significance. For all four attitude questions reported in Tables 39, 40, 41, and 42, the more guilty and less sexually experienced females held more conservative

Table 39

SUMMARY OF SIGNIFICANT F RATIOS FOR 2-WEEK ATTITUDE CHANGE OF FEMALES FOR PREMARITAL INTERCOURSE

Source	Sex guilt	Sex experience
A (Films)	F = 5.50**a	
B (Inventories)	F = 27.21***b	F = 14.91***
AB		
C		
AC		
BC		
ABC		

a. The females who saw the Coitus I film (M = 3.40) were more liberal than the females who viewed the Petting II film (M = 3.86). The F ratio for sex experience reached the 0.10 level.

b. Less guilty females or more experienced females held more liberal attitudes toward premarital intercourse.

*p < 0.05.
**p < 0.01.
***p < 0.001.

attitudes and standards. The analyses suggested that females who saw the Coitus I film held more liberal sexual standards and attitudes toward premarital sex than did the women assigned to see the Petting II film, but this main effect combines opinions before and after viewing the films. There was a trend ($p<.10$) for opinions about premarital intercourse to become more liberal from before to after viewing the film. Attitudes toward extramarital intercourse appeared unaffected. The less sexually experienced women who saw the Petting II film held unusually conservative standards when opinions before and after were combined in this

Table 40

SUMMARY OF SIGNIFICANT F RATIOS FOR 2-WEEK ATTITUDE CHANGE OF FEMALES FOR EXTRAMARITAL INTERCOURSE

Source	Sex guilt	Sex experience
A (Films)		
B (Inventories)	F = 14.53***[a]	F = 3.94*
C		
AC		
BC		
ABC		

a. Less guilty or more experienced females held more liberal attitudes toward extramarital intercourse.

*p < 0.05.
***p < 0.001.

Table 41

SUMMARY OF SIGNIFICANT F RATIOS FOR 2-WEEK ATTITUDE CHANGE OF FEMALES ON SEXUAL STANDARDS

Source	Sex guilt	Sex experience
A (Films)	F = 7.99**[a]	F = 5.39*
B(Inventories)	F = 27.65***[b]	F = 7.03**
AB		F = 4.05*[c]
C		
AC		
BC		F = 4.33*[d]
ABC		

a. Females who saw the Coitus I film held more liberal sexual standards than did females who saw the Petting II film.

b. Less guilty or more experienced females endorsed more liberal sexual standards.

c. This interaction reflects the unusually conservative standards of the less experienced females who saw the Petting II film.

d. The more experienced females became more conservative after viewing the film while the less experienced females became more liberal after viewing the film.

*p < 0.05.
**p < 0.01.
***p < 0.001.

effect. The only change in sexual standards suggested that more sexually experienced women became more conservative while the less sexually experienced women became more liberal, but such a change might also be attributable to regression to the mean (Table 41).

Table 42

SUMMARY OF SIGNIFICANT F RATIOS FOR 2-WEEK ATTITUDE CHANGE OF FEMALES FOR LIBERAL-CONSERVATIVE SEXUAL ATTITUDES

Source	Sex guilt	Sex experience
A (Films)		
B (Inventories)	F = 59.90***[a]	F = 46.71***
AB		
C (Before-after)		
AC		F = 3.86*[b]
BC	F = 6.63**[c]	
ABC		

a. In every instance, less guilty or more experienced females endorsed more liberal sexual attitudes.

b. The significant interaction was that females who saw Coitus I became more liberal while females who saw Petting II became more conservative in their sexual attitudes. This interaction reached the 0.07 level for sex guilt.

c. Low-sex-guilt females became more conservative after seeing a film while high-sex-guilt females became more liberal in their sexual attitudes after film-viewing. This interaction reached the 0.08 level for sex experience.

*$p < 0.05$.
**$p < 0.01$.
***$p < 0.001$.

The women had rated themselves on liberal-conservative sexual attitudes before and two weeks after viewing the films. The data in Table 42 suggested that females who saw the Coitus I film rated themselves as more liberal, combining before and after opinions, while the women who saw the Petting II film rated themselves as more conservative in comparison to the average person two weeks after viewing the films. Again it appeared that low-guilt women saw themselves as more conservative while high-sex-guilt females saw themselves as more liberal compared to the average person after film-viewing, if this is not an artifact of regression to the mean.

Combined male and female data

Sexual arousal. Table 43 contains the results of analyses of variance of sexual arousal for the males and females combined. Males reported more sexual arousal than females, and there was an interaction between films and gender such that males were more aroused by the Petting II film than by the Coitus I while the

reverse held true of the females. This result replicated Schmidt and Sigusch's (1970) finding of no significant difference between the sexes on the Coitus I film but a significant difference in sexual arousal between the sexes viewing the Petting II film.

Table 43

DEGREE OF SEXUAL AROUSAL AS A FUNCTION OF FILMS, GENDER, AND SEX GUILT OR SEX EXPERIENCE

Source	Sex guilt	Sex experience
A (Films)		
B (Gender)	F = 12.32***[a]	F = 12.60***
C (Inventories)		
AB	F = 5.95*[b]	F = 5.88*
AC		
BC		
ABC		

a. Males (M = 4.20) reported more sexual arousal than females (M = 3.59).

b. Males were more aroused by the Petting II film (M = 4.37) than the Coitus I film (M = 4.04) while females reported more arousal to Coitus I (M = 3.86) than to the Petting II film (M = 3.37).

*$p < 0.05$.

***$p < 0.001$.

Affective states. Across all subjects, the subjects who viewed the Coitus I film reported larger increases of affective reactions to the adjectives "interested," "excited," and "restless" and less of an increase in "disgusted" than those who viewed the Petting II film (Table 44).

The sexes differed in their endorsement of 23 of the 30 adjectives used to report changes in affective states as a function of viewing the pornographic films (Table 45). The males reported larger increases in feeling interested, eager for contact, attracted, excited, pepped-up, impulsive, aggressive, driven, and anxious

Table 44

SUMMARY OF MEANS, STANDARD DEVIATIONS, AND SIGNIFICANT F RATIOS OF AFFECTIVE REACTIONS FOR ALL SUBJECTS AS A FUNCTION OF FILMS

Affects	Coitus I		Petting II		F ratios
	M	SD	M	SD	
Interested	1.12	1.38	0.78	1.52	4.96*
Excited	1.37	1.09	1.09	1.17	5.80*
Restless	0.98	1.04	0.56	1.09	15.41***
Disgusted	0.02	1.44	0.40	1.64	7.64**

M = Mean.
SD = Standard deviation.
*$p < 0.05$.
**$p < 0.01$.
***$p < 0.001$.

than the females, who increased less. Males reported a decrease while females reported an increase in feeling repelled, shocked, irritated, disgusted, angered, benumbed, depressed, ashamed, embarrassed, and guilty. The females increased more than the males on "jumpy" and decreased more than the males on "peaceful" and "serene." The males reported an increase in "happy" while the females reported a decrease. The males, then, were more positively turned-on by the films than the females. The males also reported decreases in negative affects while the women reported increases.

Table 45

SUMMARY OF MEANS, STANDARD DEVIATIONS, AND SIGNIFICANT F RATIOS OF AFFECTIVE REACTION FOR ALL SUBJECTS AS A FUNCTION OF GENDER

Affects	Males		Females		F ratios
	M	SD	M	SD	
Interested	1.19	1.34	0.69	1.54	10.43**
Peaceful	−0.44	1.36	−0.89	1.45	10.21**
Eager for contact	1.36	1.16	0.57	1.64	13.77**
Attracted	0.93	1.34	0.12	1.63	28.01***
Repelled	−0.55	1.41	0.30	1.78	26.25***
Excited	1.39	1.09	1.06	1.17	7.47**
Shocked	−0.31	1.32	0.57	1.45	32.98***
Irritated	−0.45	1.20	0.33	1.32	27.61***
Pepped-up	1.14	0.98	0.53	1.24	27.23***
Impulsive	0.69	0.91	0.32	1.01	14.12***
Aggressive	0.64	1.08	0.10	1.14	21.34***
Driven	0.63	0.96	0.19	1.10	16.49***
Jumpy	0.32	1.05	0.60	0.96	7.66**
Disgusted	−0.30	1.38	0.72	1.57	45.30***
Angered	−0.49	1.14	0.08	1.13	23.62***
Benumbed	−0.15	0.92	0.25	1.14	8.41**
Depressed	−0.44	1.24	0.10	1.16	19.50***
Anxious	0.93	1.02	0.45	1.17	18.03***
Serene	−0.41	1.16	−0.73	1.35	6.80*
Ashamed	−0.38	1.10	0.12	0.98	21.58***
Happy	0.46	1.01	−0.15	1.30	10.40**
Embarrassed	−0.32	1.21	0.45	1.21	13.22***
Guilty	−0.40	1.14	0.02	1.04	10.54**

M = Mean.
SD = Standard deviation.
*$p < 0.05$.
**$p < 0.01$.
***$p < 0.001$.

As shown in Table 46, the male and female subjects who scored above the median of their respective guilt distributions reported increases while less guilty subjects reported decreases in feeling repelled, shocked, irritated, disgusted, benumbed, depressed, ashamed, and embarrassed after viewing the films. Low-sex-guilt subjects felt more eager for contact and reported greater decreases in guilt and anger after film-viewing than high-sex-guilt subjects. High-sex-guilt subjects felt more jumpy than low-sex-guilt subjects. High-sex-guilt subjects reported a slight decrease in feeling happy while low-guilt subjects reported an increase in this feeling after viewing the pornographic films.

Table 46

SUMMARY OF MEANS, STANDARD DEVIATIONS, AND SIGNIFICANT F RATIOS OF AFFECTIVE REACTIONS FOR ALL SUBJECTS AS A FUNCTION OF SEX GUILT

Affects	High sex guilt		Low sex guilt		F ratios
	M	SD	M	SD	
Eager for contact	0.80	1.65	1.16	1.24	7.10**
Repelled	0.03	1.70	–0.30	1.59	4.22*
Shocked	0.29	1.50	–0.05	1.39	6.25*
Irritated	0.14	1.32	–0.18	1.26	6.48*
Jumpy	0.58	1.07	0.33	0.94	5.49*
Disgusted	0.41	1.65	–0.02	1.44	9.67**
Angered	–0.09	1.15	–0.33	1.19	4.24*
Benumbed	0.20	1.07	–0.11	1.00	8.41**
Depressed	0.02	1.28	–0.37	1.15	9.65**
Ashamed	0.05	1.06	–0.32	1.05	12.48***
Happy	–0.02	1.30	0.34	1.05	10.49**
Embarrassed	0.28	1.28	–0.17	1.21	13.22***
Guilty	–0.02	1.16	–0.37	1.03	10.54**

M = Mean.
SD = Standard deviation.
*p < 0.05.
**p < 0.01.
***p < 0.001.

The more sexually experienced subjects were more eager for contact and less disgusted after viewing the films than the less sexually experienced subjects (Table 47). The more sexually experienced subjects decreased in feeling shocked, irritated, and benumbed while the less sexually experienced subjects reported increases. The more sexually experienced subjects had larger decreases in shame and guilt than the less experienced subjects. For all of these comparisons, the males and females were divided at their respective medians on sex experience.

Table 47

SUMMARY OF MEANS, STANDARD DEVIATIONS, AND SIGNIFICANT F RATIOS FOR AFFECTIVE REACTIONS FOR ALL SUBJECTS AS A FUNCTION OF SEX EXPERIENCE

Affects	High sex experience		Low sex experience		F ratios
	M	SD	M	SD	
Eager for contact	1.18	1.38	0.78	1.52	8.87**
Shocked	–0.11	1.45	0.34	1.42	9.77**
Irritated	–0.17	1.36	0.13	1.21	5.67*
Disgusted	0.04	1.57	0.34	1.54	3.97*
Benumbed	–0.10	1.00	0.19	1.08	7.68**
Ashamed	–0.25	1.10	–0.03	1.04	4.04*
Guilty	–0.32	1.10	–0.07	1.10	4.42*

M = Mean.
SD = Standard deviation.
*p < 0.05.
**p < 0.01.

Table 48

SUMMARY OF MEANS AND SIGNIFICANT F RATIOS OF AFFECTIVE REACTIONS FOR ALL SUBJECTS AS A FUNCTION OF THE INTERACTION BETWEEN FILMS AND GENDER

Affects	Means				F ratios
	Coitus I		Petting II		
	Males	Females	Males	Females	
Interested	1.20	1.02	1.17	0.04	4.11*
Excited	1.40	1.35	1.38	0.80	5.54*
Pepped-up	1.10	0.76	1.18	0.32	6.54*
Restless	0.84	1.12	0.62	0.44	5.25*
Bored	−1.04	−1.06	−1.06	−0.49	4.26*

*p < 0.05.

The interactions between films and gender shown in Table 48 have a similar pattern, reflecting the females' lesser interest in the Petting II film. Females who viewed the Petting II film reported smaller increases in feeling interested, excited, and pepped-up than the males or females who viewed Coitus I. The females who viewed Coitus I were the most restless of the groups. All of the groups who viewed the pornographic films decreased in boredom, but the females who viewed the Petting II film decreased the least.

Table 49

SUMMARY OF MEANS AND SIGNIFICANT F RATIOS OF AFFECTIVE REACTIONS FOR ALL SUBJECTS AS A FUNCTION OF THE INTERACTION BETWEEN GENDER AND SEX GUILT

Affects	Means				F ratios
	High sex guilt		Low sex guilt		
	Males	Females	Males	Females	
Eager for contact	1.35	0.19	1.38	0.93	6.49*
Happy	0.40	−0.49	0.51	0.16	5.37*
Affectionate	0.58	0.14	0.34	0.57	6.74*

*p < 0.05.

Table 50

SUMMARY OF MEANS AND SIGNIFICANT F RATIOS FOR AFFECTIVE REACTIONS FOR ALL SUBJECTS AS A FUNCTION OF THE INTERACTION BETWEEN GENDER AND SEX EXPERIENCE

Affects	Means				F ratios
	High sex experience		Low sex experience		
	Males	Females	Males	Females	
Eager for contact	1.37	0.98	1.35	0.16	7.61**

**p < 0.01.

Males, regardless of their standings on sex experience or guilt, reported increased eagerness for contact (Tables 49 and 50), but the low-sex-guilt or more sexually experienced females were more eager for contact than their guiltier, less experienced sisters after viewing the films. All of the groups except high-sex-guilt females reported feeling more happy after viewing the pornography. High-sex-guilt males and low-sex-guilt females felt more affectionate than did the low-sex-guilt males and high-sex-guilt females after viewing the films. There was a triple interaction reported in Table 51 between films, gender, and sex experience. High-sex-experience males who saw the Petting II film felt much more affectionate than other groups who viewed that film; high-sex-experience females and low-sex-experience males who viewed Coitus I felt more affectionate than their counterparts who viewed Coitus I.

Table 51

SUMMARY OF MEANS AND SIGNIFICANT F RATIOS FOR AFFECTIVE REACTIONS FOR ALL SUBJECTS AS A FUNCTION OF THE INTERACTION BETWEEN FILMS, GENDER, AND SEX EXPERIENCE

Affects	Means								F ratios
	Coitus I				Petting II				
	Males		Females		Males		Females		
	Hi SE	Lo SE	Hi SE	Lo SE	Hi SE	Lo SE	Hi SE	Lo SE	
Affectionate	0.35	0.58	0.69	0.25	0.78	0.26	0.27	0.38	5.19*

Hi SE = High sex experience.
Lo SE = Low sex experience.
*p < 0.05.

Film ratings. Combining the males' and females' film ratings (Table 52), the behavior depicted in Petting II was seen as less normal and the film was rated as more pornographic, disgusting, and offensive than the Coitus I film. The females rated the sexual behavior of the films as less normal and the films as more

Table 52

SUMMARY OF MEANS, STANDARD DEVIATIONS, AND SIGNIFICANT F RATIOS FOR FILM RATINGS OF ALL SUBJECTS AS A FUNCTION OF FILMS

Ratings	Coitus I		Petting II		F ratios
	M	SD	M	SD	
Behavior abnormal	2.52	1.66	3.48	1.89	31.60***
Film pornographic	4.66	1.77	5.25	1.75	10.57**
Film disgusting	3.49	1.70	4.13	1.83	14.13***
Film offensive	3.26	1.83	3.75	1.87	6.76*

M = Mean.
SD = Standard deviation.
*p < 0.05.
**p < 0.01.
***p < 0.001.

pornographic, disgusting and offensive and as less enjoyable than the males (Table 53). The same results held when subjects were partitioned by guilt, as shown in Table 54. Subjects higher on sex guilt saw the sexual behavior as less normal and the films as more pornographic, disgusting, offensive and less enjoyable than low-sex-guilt subjects. The rating of the sexual behavior revealed an interaction between films and sex guilt such that high-sex-guilt subjects who saw the Petting II film gave it a relatively high rating on "abnormal." The less sexually experienced subjects regarded the behavior as less normal and the films as more pornographic, disgusting, and offensive than did the more sexually experienced subjects (Table 55).

Table 53

SUMMARY OF MEANS, STANDARD DEVIATIONS, AND SIGNIFICANT F RATIOS FOR FILM RATINGS OF ALL SUBJECTS AS A FUNCTION OF GENDER

Ratings	Males		Females		F ratios
	M	SD	M	SD	
Behavior abnormal	2.81	1.71	3.20	1.95	4.18*
Film pornographic	4.51	1.81	5.43	1.62	27.68***
Film disgusting	3.11	1.50	4.55	1.78	79.40***
Film enjoyable	4.35	1.59	2.85	1.65	78.84***
Film offensive	2.75	1.52	4.31	1.87	85.60***

M = Mean.
SD = Standard deviation.
*p < 0.05.
***p < 0.001.

Table 54

SUMMARY OF MEANS, STANDARD DEVIATIONS, AND SIGNIFICANT F RATIOS FOR FILM RATINGS OF ALL SUBJECTS AS A FUNCTION OF SEX GUILT AND INTERACTION BETWEEN FILMS AND SEX GUILT

Ratings	High sex guilt		Low sex guilt		F ratios
	M	SD	M	SD	
Behavior abnormal	3.54	1.96	2.46	1.54	39.16***
Film pornographic	5.40	1.53	4.50	1.90	38.41***
Film disgusting	4.38	1.65	3.24	1.75	54.44***
Film enjoyable	3.45	1.79	3.80	1.77	5.34*
Film offensive	4.05	1.73	2.96	1.84	44.76***

	Coitus I		Petting II		
	High sex guilt	Low sex guilt	High sex guilt	Low sex guilt	
Behavior abnormal	2.82	2.21	4.28	2.71	7.55**

M = Mean.
SD = Standard deviation.
*p < 0.05.
**p < 0.01.
***p < 0.001.

Table 55

SUMMARY OF MEANS, STANDARD DEVIATIONS, AND SIGNIFICANT F RATIOS FOR FILM RATINGS OF ALL SUBJECTS AS A FUNCTION OF SEX EXPERIENCE

Film ratings	High sex experience		Low sex experience		F ratios
	M	SD	M	SD	
Behavior abnormal	2.62	1.82	3.38	1.78	14.78***
Film pornographic	4.62	1.91	5.27	1.59	10.56**
Film disgusting	3.51	1.84	4.09	1.70	10.70**
Film offensive	3.26	1.92	3.73	1.79	5.78*

M = Mean.
SD = Standard deviation.
*$p < 0.05$.
**$p < 0.01$.
***$p < 0.001$.

Sexual behavior. When both sexes were combined to compare the frequency of sexual behaviors in the 24 hours preceding and following the viewing of a pornographic film (Table 56), it was clear that the only changes attributable to viewing the films were significant increases in sexual fantasy and conversations about sex. There were no changes in such behaviors as kissing, petting, oral-genital sexual contacts, and coitus.

Table 56

FREQUENCIES OF SEXUAL BEHAVIOR FOR ALL SUBJECTS 24 HOURS BEFORE AND AFTER FILMS

Behaviors	Neither before nor after	Both before and after	Before but not after	After but not before
Sexy dream	284	32	22	25
Sexy fantasy[a]	252	58	15	38
Conversation about sex[b]	83	174	23	83
Masturbated	301	28	16	17
Kissed	236	60	34	32
Manual breast play	302	20	20	20
Oral breast play	320	12	15	15
Manipulated female genitals	319	12	17	14
Manipulated male genitals	328	12	13	10
Fellatio	345	6	6	5
Cunnilingus	345	8	5	4
Coitus	336	8	10	9
Homosexual relations	362	1	0	0

a. Significant by sign test comparing number increasing with number decreasing ($z = 3.02$; $p < 0.01$).
b. Significant by sign test ($z = 5.73$; $p < 0.001$).

Emotional and vegetative states. There was a significantly greater decrease in concentration capacity in the 24 hours after viewing the Coitus I film than the Petting II film with all subjects combined (Table 57). The males reported a significantly larger increase in aggressiveness than the females, while the females reported significantly larger increases in internal unrest, gastrointestinal complaints, and nervousness than the males during the 24 hours after the film (Table

58). High-sex-guilt subjects reported larger increases in internal unrest, nervousness, and guilt than did the low-sex-guilt subjects, who reported smaller increases in internal unrest and nervousness and very slight decreases in guilt following the film (Table 59). Sex experience was related to concentration capacity as a main effect and interacted with films and with gender (Table 60). Less sexually experienced subjects showed a larger decrease in concentration capacity than more experienced subjects. Less sexually experienced females, in particular, reported decreased concentration capacity in the 24 hours after viewing the film. While both more and less sexually experienced subjects reported mild decreases in concentration capacity after viewing the Petting II film, less sexually experienced subjects who viewed Coitus I reported a moderate decrease in concentration capacity while more experienced subjects who viewed that film reported a slight increase. Less sexually experienced subjects reported an increase in guilt in the 24 hours after viewing the films, and this increase in guilt was particularly characteristic of the less sexually experienced females. There was an interaction between film and sex experience such that less sexually experienced subjects who viewed Coitus I reported more sexual tension than more experienced subjects, while for Petting II it was the more experienced subjects who reported more sexual tension rather than the less experienced.

Table 57

SUMMARY OF MEANS, STANDARD DEVIATIONS, AND SIGNIFICANT F RATIOS FOR 24-HOUR EMOTIONAL AND VEGETATIVE STATES OF ALL SUBJECTS AS A FUNCTION OF FILM

States	Coitus I		Petting II		F ratios
	M	SD	M	SD	
Concentration capacity	−0.38	0.90	−0.19	1.00	4.00*

M = Mean.
SD = Standard deviation.
*$p < 0.05$.

Table 58

SUMMARY OF MEANS, STANDARD DEVIATIONS, AND SIGNIFICANT F RATIOS FOR 24-HOUR EMOTIONAL AND VEGETATIVE STATES OF ALL SUBJECTS AS A FUNCTION OF GENDER

States	Males		Females		F ratios
	M	SD	M	SD	
Internal unrest	0.46	0.97	0.71	1.09	5.44*
Gastrointestinal complaints	0.07	0.59	0.22	0.75	4.84*
Aggressiveness	0.47	0.83	0.14	0.86	13.81***
Nervousness	0.06	0.70	0.26	0.88	5.96*

M = Mean.
SD = Standard deviation.
*$p < 0.05$.
***$p < 0.001$.

Table 59

SUMMARY OF MEANS, STANDARD DEVIATIONS, AND SIGNIFICANT F RATIOS FOR 24-HOUR EMOTIONAL AND VEGETATIVE STATES OF ALL SUBJECTS AS FUNCTION OF SEX GUILT

States	High sex guilt		Low sex guilt		F ratios
	M	SD	M	SD	
Internal unrest	0.73	1.05	0.44	1.01	7.18**
Nervousness	0.26	0.88	0.06	0.69	5.70*
Guilt	0.16	0.84	–0.03	0.64	5.92*

M = Mean.
SD = Standard deviation.
*p < 0.05.
**p < 0.01.

Table 60

SUMMARY OF MEANS AND SIGNIFICANT F RATIOS FOR 24-HOUR EMOTIONAL AND VEGETATIVE STATES AS A FUNCTION OF FILMS, GENDER, AND SEX EXPERIENCE

States	High sex experience	Low sex experience	F ratios
	Means	Means	
Concentration capacity	–0.16	–0.41	7.27**
Guilt	–0.03	0.16	6.60*

	Means				
	Coitus I		Petting II		
	Hi SE	Lo SE	Hi SE	Lo SE	
Concentration capacity	0.16	–0.64	–0.16	–0.22	3.93*
Sexual tension	0.58	0.92	0.64	0.46	4.28*

	Means				
	Males		Females		
	Hi SE	Lo SE	Hi SE	Lo SE	
Concentration capacity	–0.20	–0.24	–0.12	–0.61	4.16*
Guilt	0.01	0.03	–0.08	0.30	5.70*

Hi SE = High sex experience.
Lo SE = Low sex experience.
*p < 0.05.
**p < 0.01.

Attitude change. When all of the subjects were combined, there were some significant changes in attitudes. Opinions about premarital intercourse became somewhat more liberal two weeks after viewing the films; this was particularly true for the more sexually experienced subjects (Table 61). The change reflected agreement, after viewing the films, with opinions that premarital sexual intercourse is all right with a lesser degree of intimacy or affection. There were no changes in opinions about extramarital intercourse as a function of viewing the films (Table 62). Generally the opinions about extramarital intercourse were more

Table 61

2-WEEK ATTITUDE CHANGE FOR ALL SUBJECTS ON PREMARITAL INTERCOURSE

Source	Sex guilt	Sex experience
A (Films)		
B (Gender)	F = 52.45***a	F = 47.42***
C (Inventories)	F = 69.76***b	F = 30.33***
AB		
AC		
BC	F = 4.65*c	F = 4.49*
ABC	F = 4.06*d	
D (Time)		F = 3.88*e
AD		
BD		
CD		F = 4.36*f
ABD		
BCD		
ABCD		

a. Males (M = 2.65) had more liberal opinions about premarital intercourse than females (M = 3.68).

b. High-sex-guilt (M = 3.74) and low-sex-experience (M = 3.55) subjects had more conservative opinions than low-sex-guilt (M = 2.75) and high-sex-experience M = 2.75 subjects.

c. Males who saw Petting II held the most liberal opinions (M = 2.59) while females who saw Petting II held the most conservative opinions (M = 3.86). The means for males and females who saw Coitus I were 2.71 and 3.48 respectively.

d. This interaction reflected the fact that high-sex-guilt females who viewed Petting II reported the highest mean (M = 4.50) while high sex-guilt males who viewed Coitus I had the highest male mean (M = 3.59).

e. Opinions about premarital intercourse were more liberal 2 weeks after (M = 3.09) viewing the pornographic films than before (M = 3.21). In the sex guilt analysis, this main effect reached the 0.06 level.

f. Subjects with less sex experience did not change over 2 weeks (M = 3.55 and 3.54) while more sexually experienced subjects became more liberal (M = 2.88 and 2.62) about premarital intercourse.

*$p < 0.05$.

***$p < 0.001$.

conservative by far than for premarital intercourse in these college students. Extramarital sexual intercourse was considered wrong whatever the reason by 47% of the subjects and another 23% viewed adultery as allowable only under very special or extreme circumstances. The only significant change in sexual standards two weeks after viewing the films involved a triple interaction reported in Table 63 between gender, sex experience, and time. Less sexually experienced males became slightly more conservative while less sexually experienced females became more liberal in their sexual standards. However, the more sexually experienced males became more liberal while the more sexually experienced females became more conservative. The final opinion question asked the subjects

Table 62

2-WEEK ATTITUDE CHANGE FOR ALL SUBJECTS ON EXTRAMARITAL INTERCOURSE

Source	Sex guilt	Sex experience
A (Films)		
B (Gender)	F = 19.01***a	F = 17.18***
C (Inventories)	F = 52.80***b	
AB		
AC		
BC	F = 6.11*c	
ABC		
D (Time)		
AD		
BD		
CD		
ABD		
BCD		
ABCD		

a. Males (M = 5.13) had more liberal opinions about extramarital intercourse than females (M = 5.90).

b. High-sex-guilt subjects (M = 6.14) had more conservative opinions about extramarital intercourse than low-guilt subjects (M = 4.91).

c. The means were as follows: High-sex-guilt males (M = 5.98), low-sex-guilt males (M = 4.36), high-sex-guilt females (M = 6.29), and low-sex-guilt females (M = 5.51).

*$p < 0.05$.

***$p < 0.001$.

Table 63

2-WEEK ATTITUDE CHANGE FOR ALL SUBJECTS ON SEXUAL STANDARDS

Source	Sex guilt	Sex experience
A (Films)	F = 6.88*a	F = 4.36*
B (Gender)		
C (Inventories)	F = 47.20***b	F = 11.71***
AB		
BC		F = 4.26*c
ABC		
D (Time)		
AD		
BD		
CD		
ABD		
ACD		
BCD		F = 5.78*d
ABCD		

a. Males (M = 2.20) held more liberal sexual standards than females (M = 2.42).

b. High-sex-guilt subjects (M = 2.94) and low-sex-experience subjects (M = 2.65) held more conservative sexual standards than low-sex-guilt subjects (M = 1.69) and more sexually experienced subjects (M = 1.97).

c. For the Coitus I film, the means were as follows: High SE female (M = 1.98), low SE female (M = 2.17), high SE male (M = 1.78), and low SE male (M = 2.52). For the

Petting II film the means were as follows: High SE female (M = 2.07), low SE female (M = 3.47), high SE male (M = 2.11), and low SE male (M = 2.44).

d. Low-sex-experience females became more liberal in their sexual standards from before (M = 3.05) to two weeks after (M = 2.60) viewing the films, while low-sex-experience males had an increase in conservatism from before (M = 2.42) to after (M = 2.53). More experienced subjects had opposite changes, that is, more experienced females increased in conservative sexual standards from before (M = 1.93) to after (M = 2.12), while more sexually experienced males were becoming more liberal from before film viewing (M = 2.06) to two weeks after (M = 1.78).

*p < 0.05.

***p < 0.001.

to rate themselves in comparison to the average person on a five-point scale on the liberalism-conservatism of their sexual attitudes. Their overall mean of 2.57 falls about midway between Somewhat Liberal and Moderate. The only change over time involved an interaction reported in Table 64 between sex experience and time. Two weeks after viewing the films the more sexually experienced subjects now saw themselves as less liberal in comparison to the average person than they

Table 64

2-WEEK ATTITUDE CHANGE FOR ALL SUBJECTS ON LIBERAL-CONSERVATIVE SEXUAL ATTITUDES

Source	Sex guilt	Sex experience
A (Films)		
B (Gender)	F = 14.91***a	F = 15.53***
C (Inventories)	F = 96.32***b	F = 65.48***
AB		
AC		
ABC		
D (Time)		
AD		
BD		
CD		F = 3.95*c
ABD		
ACD		
BCD		
ABCD		

a. Males (M = 2.40) held more liberal standards than females (M = 2.74).

b. High-sex-guilt subjects (M = 2.99) and less sexually experienced subjects (M = 2.94) held less liberal standards than low-sex-guilt subjects (M = 2.15) and more sexually experienced subjects (M = 2.20).

c. The more sexually experienced subjects saw themselves as less liberal from before (M = 2.15) to two weeks after (M = 2.24) viewing the film. The less sexually experienced subjects saw themselves as more liberal two weeks after (M = 2.98) than before (M = 2.99) viewing the film. This interaction reached the 0.10 level for sex guilt.

*p < 0.05.

***p < 0.001.

had before, while the less sexually experienced subjects saw themselves as somewhat more liberal after than before the film. Such a result could reflect a changed perspective due to the experience, or it could be an artifact of regression to the mean.

DISCUSSION

The present investigation was the first to study reactions to explicitly sexual films in single, undergraduate, American college students. In many respects the research was patterned after that of Schmidt and Sigusch (1970). There were some population differences in the American and German sample. The subjects in the present study averaged 19 years in age, were all single, freshmen or sophomores at the University of Connecticut. About half of the males and slightly over a third of the females had had coital experience. The subjects did not know the nature of the research until they arrived for the experiment and they participated in groups of 30. The German subjects were recruited volunteers from the University of Hamburg who participated one at a time. The average age of the males was 23 and of the females was 21. Twenty percent of the males and 14% of the females were married. About three-fourths of the German sample had had coital experience. In spite of these differences in population and a few procedural details, the results of the two investigations were quite comparable in showing moderate levels of sexual arousal, differential sexual response to oral-genital sex by males and females but little difference to coitus, somewhat greater negative affective arousal and emotional changes in females than males, less favorable rating of the films by females, physiological reactions for most subjects in the genital area while viewing the films, and no more than slight changes in sexual activity in the 24 hours following the films.

Review of major findings

Sexual arousal. Males reported a higher mean for sexual arousal than females, and their modal rating was a 5, as compared to the females' 4. These ratings represented a moderate level of sexual arousal. The nature of the film interacted with the ratings of degree of sexual arousal such that there was little difference in the males' and females' response to the Coitus I film, but the males were more aroused and the females less aroused by the Petting II film. This finding replicated the results reported by Schmidt and Sigusch (1970). The individual difference measure of sex guilt, sex experience, and sex callousness was unrelated to the reported degree of sexual arousal.

Physiological sensations in the genital region were reported by both males and females while viewing the films. Almost 80% of the males reported at least a partial erection, and about 20% of the men had a full erection lasting at least 3 minutes. Only 3% of the males reported any pre-ejaculatory secretion, and only one male reported ejaculating. Some 85% of the females reported strong genital

sensations. Nine percent reported breast sensations such as tingling or nipple erection, 19% reported signs of vaginal lubrication, and one female reported experiencing an orgasm while viewing the films.

Males who held more sex calloused attitudes toward women were more likely to report a stronger penile erectile response to watching the films. While the combined measure of erectile response was unrelated to sex guilt, there was a difference in reports of partial erection in which high-sex-guilt males reported a higher occurrence than low-sex-guilt males. The failure to include a no erectile response category in the rating form clouds the interpretation of this apparently unexpected finding.

As was the case with degree of sexual arousal, the female reported more and stronger genital sensations to the Coitus I than to the Petting II film. Females who scored higher on sex guilt were particularly likely to report no genital sensations to the Petting II film, but they reported the most frequent mild genital sensations to the Coitus I film. This finding parallels that of the high-sex-guilt males for partial erection to the extent that it indicated that high-sex-guilt subjects reported more minor physiological changes to sexually arousing stimuli than low-guilt subjects. However, when the filmed sexual behavior was unacceptable as was the case for the Petting II film for the females, then high-sex-guilt females reported no genital sensations. The only other physiological reactions which were differentially related to sex guilt or sex experience were that high-sex-guilt females experienced fewer breast sensations than low-sex-guilt females, and that more sexually experienced females reported more signs of vaginal lubrication while viewing the films than did less sexually experienced females.

Mosher and Greenberg (1969) found no relation between sex guilt and adjectives indicative of sexual arousal following the reading of erotic literature by college women. The present study also found ratings of the degree of sexual arousal to be independent of sex guilt for males and females, although the degree of sexual arousal did vary with the nature of the films for females. Taking this much of the data into account, it would appear that sex guilt is independent of reported sexual arousal when a person is exposed to sexually stimulating material in an experimental situation, even though it is related to negative affects such as guilt following exposure (Mosher & Greenberg, 1969; present study), and even though it may tend to inhibit voluntary exposure to pornography as it did for the males in this sample (as reported in their sex questionnaire item 24). The reports of physiological reaction, however, indicated that sex guilt may be complexly related to genital or breast sensations. High-sex-guilt males reported a higher incidence of partial erections than their less guilty fellow participants, and high-sex-guilt females who viewed Coitus I reported the most frequent mild genital sensations while high-sex-guilt females who viewed Petting II reported the fewest. High-sex-guilt females had fewer breast sensations than low-sex-guilt women. It appears that investigations employing physiological measures of genital changes in addition to self reports of arousal and other affects are required before exact relations with sex guilt can be specified with confidence. However, it does

appear that the hypothesis that sex guilt tends to preclude sexual arousal is no longer tenable.

Affective states. Both men and women reported many changes in their affective states as a function of viewing the films. However, the majority of changes were well within the range of mild increases or decreases. The only mean changes which reached the lower limit of the moderate range were for affects indicating general activation, such as increased excitement for both sexes and feeling more pepped-up and less bored for the males, or for affects indicating desires to approach a goal object, such as increased eagerness for contact or interest for the males. There were no negative affective states that increased to any relatively large extent as a function of subjects, rather unexpectedly finding themselves in an experiment to view pornographic films. Both men and women were made somewhat restless by the experience, and females were somewhat disgusted but men were not.

There were many sex differences in response to the films both in the intensity and quality of the affective states engendered and in the influence of the films' contents on the affective states. In general the affective states of the males varied little whether they viewed the Coitus I or the Petting II film, which contained oral-genital sex. One exception to this generalization was that the more sexually experienced males were more turned-on, that is, more attracted, pepped-up, impulsive, affectionate, wilder, and so on, and less bored, repelled, or disgusted by the Petting II film than were the less sexually experienced males. The less experienced males responded to a greater extent to the Coitus I film than did the more sexually experienced men, who apparently found that film a little tame. On the other hand, the females' affective response to the films was very much a function of the nature of the sexual activity portrayed in the film. While the males had equally large increases in affects connoting general activation such as feeling interested, excited, pepped-up, and restless (or a decrease in feeling bored) to both films, the females reported much larger increases in general activation to the Coitus I than to the Petting II film. Women were also more disgusted by the Petting II film.

Many sex differences were simply quantitative. Males were generally more activated by the films and more aggressive, impulsive and driven than were the females. Quantitative differences were found on affects such as shame, depression, embarrassment, and guilt where males reported slight decreases while females reported slight increases after viewing the films. Similarly, males increased in happiness while females decreased.

To sum up the sex differences, men reported an increase in general activation, and in affects associated with approaching a sexual object, and decreases in negative affects as a function of viewing films of either coital or oral-genital activity. If anything, more sexually experienced males were more activated by oral-genital contact in the films. Females had less positive and more negative affects after viewing the oral-genital film than the coital film. They were activated particularly by the Coitus I film, and reported mild increases in affects that may

represent tendencies to approach sexual behavior, but they also reported increases in negative affects, particularly disgust in relation to the Petting II film.

Schmidt and Sigusch used a somewhat different procedure than that employed in the present study to measure changes in affective states. They used seven-point bipolar rating scales before and after viewing the films. They reported an emotional activation effect for both sexes and that women were more shocked, irritated, and disgusted. The present study replicated their findings, but permitted one to differentiate between general activation and approach-related affects which were greater in men than women and negative affects which were greater in women than in the men, who tended to report slight decreases following the film.

The individual difference measures also yielded a series of interesting findings of differential affective responses to the films. Sex calloused attitudes toward women related to 18 of the 30 affect adjectives for the males. The more calloused males were more excited, eager for contact, interested, attracted, and so on, and they reported larger increases in feeling aggressive, impulsive, wilder, and driven. These affects connote greater activation which potentially might well be discharged through uncontrolled sexual activity. The more calloused males compared to the less calloused also reported greater decreases in negative affects such as feeling bored, repelled, disgusted, ashamed, and embarrassed. In addition, the sex calloused males reported larger increases in feeling happy and loving. These results will be discussed later after more of the results relevant to sex callousness have been presented.

Sex guilt was related to a number of the affective states but never to affects connoting general activation. Sex guilt was related to many of the negative affects for both men and women and to some of the positive affects implying a loving, affectionate rather than an uninhibited approach to sexual objects for the females. Sex guilt and gender yielded significant interactions for three affects. Both high- and low-sex-guilt males were eager for contact after viewing the films, but of the females, only those low on sex guilt showed much of an increase in this affect. Low-sex-guilt males increased only slightly more than high-sex-guilt males in happiness, but low-sex-guilt females reported a small increase in happiness while high-sex-guilt females reported a decrease after viewing the films. Low-sex-guilt females and high-sex-guilt males reported equally large increases in feeling affectionate, while low-sex-guilt males and particularly high-sex-guilt females reported smaller increases in this affect. As was expected, high sex guilt was also related to negative affects such as disgust, depression, shame, embarrassment, and guilt. However, there were tendencies toward overall decreases in those affects after viewing the films.

We have already pointed out the interactions between film and sex experience for males in which males who were experienced were more responsive to the oral-genital than to the coital film. A similar finding involved an interaction between sex experience, films and gender. Males who were more sexually experienced felt more affectionate after viewing Petting II while the other three groups increased considerably less. The more sexually experienced women felt

more affectionate after viewing Coitus I of course. The more sexually experienced females reported feeling more eager for contact than the less experienced females. The less experienced women felt more shocked, irritated, benumbed, and ashamed.

Film ratings. The films were rated on seven-point scales, therefore four was the midpoint. The mean scores of males were above the midpoint for the ratings of "pornographic" and "enjoyable" and for the females on ratings of "pornographic," "disgusting," and "offensive." All of the possible sex differences were significant; the females compared to the males rated the films as showing less normal sexual behavior, and as being more pornographic, more disgusting, less enjoyable, and more offensive. The Petting II film compared to the Coitus I film was seen by subjects as portraying less normal sexual behavior, as being more pornographic, more disgusting, and more offensive. High-sex-guilt subjects saw the sexual behavior in Petting II as abnormal. There were always highly significant differences in the ratings of "normal," "pornographic," "disgusting," and "offensive" by high- and low-sex-guilt subjects. Sex experience showed a similar but less marked ability to discriminate. The more calloused males enjoyed the films more and found them less disgusting or offensive than the less calloused males. While males enjoyed the films more than females, among the females the low-sex-guilt women enjoyed the films somewhat.

The ratings of the films reveal the different reactions of college men and women to oral-genital sex and to coitus. The ratings made clear that a film of oral-genital sex was viewed as less normal and aroused more disgust and offended reactions than did a film of sexual intercourse. In the only significant interaction in the series of analyses of variance of film ratings, the high-sex-guilt subjects rated the Petting II film on the abnormal side of the midpoint. Mosher and Cross (1970) found that high-sex-guilt college females viewed fellatio and cunnilingus as unacceptable postmarital sexual behavior.

The more guilty subjects, less experienced subjects, and females tended to make similar ratings. It was indeed the case that the females were less sexually experienced and do generally tend to score somewhat higher on sex guilt (Mosher & Cross, 1970) than the males. Being a female, high in sex guilt, and low in sexual experience were all related to a more conservative stance toward sex. The most interesting sex difference takes account of both the film ratings and affective reactions and degree of sexual arousal. While the men regarded the Petting II film as more pornographic and offensive, they were at least as sexually aroused by it and had as many positive and no more negative affects as a function of viewing it than they did for the Coitus I film. The more sexually experienced males responded with more activation and approach tendencies to the oral-genital than to the coital film. While the women also saw the Petting II film as more pornographic, offensive, and disgusting, it tended to be less arousing and stirred up more negative affects for them than the Coitus I film.

Sexual behavior. The only significant changes that occurred in sex-related behavior in the 24-hour period following the film compared to the previous 24

hours was that men and women talked more about sex and had more sexual fantasies. There were no changes in the frequency of masturbation, petting, or coitus as a function of viewing the films. Therefore, none of the individual difference measures could be expected to predict any differential increases. This study then provided no evidence to support the notion that pornography may trigger sexual behavior, at least among single college students. Schmidt and Sigusch (1970) found a significant increase in masturbation for the males and tendencies for the women in his sample to engage in more heterosexual behavior. Even those relatively minor increases in sexual behavior were not found in this younger and less sexually experienced population.

The two-week followup questionnaire asked if the subjects had engaged in any new or novel sexual behaviors since viewing the film. Eight males reported engaging in new sexual behaviors. Three coitally experienced males tried new positions. One male reported ejaculating from what colloquially is called a "dry hump." One male touched an unclad breast for the first time after professing his love; one male manipulated the female genitalia; one male had his penis manipulated by a female. One male engaged in cunnilingus for the first time and inserted his penis between his date's breasts to masturbate. This latter behavior was portrayed in the Petting II film and was undoubtedly modelled directly from it. Eight females also reported trying out new sexual behaviors in the two weeks following the films. Two coitally experienced females tried novel positions. One female manipulated the clad male genital. One female reported genital manipulation, a second engaged in petting, and a third tried oral-genital sex; none of these three women reported any further details. One female fellated a male for the first time. Finally, one woman engaged in fellatio and cunnilingus for the first time with her boyfriend and was disgusted by it. Without a control group to ascertain the expected frequencies of new sexual behavior in college students in a two-week period, it is difficult to draw conclusions from these reports. However, since only about 4% of the subjects reported any new behaviors, the effect of the films in stimulating new sexual behaviors was not statistically large.

Emotional and vegetative states. If sexual tension can be regarded as a measure of sexual desire, then the more sexually experienced subjects increased more after watching the film portraying oral-genital sex, while the less sexually experienced subjects reported more sexual tension after watching the film of sexual intercourse. Females and high-sex-guilt subjects increased in nervousness, internal unrest, and guilt. Males increased more in aggressiveness than the females. Less sexually experienced subjects and particularly less sexually experienced females increased in guilt after film-viewing. The women generally had more unpleasant affective states and gastrointestinal discomfort than the males, but all of the changes fell within the mild range of increase or decrease.

Attitude change. There were no changes in the moderately conservative attitudes about extramarital intercourse of these students. Opinions about premarital sex were more pertinent for them than opinions about extramarital sex. Attitudes toward premarital sexual intercourse became slightly more liberal

after viewing the films. The more sexually experienced subjects in particular became more liberal while the less sexually experienced subjects changed little. There appeared to be a sex difference in the opinion changes about sexual standards of men and women of different levels of sex experience that consistently appeared in the analyses of the data. The more sexually experienced males became even more liberal in their sexual standards while the less experienced males became more conservative two weeks after viewing the films. For the females, an opposite trend was observed. The more sexually experienced women became more conservative two weeks after viewing the film, while the less sexually experienced women reported slightly more liberal sexual standards. When comparing their sexual attitudes to that of the average person, more sexually experienced subjects saw themselves as less liberal after film-viewing than they had before, while the less experienced subjects regarded themselves as more liberal than they had believed prior to viewing the film.

The changes in the sex calloused attitudes towards women are discussed below in the section on *Sex callousness*.

The two-week followup questionnaire asked the subjects to describe any beneficial or detrimental changes they had made which might be directly or indirectly attributable to the film and if their views about pornography had been altered in any way. Comments were written by 87 males and 155 females. The comments covered a wide spectrum of views about pornography, but no one seemed to believe that watching the films had affected them that much. Some 36% of the females and 39% of the males indicated in their comments that they believed their views about pornography had not really changed, although 13 of the 57 women reporting no essential change made it clear that their original negative views were reinforced or made stronger. Reversals in attitudes about pornography from before to after, as judged from their comments, occurred for only one male and one female who became anti- and for two males and four females who became pro-pornography. When it was possible to judge views about pornography from the comments, it appeared that many of the males took a civil libertarian position that pornography should not be censored at least for adults. This position was common among the females, but many of them relative to the males took a stance that pornography was bad. Some 20% of the females and 10% of the males spontaneously indicated they found the films disgusting and were "grossed out" by them. Some 9% of the females and 6% of the males spontaneously commented that the films were educational or informative.

Individual differences

Sex callousness. The measures of sex calloused attitudes toward women were included in this study for two reasons. First, past research had indicated that males with sex calloused attitudes toward women reported a larger incidence of the use of physical aggression and exploitative tactics such as falsely professing love, getting their dates drunk, or showing pornography to their dates as a means

of gaining coitus. Sex calloused males find these techniques more acceptable tactics with a wide range of girls from loved and nice girls to loose girls and teasers. Therefore, it seemed likely that the more sex calloused males might be more likely to be triggered into exploitative sexual behavior following the viewing of the pornographic films. The males who were higher on sex calloused attitudes indicated on their sex questionnaires that they engaged in intercourse more often, believed that love and sex were separate and that sex was for fun, and indicated that the only thing that kept them from freely expressing their sexuality was fear of disease. The reactions of the sex calloused males to the films indicated somewhat greater sexual arousal. The men with sex calloused attitudes toward women had stronger penile erectile responses as a function of viewing the pornographic films. They endorsed affective adjectives after the film which indicated they were excited, eager for contact, driven, impulsive, wilder, more aggressive, and so forth and which were indicative of an increased desire for sexual contact that might well be uninhibited and uncontrolled since they had decreased in negative affects such as shame, disgust, and embarrassment. They indicated they found the film enjoyable and not as offensive or disgusting as the males with less calloused attitudes. Nevertheless, the more sex calloused males did not increase their sexual behaviors following the film. Therefore, the data indicated that sexually arousing pornographic films did not trigger sexual behavior even in the college males whose attitudes towards women were more conducive to sexual exploitation.

The second reason for administering the measures of sex calloused attitudes toward women was to study the course of attitude change from before the film to immediately after, 24 hours after, and two weeks after it. The argument is often made that pornography, particularly filmed pornography, treats the woman as an object to be used for the pleasure of the male. As noted above in the discussion of these films in the METHOD section, in my opinion these films were not very representative of much pornography in this respect since they had more than the usual amount of affection. However, many of the females in their comments described the films as making sex animalistic and as separating it from love. The measures were included to determine whether viewing pornography might lead to an increase in sex calloused attitudes toward women. The results indicated a monotonic decline across time in sex calloused attitudes toward women. The men endorsed the most calloused attitudes before the film, and then steadily declined with the largest decline coming immediately after seeing the film. There was an interaction with sex guilt such that males who were low on sex guilt had the larger post-film decline and also tended to rebound somewhat in the period from 24 hours to two weeks after. Then, with these films, there was no evidence that viewing pornography leads to increased sex calloused attitudes toward women. Mosher (1971) proposed that sex calloused attitudes develop in the process of adolescent socialization and are learned from peer groups in all-male settings. Telling dirty jokes, boasting of sexual conquests, and the flouting of sex calloused attitudes toward women were viewed as ways of bolstering the masculine image of

adolescents whose masculine identity-status has not been achieved, as well as a means of gaining peer approval. Mosher argued that once the masculine identity-status was secured through occupational and marital success, then the exaggerated masculine style of asserting male dominance through sexual conquest or by talking a good game would diminish. Mosher's view then was that the verbal expression of sex calloused attitudes toward women can serve to bolster shaky masculine esteem. My interpretation of the decline in sex calloused attitudes following the viewing of the pornographic films follows from this point of view. Seeing a "stag" film in the presence of male peers bolsters masculine esteem; it serves the same needs as endorsing calloused attitudes. Following the viewing of the films, the males had less need to endorse calloused attitudes since they had just shared the masculine activity of watching a "stag" film with male peers. The interpretation offered is admittedly speculative, and further research is required before it can be considered more than merely plausible. If the interpretation does stand the test of further research, it would add some support to the argument that pornography may serve a function as an outlet or safety valve. Watching pornographic films in male company might serve as an alternative to engaging in exploitative sex as a way of bolstering masculine self-esteem. In our society most people would view the lessening of sex calloused attitudes toward women as a desirable goal, and the present data indicated such a reduction after viewing pornography films. Unfortunately, there was no normative data available or a control group to rule out the possibility that knowing that one is going to watch a pornographic film leads to a temporary increase or inflation of sex calloused attitudes. Only further research will permit an unequivocal interpretation of the findings.

Sex guilt. The data consistently supported the validity of the sex guilt subscale of the Mosher Forced-Choice Inventory. Data from the sex questionnaire indicated that subjects who were above the median on sex guilt were less likely to have engaged in masturbation, petting, or coitus. If they had engaged in coitus, they had done so less often and with more regret. The guilty women were more likely to use a contraceptive device. They reported that social disapproval and particularly guilt feelings and religious or other moral training kept them from freely expressing their sexuality. They held more conservative standards about premarital and extramarital sex, and were less likely to favor the distribution of contraceptive devices and legalized abortion. The individuals scoring higher on sex guilt held more punitive views towards homosexuals and believed the government should more strongly enforce existing sex laws. The more guilty males were less likely to have voluntarily obtained pornography, and guilty males and females who had seen pornography responded to it with less arousal and more guilty feelings.

As noted above, the relations between sex guilt and sexual arousal when pornography is presented in an experimental situation are not completely clear. High-sex-guilt males reported more partial erections to the films. For the females the physiological reactions interacted with the nature of the films such that

high-sex-guilt females who viewed Petting II reported no genital reactions most often, while high-sex-guilt females who saw Coitus I reported the most mild genital sensations. Low-sex-guilt women reported more breast sensations. At this point, however, one can conclude that sex guilt does not preclude sexual arousal to pornographic stimuli.

High-sex-guilt subjects rated the films as more pornographic, disgusting and offensive and the sexual behavior as less normal than did the subjects who were less disposed to guilt over sex. High-sex-guilt subjects viewed the oral-genital sexual behavior of the Petting II film as abnormal. After watching the films, the high-sex-guilt subjects were more likely to decrease less, if male, or increase more, if female, on such negative affects as feeling depressed, benumbed, ashamed, embarrassed, and guilty. There were some interesting interactions between sex guilt and gender for the affective states. In some instances reactions of the females low on sex guilt were more similar to the males than to the high-sex-guilt females. That is, both men and low-sex-guilt women reported an increase in feeling eager for contact and happy after viewing the films while high-sex-guilt women reported a minimal increase or a decrease. Low-sex-guilt women, like the high-sex-guilt men, were more affectionate after viewing the film. Without denying that there are sex differences, the fact that the guilt distributions of men and women overlap, with the women's median shifted more toward high sex guilt, seems to account for many of the findings. Some of the negative emotional states apparently lasted for several hours after the films, and high-sex-guilt subjects reported mild increases for the 24 hours after the film in internal unrest, nervousness, and guilt.

Sex experience. The level of sex experience was determined by counting the number of sexual behaviors in which a subject had previously engaged. The items tended to order in a Guttman scale, with almost all the males who fell above the median being coitally experienced, while about 70% of the girls above the median were coitally experienced and the other 30% had engaged in petting below the waist. The more experienced subjects had less sex guilt and vice-versa. The correlations with the sex questionnaire were generally similar to those of sex guilt but in the opposite direction of course. Sex guilt was more highly correlated with attitudinal items and sex experience was more highly correlated with sexual behavior; but some of the latter correlations were not independent, that is, the sex experience score was based upon experiences in petting, coitus, oral-genital sex, and so on, and the sex questionnaire made inquiries about engaging in such behaviors.

The more sexually experienced subjects regarded the films as less pornographic, disgusting, and offensive and the sexual behavior as more normal than did the less sexually experienced subjects. Sex guilt was even more highly related to such differences in reactions to the films. The only change in physiological reactions to the films was that the more sexually experienced females reported more signs of vaginal lubrication. The more sexually experienced males responded to the oral-genital film with affective states indicating heightened activation and approach tendencies while the less experienced males responded more to the film

of face-to-face coitus. In the 24 hours after viewing the Petting II film the more sexually experienced males reported the greatest increases in sexual tension while the less experienced males had more sexual tension if they viewed the Coitus I film. The more sexually experienced women were more eager for contact and were less shocked, irritated, or ashamed after watching the films than were the less experienced women. The less experienced women had greater decreases in concentration capacity and felt more guilty during the 24 hours after the film than did the more sexually experienced women.

The level of sex experience was related to changes in attitudes two weeks after the films had been seen. The more sexually experienced subjects held more liberal attitudes about premarital sex after viewing the films while the less sexually experienced subjects reported little change. There was a sex difference in the way that sexual standards changed following the films. The more sexually experienced males became more liberal, but the more sexually experienced females became more conservative in their sexual standards after viewing the films. After viewing the films the more sexually experienced subjects saw their own attitudes as less liberal in comparison to the average person, while the less experienced subjects now saw themselves as less conservative than they had previously believed. The relationships of the changing attitudes to sex experiences were not simple. It seems that more sexually experienced subjects took more liberal views toward premarital intercourse, and if they were male endorsed more liberal sexual standards and if female endorsed more conservative sexual standards, all the time seeing themselves as less liberal in comparison to the average person than they had felt themselves to be before seeing the pornographic films.

CONCLUSIONS

1. Single college men and women were moderately aroused by viewing pornographic films.

2. Women reported almost as much sexual arousal as men in response to a film of face-to-face coitus, but men reported even more arousal and females less arousal to a film of the same couple engaged in oral-genital sex.

3. A disposition to guilt over sex does not preclude sexual arousal to pornography. Sex guilt may cause a person not to seek out pornography since he may experience guilt and other negative affects if he does.

4. A film of oral-genital sex was rated as more pornographic, disgusting, and offensive and the sexual behavior as less normal than a film of face-to-face coitus.

5. College women regarded the pornographic films as portraying less normal sexual behavior and as more pornographic, disgusting, and offensive and as less enjoyable than did college men.

6. Subjects who were higher on sex guilt rated the films as more pornographic, disgusting, offensive, and less enjoyable than did low-sex-guilt subjects. The high-sex-guilt subjects rated the oral-genital sexual behavior as abnormal.

7. The less sexually experienced subjects rated the films as more pornographic, disgusting, offensive and the sexual behavior as less normal than did the more experienced subjects.

8. After watching the pornographic films, subjects reported many mild increases or decreases in affective states.

9. Men had larger increases in affective states indicative of general activation and in affects which might lead them to approach sex than did women.

10. Women had mild increases in negative affects while the men tended to decrease in negative affects after viewing the films.

11. High-sex-guilt subjects or less sexually experienced subjects reported more negative affective states after viewing the films.

12. In the 24 hours following the films in comparison to the preceding 24 hours, the subjects had more sexual fantasies and more conversations about sex.

13. Neither the men nor the women increased their frequencies of masturbation, heterosexual petting, oral-genital sex, or coitus in the 24 hours following the films.

14. Even the males who scored higher on sex calloused attitudes toward women, had stronger physiological arousal to the films as indicated by reports of penile erections, and increased in affective states indicative of general activation and uncontrolled approach tendencies toward sex reported no increased heterosexual behavior.

15. There were mild increases or decreases in vegetative and emotional states in the 24 hours after the films in comparison to the preceding 24 hours.

16. Women reported a larger increase in internal unrest, gastrointestinal complaints, and nervousness and less of an increase in aggressiveness than did the men.

17. Subjects more disposed to guilt over sex reported larger increases in the 24 hours after the films in internal unrest, nervousness, and guilt.

18. The less sexually experienced subjects also increased more in guilt. Less sexually experienced subjects had the greatest decrease in concentration capacity and the largest increase in sexual tension after viewing the film of face-to-face intercourse, while the more sexually experienced subjects had a larger increase in sexual tension after viewing the film of oral-genital sex.

19. Sex calloused attitudes toward women decreased immediately after viewing the pornographic films and continued to decrease slightly 24 hours and two weeks after.

20. Opinions about premarital sexual intercourse became slightly more liberal two weeks after viewing the films in comparison to before. The less sexually experienced subjects had little change in their opinions, but the more sexually experienced subjects became more liberal.

21. There were no changes in opinions about extramarital intercourse, which were relatively conservative for a group of college students with moderately liberal sexual attitudes.

22. The slight changes in sexual standards two weeks after viewing the pornographic films in comparison to before interacted with sex experience and gender. The more sexually experienced males became even more liberal while the less sexually experienced males became more conservative. The reverse held true for the females, that is, the more sexually experienced females became more conservative while the less sexually experienced females became more liberal in their sexual standards.

23. There were slight changes in the ways sexually experienced subjects perceived themselves in comparison to the average person. The more sexually experienced subjects saw themselves as less liberal than they had previously believed, while the less sexually experienced subjects saw themselves as less conservative than they had believed before viewing the pornographic films.

24. Further research on psychological reactions to pornography is urgently needed both to answer scientific questions and questions of public policy.

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Sex Callousness Toward Women

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ABSTRACT

A newly constructed measure of sex calloused attitudes towards women as well as measures of guilt and sex experience was completed by 256 single college males; these measures were correlated with reported sex aggression and other exploitative tactics used to gain intercourse from their dates. Fifty-eight percent of the males had used at least one such exploitative technique and had been successful on 48% of the occasions in gaining intercourse. Males with sex calloused attitudes were more likely to use the techniques ($r = .41$) and to be successful ($r = .24$) whereas males who were guilty over sex were less likely to use exploitative tactics ($r = -.25$) and were less successful when they did ($r = -.22$). Sex callousness was positively correlated and sex guilt was negatively correlated with the beliefs that force or the use of "line, liquor, etc." were justified tactics to gain intercourse. Sex calloused attitudes are discussed as a component of an exaggerated masculine style used by males who either have developmentally not achieved or who have been cut off by society from opportunities to achieve a masculine identity-status.

INTRODUCTION

A set of attitudes exists within the male culture that remains largely unknown to women even though the attitudes directly pertain to them. During the socialization of the adolescent male, he is exposed to a set of beliefs and feelings about women which seem to encourage a calloused, exploitative, aggressive posture designed to ensure sexual access to women. The indoctrination takes place in "bull sessions" of all male groups on the street corner, in the pool room, in the locker room, on camping trips, in male clubs, and in bars. There is usually

an exchange of "dirty" jokes, real or apocryphal accounts of sexual exploits, and sexual information or myths, all in a pleasant, sexually titillating atmosphere of male comradery. Boastful competition among the males about who is the best "_____" often occurs.

The present investigation developed a self-report measure of sex calloused attitudes toward women and related it to reports of sex aggression and exploitation.

An inventory designed to measure sex callousness toward women was constructed. The items were taken from the statements that men make about women in "bull sessions," and swearing and vulgar expressions were not deleted in order to represent faithfully the way such statements are usually expressed. The items reflect a number of the components of the sex calloused attitude. Some examples of sex calloused attitudes and the corresponding inventory items are: that a man requires sex (e.g., "Any man who is a man needs to _____ regularly" [38%];[1] "If a man doesn't get the ___ he needs, there is liable to be hell to pay" [39%]); that a man requires sexual variety (e.g., "Every once in a while, a man has to 'change his luck' " [52%]; "A woman should expect her husband to play around a little after they are married" [25%]); that there is a division of women into the good and the bad (e.g., "The only woman worthy of respect is your own mother" [5%]; "Most women are _____ at heart" [23%]); that some of the bad women are supersexed (e.g., "You never know when you are going to meet a strange woman who will want to get ____" [93%]; "Some girls will_____ anything in pants" [84%]); that some of the bad women are exploitative (e.g., "Most women marry to avoid having to work for a living" [16%]; "Women are out for all they can get from a man, so a man should get all that he can from a woman" [22%]); that a bad woman is fair game (e.g., "Divorcees are easy____" [35%]; "Pickups should expect to put out" [53%]); that any technique to gain sexual access can be used (e.g., "Promise a woman anything, but give her your ____" [25%]; "A man should find them, fool them, ____ them, and forget them" [14%]); that most woman require masculine dominance (e.g., "Most women like to be dominated and sometimes humiliated" [58%]; "When a woman gets uppity, it's time to _____ her" [24%]); that sex aggression is justifiable (e.g., "_____teasers should be raped" [51%]; "A woman doesn't mean 'No' unless she slaps you" [39%]); that a male should be calloused (e.g., "A man should never pay attention to a woman's tears" [11%]; "If they are old enough to bleed, they are old enough to butcher" [18%]). All in all, the endorsement of such items reveals a hypermasculine concern with sexual conquest.

Eugene Kanin has published a series of articles (Kanin, 1957; Kanin, 1965; Kanin, 1967, Kirkpatrick & Kanin, 1957) on college male sex aggression in dating-courtship relations. Male sex aggression was defined as a forceful attempt

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1. The percentages within brackets are the percent of the present sample of 256 men who agreed with the item.

at intercourse, such as removal of clothing or spreading thighs, which was disagreeable or offensive to the girl involved, as indicated by slapping or crying. Kanin viewed such aggression as a breach of dating norms, but believed that the deviant behavior was not so extreme as to be labeled carnal assault or rape. Usually the aggressive act followed a session of genital petting when the girl refused to permit coitus. Kanin (1967) discussed the importance of the reference group in sex conduct norm violation. His data indicated that the sex aggressive males were more liable to be members of fraternities, would lose status for admitting virginity, and received considerable pressure from friends to seek new sex experience. The sex aggressive males were less likely to be virgins, but reported less satisfaction with their sex lives. Their high erotic aspiration led to an experienced relative deprivation according to Kanin. He argued that male sex aggression failed to confer prestige from peers since it indicates the erotic goal could not be obtained by more sophisticated means, but that the behavior may elicit acclaim if it is reciprocally directed against "golddiggers" or "teasers" who are violating the female sex conduct norms. The peer group provides justifications for the sexually aggressive behavior.

The author became acquainted with Kanin's work after writing the items for the inventory measuring sex calloused attitudes toward women, and the similarities were readily apparent. As an initial validational study of the attitude inventory, a correlational study was undertaken comparing sex calloused attitudes with male sex aggression and sex exploitation.

METHOD

Procedure

The subjects were 256 single males enrolled in an introductory psychology course who participated in the study as part of their course requirement. In groups of approximately 30, the subjects anonymously completed the Mosher Forced-Choice Guilt Inventory, the measure of sex calloused attitudes, a sex behavior questionnaire to measure sex aggression and exploitation, and the Brady-Levitt sex experiences inventory.

Measures

Sex callousness. A 72-item inventory designed to measure sex calloused attitudes toward women was administered in agree-disagree format, such that a response of "agree" to any item indicates callousness. An internal consistency item analysis was conducted by computing point-biserial correlation coefficients for each item for the top and bottom 27% of the approximately normal distribution. A discrimination index combined the point-biserial correlations with

item difficulty. In this instance item difficulty meant the percentage of people endorsing an item. Sixty items were selected for inclusion in the final scale, and their point-biserial correlation coefficients ranged from .24 to .59. The selection of 60 items was a function of future planned research in which four scales of 15 items each will be administered in Likert format.[2] The corrected split-half reliability coefficient for the sex callousness inventory is .90.

Sex aggression. The items in the sex behavior questionnaire were patterned after Kanin's published reports. The questionnaire consisted of 30 questions or items. There were six open-ended questions inquiring about past sex aggression; four open-ended questions about other sexually exploitative techniques; three questions or ratings about dating, orgasm frequency, and sexual satisfaction; three seven-point rating scales related to peer group pressure; four seven-point ratings of attempts to engage dates in kissing, breast petting, genital petting, and coitus; five seven-point ratings concerning the justification of force to have intercourse with a loved girl, nice girl, loose girl, golddigger, and teaser; and five seven-point ratings of the justifiable use of a "line," liquor, or other such tactic with the five types of girls in order to have intercourse.

Guilt. The Mosher Forced-Choice Guilt Inventory (Mosher, 1966) is a 79-item inventory in forced-choice format which measures three aspects of guilt: sex guilt, hostility guilt and morality-conscience. Corrected split-half reliability coefficients are in the 90's for the three subscales. Using the multitrait-multimethod matrix procedure, Mosher (1966, 1968) demonstrated convergence between different self-report measures of the same aspect of guilt and discrimination between the different aspects of guilt and such variables as social desirability and anxiety. A series of studies (Galbraith, 1969; Galbraith, Hahn & Lieberman, 1968; Galbraith & Mosher, 1968, 1970; Gambaro & Rahn, 1969; Lamb, 1968; Mosher, 1961, 1965, 1966, 1968; Mosher & Cross, 1970; Mosher & Greenberg, 1969; Mosher & Mosher, 1967; Okel & Mosher, 1968; Oliver & Mosher, 1968; Persons, 1970) have provided evidence for the construct validity of the measures of guilt.

Sex experiences. Brady and Levitt (1965a, 1965b) found that a list of sex experiences formed a Guttman scale beginning with kissing, breast play, manual genital manipulation, face-to-face coitus, oral-genital sex, and so on for graduate student males. Mosher and Cross (1970) recently demonstrated that an inverse relationship exists between total sex experience and sex guilt in college men and women. In the present study the men simply indicated whether or not they had ever participated in 12 sexual behaviors. The list of behaviors and related information can be found in Mosher and Cross (1970). Total sex experience was scored by counting the number of behaviors out of the 12 in which the subject had engaged. In this sample 52% of the males had engaged in coitus.

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2. Copies of the measure of sex calloused attitudes toward women are available from the author upon request.

RESULTS

Table 1 contains the means, standard deviations, and intercorrelations of sex callousness, sex experience, and the three guilt subscales. There was a small but significant correlation between sex callousness and sex experience. There were significant correlations between sex callousness and the three aspects of guilt, but sex guilt was less highly correlated with sex callousness than were hostility guilt and morality-conscience. There was a moderate negative correlation between sex guilt and sex experience.

Table 1

INTERRELATIONS OF SEX CALLOUSNESS, SEX EXPERIENCE AND GUILT

			Correlations			
	Mean	SD	Sex experience	Sex guilt	Hostility-guilt	Morality-conscience
Sex Callousness	22.39	10.14	.18**	—.16*	—.37**	—.39**
Sex Experience	7.61	3.03		—.36**	—.24**	—.29**
Sex Guilt	—17.14	19.78			.21**	.47**
Hostility guilt	8.95	17.71				.41**
Morality conscience	1.00	14.38				

SD = standard deviation.
*p < .05.
**p < .01.

Kanin scored for sex aggression when males reported engaging in forceful behavior that led to an offended reaction in the girl. He required a description which was complete enough to ensure his criteria were met. The reports of our subjects were not complete enough to use Kanin's criteria. Only four subjects wrote descriptions complete enough to ensure that they had both made a forceful attempt and evoked an offended reaction; 31 subjects' descriptions were complete enough to conclude confidently that either a forceful attempt or an offended reaction had occurred; 32 subjects reported they had made a forceful attempt for intercourse with a girl who was unwilling and felt the attempt was disagreeable and offensive, but their descriptions were too incomplete to verify their conclusions. Sex aggression was scored from these reports by assigning a 0 to subjects who denied aggression, a 1 to subjects admitting aggression, a 2 to subjects admitting aggression and describing either their forceful attempt or the offended reaction, and a 3 to subjects admitting and describing the incident completely. Kanin reported 25.5% of his males had engaged in sex aggression; 25.8% of our sample had engaged in sex aggression. The nearly identical percentages increased our confidence in the adequacy of our subjects' admissions of sex aggression.

The subjects were also asked whether they had used any other exploitative techniques in order to have intercourse. They indicated whether or not they had

attempted to get a girl intoxicated, falsely professed love, threatened to terminate a relationship, shown a girl pornography, or taken a girl to a sexy movie to induce her to have intercourse. An inquiry was made into the successful outcome of the technique in gaining coitus. A total sex aggression and exploitation score was obtained by summing the number of techniques that a male admitted using, yielding a score from 0 to 5. A total success score was obtained by counting the number of times a subject used a tactic successfully to gain intercourse. Table 2 contains the percentage of males using various aggressive or exploitative techniques to gain coition and intercorrelations between sex aggression and exploitation and the measures of sex callousness, sex guilt, and sex experience.

Table 2

MALE SEX AGGRESSION AND EXPLOITATION

		Correlations		
	% of males admitting	Sex callousness	Sex guilt	Sex experience
Forceful attempt at intercourse	25.8	.20**	—.11	.26**
Successful (N = 67)[a]	31.3	.03	—.03	.32**
Intoxication	39.1	.26**	—.18**	.35**
Successful (N = 100)	51.0	.14	—.23*	.57**
Falsely profess love	25.4	.33**	—.16*	.37**
Successful (N = 64)	64.1	.18	—.25*	.53**
Threatened termination of relationship	8.6	.11	—.10	.18**
Successful (N = 22)	50.0	.28	—.31	.32
Shown pornography or sexy movie	16.1	.26**	—.18**	.17**
Successful (N = 41)	41.5	,07	—.17	.57**
Total aggression and exploitation	58.2	.41**	—.25**	.45**
Total success (N = 149)	48.0[b]	.24**	—.22**	.57**

a. The total N = 256. The numbers contained within parentheses are the number of subjects reporting the behavior and are thus the number for the successful correlations.

b. This percentage is the number of successful occasions rather than percentage of successful males.

*p < .05.

**p < .01.

From Table 2 it can be seen that attempting to get dates intoxicated (39%) was the most frequently used tactic. Forceful attempts at intercourse (26%) and falsely professing love (25%) were used by a substantial minority of the males, but the use of pornography (16%) and threatening to terminate a relationship (8%) were less common. The use of force was the least successful of the techniques in gaining coition (31%). The sex calloused male did use sex aggression as a tactic (r=.20) with girls to whom they were casually rather than affectionately related (r=.23). Sex callousness was postively correlated with total sex aggression and exploitation, and thereby adds credence to the use of the attitudinal measure of callousness. Sex guilt was negatively correlated with total sex aggression and

exploitation. Males who were sex calloused or low on sex guilt used their exploitative tactics more successfully in gaining coitus.

Table 3 contains the means, standard deviations, and intercorrelations between questions relating to dating, sex satisfaction, and peer group factors and sex callousness, sex guilt, and sex experience. The subjects were asked for the number of dates per month in the last year and the number of orgasms a week from any source required to give them sexual satisfaction. Sex satisfaction in the last year, pressure from friends to seek sex, loss of status from admitting virginity, and relative sexual experience in comparison to friends were rated on seven-point scales. The means are presented so that a rating of 7 would indicate extreme satisfaction, considerable peer pressure, considerable loss of status, and much more experience. Males who scored higher on sex.callousness reported more peer pressure for sex and that they were relatively more sexually experienced than their friends. High-sex-guilt males dated less, required fewer orgasms, were more dissatisfied with sex activities of last year, would lose less status for admitting virginity, and saw themselves as less sexually experienced than their friends.

Table 3

DATING, SEX SATISFACTION, AND PEER GROUP

			Correlations		
	Mean	SD	Sex callousness	Sex guilt	Sex experience
Dates per month	6.38	5.10	.04	—.13*	.41**
Required orgasms per week	4.21	3.58	.08	—.16*	.26**
Sex satisfaction	4.49	1.57	.02	—.15*	.48**
Peer pressure for sex	3.90	1.96	.25**	—.06	.09
Virgin loses status	2.50	1.87	.12	—.19**	.17**
More sex experience than friends	4.46	1.55	.24**	—.25**	.66**

SD = standard deviation.
*p < .05.
**p < .01.

While almost all of the relationships found in this study replicate the results reported by Kanin, there was apparently one exception. Kanin reported that his aggressive males were less satisfied with their sexual activities of the past year, while in the present sample total sex aggression and exploitation is positively correlated with satisfaction with sex activities of the past year ($r = .17$; $df = 254$; $p < .01$). The sexually more experienced males, rather than feeling *less* satisfied with their sex lives, as Kanin (1967, p. 499) argued in support of his relative deprivation hypothesis, felt *more* satisfied than the less experienced males.

Table 4 presents data based on seven-point rating scales, with ratings ranging from "never" (1) to "almost always" (7). The questions asked whether the subject attempted to kiss his date, fondle or kiss his date's breasts, fondle or kiss his date's genitals, and have intercourse with his date. Sex callousness was

Table 4

MALE ATTEMPTED SEX BEHAVIOR WITH DATES

			Correlations		
	Mean	SD	Sex callousness	Sex guilt	Sex experience
Kiss date	6.46	1.15	.21**	—.01	.31**
Fondle or kiss breasts	4.81	1.90	.26**	—.27**	.65**
Fondle or kiss genitals	3.14	1.87	.14*	—.32**	.59**
Coitus	3.09	1.82	.37**	—.37**	.54**
Total attempt	17.5	5.27	.32**	—.34**	.70**

SD = standard deviation.
*p < .05.
**p < .01.

moderately positively correlated with such attempts, and sex guilt was moderately negatively correlated with such attempts. Attempts and sex experience were highly positively correlated.

Table 5 presents the means, standard deviations, and intercorrelations of calloused attitudes, sex guilt, and sex experience with the extent to which force is justified with various types of girls. Seven-point rating scales were used in which 1 equaled "never" and 7 equaled "under certain conditions." There was a progression of endorsement from "loved girl," "nice girl," "loose girl," "golddigger," to "teaser" that force is justified under certain conditions. Sex callousness was moderately correlated with the justified use of force, even for loved and nice girls. Sex guilt had a low but significant negative correlation with total force, which is the sum of the five ratings for each type of girl. Both hostility guilt and morality-conscience were more highly negatively related to the justified use of force. The correlation between total force and hostility guilt was $-.27$ ($df = 254; p < .01$) and between total force and morality-conscience was $-.34$. In addition all 10 of the negative correlations between force with the five types of girls and hostility guilt or morality-conscience were significant beyond the .01 level.

Table 5

FORCE TO HAVE INTERCOURSE JUSTIFIED

			Correlations		
	Mean	SD	Sex callousness	Sex guilt	Sex experience
Loved girl	2.03	1.75	.36**	-.07	.13*
Nice girl	2.27	1.80	.40**	—.23**	.23**
Loose girl	3.68	2.33	.49**	—.14*	.14*
Golddigger	3.89	2.31	.46**	—.12	.15*
Teaser	4.25	2.36	.48**	—.19**	.22**
Total force	16.16	8.52	.55**	—.19**	.22**

SD = standard deviation.
*p < .05.
**p < .01.

Table 6 contains data similar to that in Table 5 based upon ratings of the extent to which the use of a "line" or liquor or any other such exploitative tactic is justified to have intercourse. These techniques were seen as somewhat more justified than the use of force. Sex callousness was once again moderately positively correlated with the justified use of such exploitative tactics to gain coition. Sex guilt was negatively correlated with the use of tactics as were hostility guilt ($r = -.25$) and morality-conscience ($r = -.38$).

Table 6

"LINE," LIQUOR, ETC. TO HAVE INTERCOURSE JUSTIFIED

			Correlations		
	Mean	SD	Sex callousness	Sex guilt	Sex experience
Loved girl	2.27	1.88	.34**	—.14*	.15*
Nice girl	2.98	2.09	.46**	—.29**	.24**
Loose girl	4.50	2.27	.45**	—.19**	.12
Golddigger	4.45	2.23	.44**	—.22**	.16*
Teaser	4.97	2.23	.47**	—.23**	.25**
Total "line"	19.18	8.67	.53**	—.27**	.22**

SD = standard deviation.
*p < .05.
**p < .01.

DISCUSSION

College males with sex calloused attitudes view the dating relationship as a contest (e.g., "All is fair in love and war" [43%]), in which winning is defined as having coitus. Male dominance is assured or reassured by the act of coitus, and dominance behaviors are a means to the goal (e.g., "You have to fuck some women before they know who is boss" [36%]; "You don't *ask* girls to screw, you *tell* them to screw" [25%]). Sex calloused males were more liable to use force to obtain coital access ($r = .20$) and to believe that force was justified ($r = .55$). While college men generally disapprove of force, in particular when loved or nice girls are involved, sex calloused males were less likely to rule force out as an unjustifiable tactic to gain intercourse. The use of other exploitative tactics to gain intercourse was more acceptable to college males when the girls were loose, golddiggers, or teasers. The sex calloused male was more liable to get a girl drunk ($r = .26$), to falsely profess love ($r = .33$), and to use pornography ($r = .26$) as a means of gaining coitus, and he believed that the use of a "line," liquor, and other such tactics was justified ($r = .53$) with a wide variety of girls. The sex calloused male was more liable to attempt petting and coitus on his dates ($r = .32$). Males with sex calloused attitudes were somewhat more sexually experienced ($r = .18$), and their use of aggressive and exploitative tactics led to some success in gaining intercourse ($r = .24$), but a technique like falsely professing love (64%) led to

twice as much success as aggressive force (31%) although they were used equally often (25%). The sex calloused male saw himself as more sexually experienced than his friends (r = .24), but saw his friends as exerting pressure on him to seek premarital sex experiences (r = .25). Males with sex calloused attitudes are less disposed to guilt over sex (r=–.16) and guilt over aggression (r=–.37) and are less likely to have a guilty conscience (r=–.39).

In this sample of 256 college males, 58% of them had used one or more exploitative techniques in an attempt to gain intercourse, and they were successful on 48% of those occasions. Why did these males violate the sex conduct norms? Of course, the data support the view that sex calloused attitudes toward women mediate the behavior, but the question seeks answers at other levels of theoretical discourse as well. To be satisfied, the men report they would require over four orgasms a week. Doubtless this level of orgastic experience is only available to single college males via masturbation. Kanin (1967) argued that sex aggressive males were frustrated because their erotic aspirations outrun their erotic accomplishments and their reference groups further pressured them toward dissatisfaction with that status quo. Sex frustration led to sex aggression. However, the present data, while admittedly not conclusive since they were not a priori addressed to this issue, failed to replicate Kanin's data on this point. Satisfaction tended to be positively correlated with sex aggression and total exploitation, and peer pressure was uncorrelated with sexual satisfaction.

There is no quarrel with Kanin's emphasis on the reference group as important; it undoubtedly is. But here we would argue that the role that the group plays is as a reflective other which is useful in forming a self-conception. The college male is still in the process of forming his identity as a man. The final achievement of that masculine identity-status hinges upon successful occupational achievement in our competence-oriented culture, with a successful marriage and a masculine style playing lesser roles. The nucleus of masculine identity is formed by the successful solution of a series of life crises, all of which require affective control of fear, anxiety, and other negative affects. At first this affective control is manifested in the development of the masculine style. The young boy inhibits his fear of falling, of speed, of noises, and the unknown in order to explore adventurously with dash and daring. The safety of the known is temporarily relinquished for the excitement of the unknown. He may be able to translate his growing affective control to the task of inhibiting his fear of failure in the academic setting, if he sees the relevance of that education for his future life. His peers will demand that he demonstrate his masculine style through athletics and fighting, to prove that he can indeed control his fearful emotions in the face of competition and danger. As he begins to date he must control his fear of rejection and be assertive. Calloused attitudes toward women serve to foster his assertiveness while meeting with the approval of his peers. Sexual success becomes the measure of the man, and everyone can at least learn to talk a good game. The sex calloused attitudes of the college male are seen as a way station in a developmental sequence which is ideally followed by an integration of love with exploitative sex. The endorsement

of such attitudes should decline with courtship and marriage, and even with educational and occupational success. Hypermasculinity or an exaggerated masculine style is characteristic of the young male who has yet to achieve his masculine status through the demonstration of occupational and marital competence, or of the male, often lower class and black, who is denied access to occupational success. Sex calloused attitudes then are not a correlate of sex frustration and sex agression stemming from high erotic aspirations, but are a manifestation of an exaggerated masculine style. One reassures himself of his masculinity by "------" women. Both the men's dominance of the woman and the peer recognition that he is a Man provide reassurances that serve as additional motives to sexual goals. To the extent that a male's masculine identity-status is achieved through any means, then the expression of sex calloused attitudes would decrease.

The present data are consistent with the mounting evidence that the Mosher measures of the personality dispositions to experience guilt over sexual and aggressive behavior are valid measures of aspects of the theoretical construct of guilt. The guilt measures were inversely correlated with sex callousness and sex experience. Sex guilt was negatively related to total sex aggression and exploitation ($r = -.25$), but most of that variance seemed to be a function of correlations with the use of exploitative tactics such as the use of liquor ($r = -.18$), falsely professing love ($r = -.16$), and showing pornography ($r = -.18$) rather than to sex aggression per se ($r = -.11$). When a male who was guilty over sex did make use of an exploitative tactic, then he was liable to be less successful at gaining intercourse than a less guilty male ($r = -.22$). High-sex-guilt males dated less ($r = -.3$), required fewer orgasms for satisfaction ($r = -.16$), but were more dissatisfied with their sexual activity of the past year ($r = -.15$), could admit virginity without much loss of status ($r = -.19$), and perceived themselves as less sexually experienced than their friends ($r = -.25$). The males who were more guilty over sex were less likely to attempt petting or intercourse with their dates ($r = -.34$) and saw the use of force ($r = -.19$) and techniques such as "line" and liquor ($r = -.27$) as less justifiable tactics to gain intercourse. Morality-conscience and hostility guilt subscales tended to be more highly negatively correlated with the justifiable use of force and sex calloused attitudes than did sex guilt. This was reminiscent of Oliver and Mosher's (1968) finding that prison homosexual inserters, who often rape the weaker homosexual insertee, were less guilty over aggression but were no different on sex guilt from the insertees. It may well be that certain types of sex aggression are more a function of the absence of guilt controls in the area of aggression than in the area of sex, but further investigation of such patterns is needed. With regard to sex calloused attitudes viewed as an exaggeration of masculine style, one would expect that a view of violence as manly would be correlated with sex callousness. Both manly violence and sex callousness are part of a *Macho* syndrome.

In the RESULTS section little emphasis was put on the correlations with sex experience. The author does not tend to view sex experience as an antecedent in

the same way that he does sex calloused attitudes or guilt. It appears that males within our culture acquire sexual experience in an order reflected in the Guttman quality of the sex experiences inventory. Some of the inquiries in the sex behavior questionnaire are not independent of sex experience, for example anyone who reports using an exploitative tactic successfully to gain intercourse also would report he had engaged in coitus on the sex experience inventory. Perhaps the most interesting finding with sex experience was that it correlated .70 with total attempted sex activity but only .18 with sex calloused attitudes. One could view the strong relationship between attempts and sex experience as simply indicating that if a man does not try then he does not succeed. However, it is tempting to speculate that the male who does try and succeed may generate an air of self-confidence that is attractive to women, while the woman who detects sex calloused attitudes may become quite wary.

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Emotional Arousal as a Mediator of Erotic Communication Effects

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INTRODUCTION

One of the more dominant themes in recent conceptions of communication effects is that specific *content* characteristics of messages directly elicit specific types of effects in a more-or-less one-to-one relationship. This paper reports on research stemming from a theoretical model with a somewhat different focus—that many dramatic communications (such as erotic messages, which are of direct concern to us here) evoke varying degrees of general emotional arousal, and that it is the level of such nonspecific (to any one emotional state) arousal, more than the specific content of the message, that determines the degree of subsequent behavior. This model was developed in connection with my recent work in the area of communication-induced aggressive behavior, and is perhaps best understood in that context.

Background to the problem

When a salient social problem is coupled with an equally intense theoretical interest in an aspect of human behavior, one can expect a substantial amount of scholarly speculation and empirical research to be generated. Accordingly, it is no

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surprise that few topics in the communication area have received the degree of attention that has been directed in recent years toward the portrayal of hostility and violence in the mass media. Concern with this issue as a matter of public policy is attested to by the growing number of governmental committees (e.g., U.S. Senate Dodd Subcommittee on Juvenile Delinquency, 1964) and commissions (e.g., National Commission on Causes and Prevention of Violence) concerned with this problem. The issue derives from the presence of violence in standard media fare, especially the heavy diet of beatings, shootings, and other assorted physical and verbal mayhem on television (cf. Gerbner, 1969), to which children are thought to be particularly vulnerable. Early warnings of possible harmful effects (Wertham, 1954, 1962) were dismissed as being based on little objective evidence. Data from a number of survey studies (cf. Himmelweit, Oppenheim & Vince, 1958; Schramm, Lyle & Parker, 1961; Larson, 1968) left many questions unanswered and generally contended that televised violence had neither harmful nor beneficial effects, except possibly on emotionally disturbed or otherwise particularly susceptible children. The possibility of favorable consequences of exposure to mediated aggression stems from a catharsis hypothesis of vicarious release of pent-up hostility in the viewer (Feshbach, 1962).

Considerable subsequent research, however, tends toward the rejection of such a catharsis effect and strongly suggests the opposite influence—that observed violence predisposes toward more aggressive behavior. In a number of experiments, Berkowitz and his associates (e.g., Berkowitz, Corwin & Heironimus, 1963; Berkowitz & Rawlings, 1963; Berkowitz, 1965; Berkowitz & Geen, 1966, 1967; Geen & Berkowitz, 1966, 1967) have repeatedly found increasing tendencies to aggress following exposure to a filmed boxing match sequence. In the Berkowitz formulation, the observed aggression serves to trigger already aroused hostility toward a particular target (another individual who previously "angered" the subject). Expression of such hostility may otherwise be inhibited due to prevailing antiagressive social norms and the like. Other experiments with children (Loovas, 1961; Mussen & Rutherford, 1961) support this instigational position, as does the work of Bandura (Bandura, 1962, 1963; Bandura, Ross & Ross, 1961, 1963a, 1963b) demonstrating the imitation of aggressive behavior.

An important theoretical distinction here involves the necessity of positing an angering agent as a convenient target for the induced aggressiveness. Berkowitz (1962), for example, suggested that the mere display of violence in the absence of such an angering condition may actually inhibit aggression. In this connection, studies by Walters, Thomas, and Acker (1962) and Walters and Thomas (1963) are pertinent in that they indicated induced aggressiveness without apparent angering or justification. Subjects showed an increase in the level of electric shocks they were allegedly administering to another subject after they witnessed a film of a knife fight between two adolescents, as compared to a neutral film.

Emotional arousal and aggression

The basic paradigm used in most of this research in film-mediated aggression would hardly qualify as instances of ideal experimental designs. Typically, they have involved three distinct stages: (*a*) an initial encounter session in which the subject is angered (or not angered, as a control) by an experimental confederate; (*b*) subsequent exposure of the subject to an aggressive (or a correspondingly nonaggressive) film; and (c) a postcommunication response situation in which the subject can aggress toward his earlier tormentor, usually employing intensity of apparent electric shock as the main dependent variable. Such a procedure is replete with a variety of possible contaminating effects of the "experimenter (or confederate) expectancy" (cf. Rosenthal, 1963, 1966) and "demand characteristic" (cf. Orne, 1962) variety, and some questions can be raised as to the inherent "aggressiveness" of the dependent variable measures (e.g., Hartley, 1964; Weiss, 1968).

More related to our concern here is the issue of differentiating the so-called "aggressive" and "nonaggressive" films. One of the difficulties in any research using existing (or even especially created) gross communication messages is the important design characteristic of having two (or more) stimuli which are essentially the same in all respects except for those portions that are varied systematically and knowingly. As with other such messages, the ones used in much of the research to date have included amalgams of content and form, which may well differ in characteristics other than the critical distinction (cf. Berkowitz, 1965) in terms of number and strength of aggressive cues. To be sure, it is extremely difficult. if not impossible, to construct two even relatively short (the ones typically used have lasted less than 15 minutes) films that differ only in degree of aggressiveness as such. This, in turn, implies that special care must be taken in interpreting any differences in the effects such messages may produce, particularly in terms of the attribution of such effects to other possible differentiating and relevant characteristics.

Recent speculation focusing on emotional arousal through communication messages—stemming largely from Schachter's (1964) theory of emotion—may contribute something on this point. In the present context, this line of inquiry accepts the demonstrated instigational effects of aggressive messages, but questions the explanation of such effects in terms of the aggressive content alone. It posits that strongly aggressive messages, such as the prize-fight films employed by Berkowitz and others, evoke a heightened state of generalized emotional arousal in individuals exposed to them (as compared to the control "nonaggressive" films). Thus, the demonstrated tendency toward aggressive behavior after exposure to such messages may be attributed to the higher degree of emotional arousal, as such, instead of—or, since the two models are not necessarily mutually exclusive, in addition to—the relative hostility of specific message content.

At its most primitive level, such formulation suggests essentially a drive model in which heightened arousal, however it is induced, leads to higher levels of

response, whatever particular response behavior is called for. Under such a conception, aggressive messages and aggressive behavior merely constitute a special case of a more general phenomenon. The typical experimental paradigm employed to date virtually demands that the subject engage in post-communication aggressive behavior by requiring him to administer electric shocks to the other party, the only option for him being the intensity of the delivered shock along with its duration. By this primitive version of the model, the more intense shocks are directly attributable to the higher level of arousal, and this higher level of arousal would presumably be reflected if another, nonaggressive type of behavior were elicited from the individual. By the same token, the model suggests that other nonaggressive but arousing messages would serve just as well to induce higher levels of subsequent aggressive behavior.

A more sophisticated version of the same basic formulation would detail the role of cognitive factors—message characteristic and situational variables—in precipitating specific behavioral responses. Such a version would be more compatible with Schachter's theory of emotional state (Schachter, 1964, 1967; Schachter & Singer, 1962; Schachter & Wheeler, 1962) which postulates an interaction between cognitive and physiological factors as the determinants of emotional behavior. In this view, the individual utilizes cognitive and situational information in order to attach an emotional label to a state of physiological excitation (begging the question, for the time being, about the felt awareness of the excitation). While still involving physiological arousal, in the present context such a version makes more explicit the particular aggressiveness of both the film and the response situation in directing the labeling process and hence eliciting more "appropriate" aggressive behavior. Presumably, if the individual were somehow led to attribute the excitation to other, nonaggressive cognitions, less aggressive behavior would result.

While Berkowitz's original model focused more directly on the aggressive cue features of the aggressive film, he has more recently (Berkowitz, 1969) speculated on the role of general physiological arousal as a factor increasing the probability of aggressive behavior resulting from observing aggression. This suggestion was examined experimentally in a recent study by Geen and O'Neall (1969). Subjects were first shown either an aggressive boxing film or a presumably less aggressive film on various sporting events. They then administered shocks under two conditions—while they were being exposed to a presumably arousing (but noxious) constant white noise, or in its absence. While the results were not entirely consistent, they did tend to show the expected heightening of level of aggressive response under the combined treatments of an aggressive film and the arousing noise. This study, however, is not fully relevant to our present concerns, both because it does not address itself directly to the question of arousal resulting from the communication stimulus itself, and because the initial manipulation—the presumably arousing white noise—is coupled with the response act rather than the film exposure.

Focus of report

Given this conceptual background, our work has proceeded in two main related approaches. The first and most obvious involves the testing of the basic theoretical model of emotional arousal mediating subsequent behavior in response to a communication stimulus. Both the so-called drive version, dealing only with the arousal variable as such, and the more sophisticated two-factor version, involving the interaction of excitatory and cognitive factors, obviously merit investigation. The second approach involves distinctive characteristics of the communication message that may restrict or enhance the degree of emotional arousal it produces, and hence its behavioral consequences. The particular focus here is the issue of censorship in the form of the deletion of specific segments of content and its effect on the total impact of the message.

This type of theoretical formulation and the accompanying program of research, although dealing mainly with aggressive messages, have obvious implications for the study of erotic materials, and our work has reflected such a relationship. On the stimulus side, among the various materials we have used as arousal messages have been ones specifically selected for their erotic content. In addition, although none of the research has been involved with what might be classified as erotic behavior as a dependent variable, there is considerable interest in the degree of physiological excitation produced by erotic messages, and, of course, in the effect of obscenity on aggressive behavior. This report will reflect both these concerns, in the process omitting certain other research which, while related to the main theoretical issue, is somewhat removed from the question of the effects of obscene and pornographic materials as such.

EXPERIMENTS ON THE AROUSAL MODEL

A considerable body of physiological and psychological data and speculation can be marshalled to develop a cogent rationale for the emotional arousal model presented here all too briefly. But such conjecture, reasonable as it may appear, is also somewhat premature. Before one gets carried too far with attempts at justification, it is obviously desirable to have some empirical data in hand. At the very least, data demonstrating that such an effect can in fact exist is called for, especially with regard to the domain of behavior under consideration—communication-instigated aggression. Once that is established, other aspects of the formulation deserve experimental investigation.

Experiment I: Erotic vs. aggressive messages

A most obvious implication of the line of reasoning developed in formulating the emotional arousal model is that a confounding element was introduced (probably inadvertently) into the previous experimental research in this area. Comparisons of apparently aggressive films with apparently nonaggressive films may have contrasted not only different levels of aggressive cue value but also

markedly different levels of emotional arousal. Aggressive film sequences, such as brutal boxing matches, may or may not contain appropriately aggressive cues; this was an implicit assumption made by previous investigators, based largely on their own subjective judgment. The suggestion here is that such films constitute highly emotionally arousing experiences for the kinds of subjects employed in these experiments; this is also an assumption which may or may not be correct.

The present experiment was undertaken as an attempt to provide a deconfounding of these two theoretical mechanisms to account for the instigation of aggressive behavior from film messages. Rather than assume relatively different levels of either aggressive content or emotional arousal, an attempt was made to select appropriate film stimuli by more empirical and objective means. This was readily accomplished in the case of indexing the level of emotional arousal, where a number of sensitive and appropriate physiological measures are available. The matter of inherent aggressiveness of a film must remain a judgmental phenomenon, however. An attempt was made to employ a variety of such judgmental indices from a sample of the subjects to be used in the experiment, rather than basing the selection on the experimenter's personal judgment alone.

The ideal experimental design to accommodate a deconfounding of the two possible factors would involve a complete orthogonal design in which different levels of one variable vary with correspondingly different levels of the other. This was the design originally planned, but it proved to be operationally infeasible when details of experimental materials and procedure were spelled out.

One condition of the indicated design was largely responsible for this operational barrier—oddly enough, for the same reasons that this research was undertaken in the first place. This involves the situation in which a message of high aggressiveness but low arousal was required. As has been reasoned earlier, a highly aggressive film is—almost by definition, and by its very nature of being aggressive—also highly arousing for most individuals. Designing and producing a message that would be high on the first factor but low on the second proved to be a virtually impossible task in practice.

The reverse, however, is quite feasible. Since generalized, nonspecific emotional arousal can be produced by stimuli other than aggressive ones, it was reasoned that a film of high emotional excitation but relatively low aggressive cue value could be obtained. Further, if the differences between such a film and an aggressive one were such that not only was the former significantly lower in aggressiveness than the latter, but also significantly more arousing, then at least a minimal comparison of the two theoretical mechanisms would be possible. It was felt an appropriate erotic film should be able to meet these critical differentiating conditions. Thus, if the eliciting cue model were more valid, the prediction would be for the aggressive film to lead to more subsequent aggressive behavior than the erotic film. On the other hand, the emotional arousal model would predict just the opposite effect. To provide a common base line, and to accommodate a possible interpretation based on the symbolic catharsis model (cf. Feshbach,

1962), a third neutral film condition, representing low levels of both aggressiveness and excitation, was included in the design.

Message selection. The first order of business was the selection of appropriate films to reflect the three main experimental conditions. Six films were preselected on intuitive grounds as eligible candidates—two neutral and two aggressive film clips used in earlier research in this area, and two erotic films (one commercial and the other especially produced by us) not previously investigated. The same set of 12 male subjects was exposed to each film in a fully replicated design, randomizing order of presentation to accommodate possible sequential effects.

Assessments of heart rate, systolic and diastolic blood pressure, and skin temperature were obtained immediately before and after each film, as well as at selected points during the film, on a four-channel Sanborn Oscillograph.[2] In addition, the films were rated individually and relative to one another, on a set of verbal rating scales designed to reflect their respective degrees of perceived aggressiveness.

In accord with conventional practice, the blood pressure readings were also converted into a composite Mean Blood Pressure (MBP) index, reflecting the main effects of the humoral system:

$$MBP = DBP + 2/3(SBP - DBP)$$

where DBP is diastolic and SBP systolic blood pressure. In addition, an index of sympathetic activation (SA) combining both neurally- and humorally-mediated factors of excitation was also obtained:

$$SA = (\triangle HR) \cdot (\triangle MBP)$$

On the basis of the various measures of arousal and the aggressiveness rating, three film segments were selected as best meeting the respective requisite conditions. The student-made erotic film, dubbed *The Couch*, was significantly more arousing but judged significantly less aggressive than the selected aggressive film, a cutting for the feature film *Body and Soul* similar to that used earlier by Feshbach (1962). By comparison, the selected neutral film, *Adventures of Marco Polo*, was significantly lower than either experimental film on both criteria. Table 1 presents the respective MBP and aggressiveness ratings as illustrations of the magnitude of differences between the three films.

Method and procedure. The general procedure followed that employed in most of the studies by Berkowitz with some modifications introduced to reduce the suspected degree of experimenter expectancy (e.g., Rosenthal, 1966) and demand characteristic (Orne, 1962) contamination (see Zillmann, 1969, for these and other details.)

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2. Subjects were told at the outset that the study was to investigate physiological reactions to a number of short films, and were invited to withdraw from the experiment if they objected. Similarly, prior to each particular film, subjects were briefly informed about the subject matter of that particular film, and again were not required to participate if they felt so inclined. None withdrew from the study on either of these bases.

Table 1

MEAN AROUSAL AND AGGRESSIVENESS SCORES FOR THREE SELECTED FILMS

Film	Mean blood pressure	Mean aggressiveness rating
The Couch	17.76_a	1.75_b
Body and Soul	4.69_b	1.33_a
Marco Polo	-2.55_c	4.50_c

Note: Means with different alphabetical subscripts differ from each other at or beyond the .05 level by the Wilcoxon Paired Comparison Test for the Mean Blood Pressure measure, and the Neumann-Keuls Test for the aggressiveness rating.

Aggressiveness ratings are on a five-point scale, with the higher scores indicating judgments of greater aggression.

Subjects were male college students, tested individually. In the first stage of the procedure, each subject was placed into apparent interaction with an experimental confederate, with the latter delivering electric shocks[3] to the subject in response to his expression of opinion. The second phase involved exposure to one of the three film conditions, to which subjects were randomly assigned on a pre-arranged schedule (N=21 per condition). Immediately following the end of the film, the subject again interacted with the confederate, except this time the subject was required to deliver 12 shocks, each in response to the confederate's apparently incorrect replies on an information test. To perform this task, the subject was seated before a panel of 10 buttons allegedly representing increasingly more intense levels of shock. Thus, while he was required to administer some punishment to the confederate, he was perfectly free to control the intensity of the punishment (and for that matter, the number of such shocks per trial and the duration of each shock).

Results. In accord with the earlier research, the main dependent variable for analysis here is the average intensity of the shocks administered over the total of 12 trials. Table 2 reports the findings on this variable, and demonstrates a high level of significance ($p < .001$) for a differential effect of the three experimental film conditions on subsequent behavior.

Of principal interest, these results demonstrate a significantly ($p < .05$) higher level of aggressive behavior in the relatively more arousing but less aggressive erotic film condition than in the more violent, less arousing aggressive film condition. This finding—the main focus of the present study—is clearly in accord with the prediction based on the theoretical model developed in this paper, attributing the main influence of a film on subsequent aggressive behavior to the

3. Again, all potential subjects were forewarned that some use of electric shock, with them serving as both recipients and deliverers of such shocks, would be involved. Any subject voicing apprehension at engaging in such activity was excused from further participation. All actual shocks were of 25 volts and lasted about a half second.

Table 2

MEAN SHOCK INTENSITY FOR NEUTRAL, AGGRESSIVE, AND EROTIC FILM

Film condition	Shock intensity
Neutral	3.067_c
Aggressive	3.948_b
Erotic	5.071_a

Note: Means with different alphabetic subscripts are significantly different from each other beyond the .05 level by Neumann-Keuls Test.

film's arousal potential. By the same token, this result is contrary to what one would expect from an eliciting cue type model, where the instigational effect is presumably due mainly to the aggressive cognitive content of the film.

Given this finding, one could still argue that the differential effect between these two film conditions was due not so much to a superior instigational influence of the erotic condition but rather to an inferior effect of the aggressive film. Such an explanation, for example, would follow from the type of symbolic catharsis model advanced by Feshbach (1955, 1961), by which an already instigated individual reduces his disposition toward aggressive behavior as the result of his vicarious participation in activities presented in an aggressive film. However, if such a phenomenon was operating in the present experiment, there should have been no difference between the low-aggressive erotic condition and the comparably low-aggressive neutral condition. Since both represented the same level of initial angering, and because of their relatively low level of depicted aggressiveness, neither condition should have offered much opportunity to engage vicariously in aggressive behavior, and thus neither should have allowed for a cathartic release of instigated aggression. By similar reasoning, such a theoretical position would predict a lower level of aggressive behavior resulting from the presumably cathartic aggressive film condition than from the neutral condition.

A principal reason for including the neutral condition was to allow for the testing of such an alternative explanation. The results on both comparisons are clearly contrary to the symbolic catharsis predictions. The erotic film condition was significantly ($p < .01$) more instigating than the neutral condition; similarly, the aggressive film produced significantly ($p < .01$) more rather than less aggressive behavior than the neutral film.

Experiment II: Rewarding behavior

As we have seen, the findings of the initial experiment clearly support (although they do not necessarily "prove") the basic arousal model. It will be recalled that this formulation does not apply uniquely to aggressive behavior.

Particularly with respect to the primitive drive version of the model, the contention is that a message of higher emotional arousal value should yield a more extreme level of subsequent behavior, no matter what particular type of subsequent response the individual is called upon to perform. What would happen if the subject, under conditions otherwise similar to the first experiment, were required to respond in some nonaggressive manner?

A particularly intriguing instance of such nonaggressive behavior would be the seemingly opposite situation in which the subject helps or rewards the confederate. If the drive model is correct, we should expect similar results under such circumstances as in the first study—that is, more rewarding behavior following the more arousing of two films. The present experiment was undertaken to test just this proposition, comparing the more arousing erotic film with the less arousing travel film.

In addition to manipulating the communication input, it was also felt appropriate to vary the nature of the antecedent subject-confederate interaction. Such a consideration relates more to the cognitive attribution version of the arousal model, the important distinction being to vary the degree of similarity between the initial encounter session and the kind of behavior that the subject is required to engage in toward the confederate in the response situation. Accordingly, the initial interaction session was varied with the confederate being friendly toward the subject in one case (thus creating a situation quite similar to the subsequent response situation), and aggressive in another case (dissimilar to response situation). As a control condition, a third variation had no initial confederate-subject interaction.

It was possible to set up the rewarding response situation to parallel the aggressive behavior task, thus allowing for a more-or-less similar, if not directly comparable, measure. It will be recalled that the aggression situation involved the administration of apparent electric shocks in order to signal the confederate that he had made an incorrect response on an information test. There was a total of 12 such "incorrect" responses in a set of 20 items, subjects being informed that punishment on incorrect responses is one way of getting the confederate to "learn." An equally plausible way, of course, is through positive reinforcement, that is, by rewarding the confederate for correct responses. In this experiment, a total of 12 such "correct" responses was made by the confederate, and for each, the subject could deliver a reward of one to 10 points (which were redeemable for cash) by pressing one of 10 buttons on an apparatus quite similar to the aggression panel.

Results. Table 3 contains the relevant findings, presenting the mean reward intensity scores for the various conditions, along with the results of the comparison between the different means.

On an overall basis (i.e., across the three encounter conditions) there was a significant ($p<.05$) difference between the high arousal (5.25) and the low arousal (3.87) treatments, as expected on the basis of the generalized arousal formulation.

There was also a significant main effect due to the initial interaction variable, with the Aggressive Interaction condition (2.49) significantly below both the Helpful (6.11) and No Interaction (5.07) treatments, the difference between the latter being nonsignificant.

The interaction effect between the two variables was also significant ($p<.05$), and the pattern is readily apparent by examination of Figure 1 and the individual cell means in Table 3. Although in the predicted direction, the difference between the high and low arousal films on the No Interaction condition (1.63) did not quite reach significance ($.10>p>.05$). This difference was more marked and decidedly significant ($p<.01$) on the Helpful Interaction condition, where we might well expect the rewarding behavior to be more pronounced. However, when the rewarding response followed the aggressive interaction, the overall intensity was decidedly lower and the difference between the two arousal levels (.42) was negligible.

Table 3

MEAN REWARD SCORES FOR DIFFERENT FILM AROUSAL AND INITIAL ENCOUNTER TREATMENTS

	Initial confederate-subject encounter		
Film treatment	No interaction	Helpful interaction	Aggressive interaction
High arousal	5.88_{ab}	7.20_{a}	2.65_{ab}
Low arousal	4.25_{bc}	5.02_{b}	2.33_{d}

Note: Means with the same alphabetical subscript are not different from one another at the .05 level by Duncan Range Test.

Such a pattern of results clearly suggests that while there is considerable support for the pure drive version of the arousal model, it is not totally free of influence from accompanying cognitive conditions. The drive model is strongly supported in the Helpful Interaction condition—where the called-for behavior is cognitively compatible with the nature of the initial encounter—and somewhat supported under conditions of no prior interaction. However, when the called-for behavior is inconsistent with the initial encounter, the model no longer holds. This latter finding lends credence to a model which contains both arousal and cognitive factors (although it is important to note that the cognitive factors in this case did not directly involve the film content).

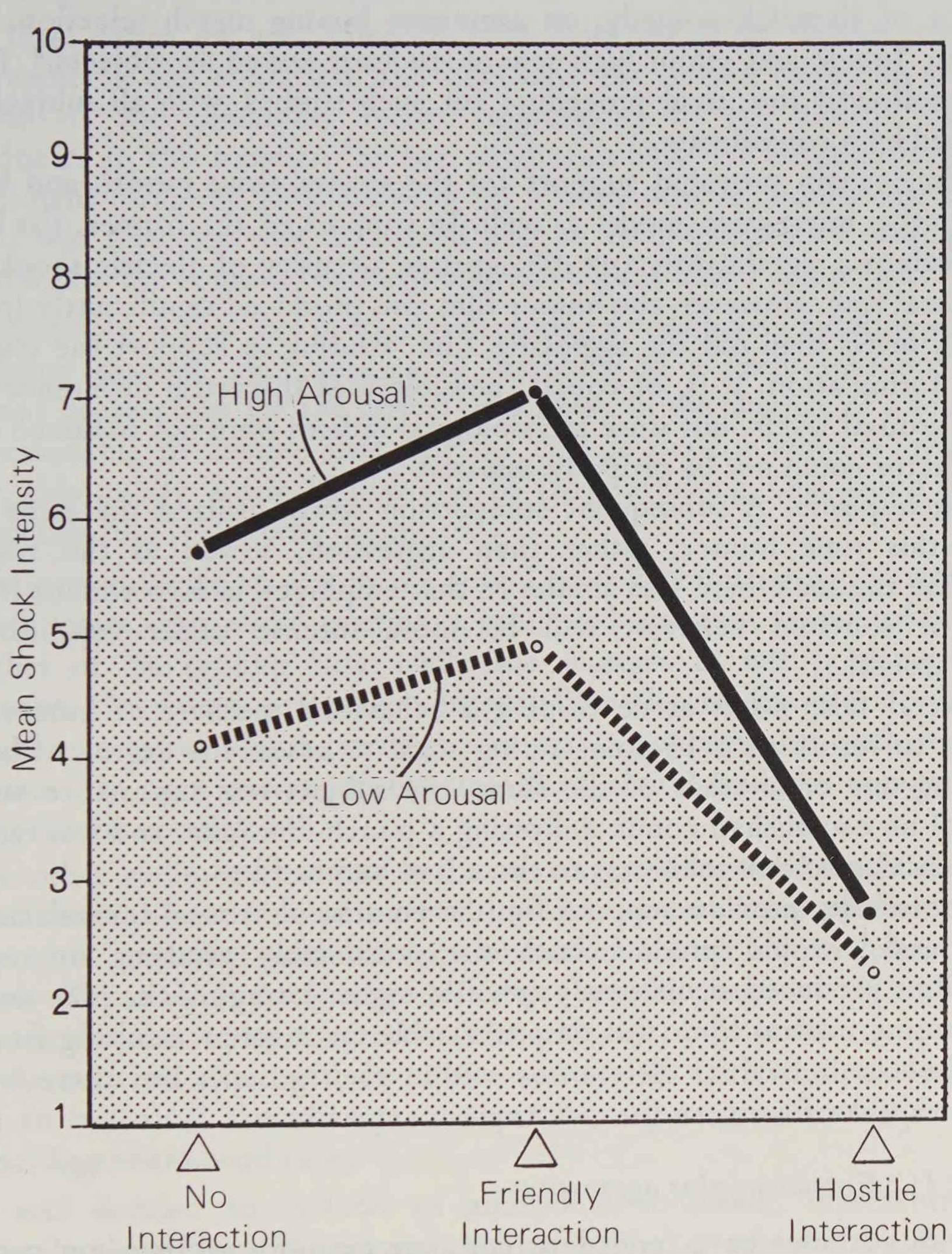
Experiment III: Humor and aggression

Although it does not bear directly on the issue of erotic communication messages, we do have data from an additional study—actually two separate but

related experiments—which relate to the arousal drive formulation, and thus merit some passing attention here.

Figure 1

Shock Intensity By Arousal Level And Different Initial Interaction Conditions



Humor as a stimulus. One study is addressed to the nature of the stimulus. At its simplest, the drive model suggests that it is the generalized, nonspecific physiological arousal, as such, more than the specific cognitive content of the message, that triggers off any subsequent behavior, aggressive or otherwise. It was thus reasoned that a film featuring violence could evoke high arousal and lead to higher levels of subsequent aggressive behavior, and we have seen how a highly

arousing but nonaggressive erotic film can produce the same effect. For this particular study, it was reasoned that humor can also serve as an arousing stimulus, and hence, despite its nonaggressive connotation (although, to be sure, humor can be quite aggressive on occasion), should elicit appropriate levels of subsequent aggressive behavior.

Three films were employed in this particular study: a humorous film, featuring heavy doses of slapstick comedy; an aggressive boxing match selection; and a neutral film. Junior and senior high school students served as subjects.[4] Testing conditions followed the usual procedure for such studies, with all subjects first being angered by a confederate.

The findings again provided support for the arousal drive model, and for the arousal-cognitive interaction model as well. In support of the former, the humor film did produce a significantly ($p = .05$) greater intensity of electric shocks than did the neutral film. However, the humor film also produced significantly ($p < .02$) lower shock levels than did the aggressive film, tending to support the cognitive attribution formulation. It is, of course, possible that this latter difference is due to variable arousal levels, but since physiological indices were not obtained in this study this factor could not be properly assessed.

Humor as response. A subsequent comparison study utilized the same three films, but this time humor, rather than aggression, served as the response modality. The rationale here was similar to that employed in Experiment II—that any type of solicited behavior will be more intense under conditions of heightened arousal.

After several false starts at developing a behavioral measure of humor,[5] we were forced to resort to a 15-point rating scale to assess the degree of humor. After viewing one or another of the films, the subject was exposed to another short film of an established comic delivering a punch-line joke, and was required to rate his reaction to that joke (not to the initial humor film).

Again, the results provide support for the emotional arousal formulation. As the drive model would predict, both the presumably arousing humor and aggressive films produced significantly ($p < .05$) higher ratings of the joke than did the less arousing neutral film (this despite sizable error terms resulting from the very considerable individual differences within each group). But there was no difference to speak of between the two experimental films.

Experiment IV: Eroticism plus aggression

The previous studies have tended to compare two or more levels of arousing messages. In particular, in Experiment I the critical comparison was between a

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4. It should be noted that considerable variation in humor judgment was obtained in all attempts at pretesting for a suitable humorous film. What is seen as comic or humorous is apparently subject to wide individual differences, which may mitigate against extensive work with such materials. This variation was particularly pronounced among college students.

5. The so-called laugh meter alluded to in network television and radio programs turned out to be little more than a loudness level index, highly subject to external contamination as a measure of laughter volume and entirely suspect as an index of degree of humor.

more arousing but less aggressive erotic film and a less arousing but more aggressive film. As we have noted, such message characteristics as eroticism or aggressiveness are not necessarily separate but can be, and quite often are, combined in the same communication. An appropriate problem for investigation, then, is to examine the effect of such a combined treatment with one in which only a single component was present.

An ideal design for such purposes is to have one of the factors (say, the erotic component) in one condition, and then have the second condition represent the addition of the remaining factor (aggression) to the already existing first component. In this manner, the two conditions have one element in common and one element different, thus allowing for a more precise comparison between the two. It was reasoned that this could best be accomplished by making the visual part of a film the common element and varying the audio component.

Accordingly, a film was produced depicting a young lady entering an apartment and going through the motions of disrobing in a fairly sensuous manner in apparent preparation for the arrival of a lover. In the absence of a sound track, it was reasonable to assume that, for the college student subjects involved in this study, this mildly erotic film would be fairly arousing. One group was exposed only to this film (Film-only condition).

The critical variation was in the sound track accompanying the visual material. In both cases, this audio portion represented apparent stream-of-consciousness thoughts of the young lady while she engages in her preparations. In one treatment, the sound component essentially reflected the erotic visual portion. The girl reminisces about previous love-making experiences with her lover, and expresses her anticipation of his imminent arrival and the coming experience (Erotic/Erotic condition).

The other audio version featured a more aggressive sound track. The girl begins by reminiscing about their past affair, but she also recalls his indifferent treatment of her, his infidelity, and his apparent intention of rejecting her for another woman. The sound track expresses her extreme rage at this situation, and indicates that she is planning to lure him with her obvious amorous preparation so that she may do away with him once and for all. Different murder possibilities occur to her—shall she attempt to shoot him, poison him, stab him, and so on (Erotic/Aggressive condition).

It was decided to include an additional condition, representing a minor addition to the Erotic/Aggressive treatment. Earlier research by Berkowitz and LePage (1967) had suggested that the mere presence of an offensive weapon (a rifle, as compared to a badminton racquet) during the administration of electric shocks produced a significant increment in the intensity of the shocks. It was reasoned that a similar effect might obtain where the film message contained explicit depictions of weapons. Accordingly, this added condition was identical to the Erotic/Aggressive condition, except that there were brief visual inserts in the film of the potential weapons—a revolver, a vial of poison, a dagger, and a rope—at

appropriate points during the girl's anticipation of one or another means of committing murder (Weapons condition).

The procedure was essentially the same as in the previous aggression studies: subjects were first angered by the confederate, then exposed to one of the film treatments (by random assignment) and then could engage in shocking the confederate under the usual circumstances. Because of testing conditions obtained at the time of the experiment, no measures of physiological arousal were obtained.

The results of the study were quite clear, as Table 4 attests. As expected, the essentially redundant Erotic/Erotic condition produced shock interactions not significantly higher than the Film-only condition. However, in the main comparison, the combined treatment of erotic and aggressive content did produce a significantly ($p<.05$) higher response level. Adding specific depictions of the weapons apparently did not increase the impact of the Erotic/Aggressive conditions appreciably.

Table 4

MEAN SHOCK INTENSITIES FOR SINGLE AND COMBINED EROTIC AND AGGRESSIVE FILM CONDITIONS

Film condition	Shock intensity
Film only	4.32_a
Erotic/erotic	4.90_a
Erotic/aggressive	5.87_b
Weapons	6.02_b

Thus, we find an increased effect when the elements of eroticism and aggressiveness are joined in the same presentations. But the mechanism for this observed increment in effect is not so readily apparent from this study. In keeping with the general arousal model, it is quite possible that it is due to increased arousal produced by adding aggressive content to an already arousing erotic message. The absence of specific measures of physiological activation here does not allow for a more complete test of this hypothesis. At the same time, it is quite possible that the differential effect is more a reflection of the correspondence between the aggressive response task and the aggressive cues present in the Erotic/Aggressive and Weapons conditions, but not in the Erotic/Erotic and Film-only conditions.

Summary and discussion, experiments I-IV

The model of emotional arousal as a mediator of postcommunication behavior was suggested as a plausible alternative to the formulation based mainly on

content characteristics of the message leading to aggressive behavior. As such, the suggested model has fared fairly well—at the very least, it remains a plausible formulation on the basis of evidence from the several studies presented in this report, with little reason for rejecting it at this stage. This model holds for communication-induced aggressive responses, but has also received support for the quite different helping behavior responses and, to a lesser extent, for humor judgments.

While these data tend to support a basic drive formulation, suggesting that once a person is aroused by any means he behaves in a more intense manner when put in a given response situation, they do not necessarily reject the influence of cognitive cue factors. This conclusion appears to be warranted whether applied specifically to the Berkowitz theory for disposition to behave aggressively, or more generally to the hypothesized interaction between arousal and cognitive factors leading to selective labeling and attribution of felt emotional arousal.

One reason that the influence of cognitive cue factors cannot be discounted is that neither version of the pure arousal model can satisfactorily account for the findings in some of the earlier research on communication-induced aggression. An obvious case in point is presented by many of the recent studies conducted by Berkowitz and his coworkers in which the presumed more aggressive boxing match clipping from the movie *The Champion* produced more intense reactions than the assumed less aggressive *Track Race* film. Rejecting earlier, more banal control films, the *Track Race* film, featuring Bannister and Landy both breaking the four-minute mile barrier at the British Empire games in 1952, was selected specifically because it was judged to be equally competitive but less aggressive than the experimental boxing film (e.g., Berkowitz & Geen, 1966). It was presumed at the time that the two films would not be all that different in terms of excitatory potential, and our post hoc physiological data (cf. Zillmann, 1969) in connection with Experiment I show that this is not an unreasonable assumption. Thus, the differences consistently noted in the past cannot be accounted for by a pure arousal model, and suggest that aggressive cues may be a critical differentiating factor. However, since the pretest data in Experiment I also indicate that the track film was not judged significantly less aggressive than the boxing film, the same question may be raised in regard to a purely eliciting cue explanation.

Similarly, it appears difficult to invoke the emotional arousal formulation to explain the findings of several studies showing a heightened aggressive effect under conditions of greater cue similarity between the film and response situations. For example, it was found that the instigational effect of the boxing film was enhanced still further when the confederate was identified as a college boxer rather than a speech major (Berkowitz, 1965a), or as having the same Christian name as the lead actor in the film (Berkowitz & Geen, 1966, 1967), or even as the film character portrayed by the lead actor (Geen & Berkowitz, 1966). Such findings are, of course, directly in keeping with the eliciting cue model. Although the arousal model could possibly be stretched to accommodate such

findings—for example, by arguing that the reinstatement of a name associated with an arousing stimulus may serve to introduce an added increment of arousal in the response situation—it is obviously a case of straining the point a bit much, at least without any supportive data.

The results of the several studies showing a stronger effect under conditions where the aggression is presented in a justified manner are also not readily accommodated by the arousal model. This is particularly true in the case of the study by Hoyt (1967) where there seems little reason to suspect different arousal levels for different kinds of justification. It was found, however, that justification by vengeance, seemingly cognitively more similar to the response context, produced more aggression than did justification by self-defense.

By the same token, the more recent studies reported here also contain evidence of cognitive cue factors operating in addition to an arousal mechanism. In Experiment II, for example, we found that the helping behavior was generally at a considerably higher level when the initial encounter between subject and confederate was of a friendly nature (or even completely absent) than when it was of the cognitively different but presumably no less (probably more) arousing aggressive kind. The observed interaction effect between this variable and the level of arousal in the two films also speaks for some cognitive influence modifying the pure arousal effect. In addition, we have noted that while the different hostile effects of the aggressive and humor films might be explained by different levels of arousal, they can be readily accommodated by a cue similarity paradigm. And far from least, the results of Experiment IV have been discussed both in terms of an arousal and cognitive attribution explanation with little evidence available to favor one over the other.

To be sure, the critical experiment contrasting these two explanatory principles has yet to be conducted. It is most likely, however, that a formulation combining both postulated mechanisms provides the more valid, if less parsimonious, model. As we have noted on several occasions, the two theories are not mutually exclusive, and can just as readily exist side by side as in opposition. Berkowitz (1969, 1970) himself has recently adopted the arousal mechanism into his explanatory framework. If we read him correctly, however, he tends to argue that it is the aggressive cues that are paramount—that without them, there is little inclination to engage in subsequent aggressive behavior—and that arousal serves as an added impetus to an already existing hostile tendency. On the basis of our own work, we would opt for the reverse order of influence—that it is the elicitation of a significant degree of emotional arousal that serves to activate the organism, leading to a heightened readiness to respond in whatever situation that happens to come along. Once activated, this potential to respond can be channeled in different directions, with such cognitive factors as cue similarity and the like serving to raise the probabilities of one kind of response over another.

Such a formulation is actually quite compatible with Schachter's (1964, 1967) theory of emotions, which originally provided the motivation to consider emotional arousal as a factor mediating postcommunication behavior. Schachter's

innovative work—along with various efforts, such as those of Lacey (1962), Obrist (1963), Lazarus (1968), and others, demonstrating distinctive patterns of physiological reactivity to particular types of stimuli—provides a cogent basis for such an approach. To this can be added the assumption that the arousal produced by a stimulus does not abruptly cease with the disappearance of that stimulus but can linger on for seconds, even minutes, especially with regard to the slowly decaying humoral and cardiovascular physiological processes (cf., e.g., Ax, 1953; Funkenstein, King & Drolette, 1962; Brady, 1967). Thus, if we consider two emotionally arousing stimuli occurring in succession, the residual excitation from the former may be thought to accrue to—or be "transferred to" (Zillmann, 1969)—that elicited by the latter, thereby endowing it with a greater response potential. In this manner, part of the physiological arousal produced by a communication message may still be available when the individual is called upon to respond in some particular way, and thus should lead to more intense behavior than might otherwise (i.e., without the arousal from the preceding message) occur. It follows that if antecedent messages differ in degree of excitation produced, they will differentially influence the intensity of the subsequent behavior.

Reasonable as it may appear, such a formulation is obviously highly speculative and is far from proven by the available evidence. But, as we said at the outset, it represents a plausible conceptualization, moreover one that has sufficient specificity to lend itself to more exacting scrutiny and examination—which is the least one should expect from a theory before it is either accepted or rejected.

CONSEQUENCES OF CENSORSHIP TREATMENTS

The portrayal of violence in films and television does not occur in the raw (although the same can hardly be said for erotic films!) but appears to take place in certain fairly consistent social contexts (Gerbner, 1969). It is likely that communication obscenity too does not occur randomly in the media, but that its presentation is often accompanied by, and hence associated with, a number of additional factors in the message. The influence of such presentational factors upon the impact of aggressive and erotic materials is of obvious applied interest, and is not without theoretical significance as well. A major research effort is required to identify the presentational variables, to isolate and, if necessary, simulate them for laboratory (and possibly field) experimentation and then to investigate their consequences in the reactions of viewers of such materials. In keeping with our theoretical focus, we are interested in assessing such consequences whenever possible in terms of level of emotional arousal and postcommunication behavior.

A few instances from recent research serve to illustrate the point for the violent content. A particular case in point concerns the issue of *justification*, as when the

aggression is commonly presented as a means toward a socially legitimate end, often as the administration of justice itself. Some have argued that under such circumstances, the instigational impact of the presented aggression would be blunted, compared to instances when the aggression is not justified. The opposite position can be argued as well—that by cloaking the violence in a mantle of respectability, the use of aggression is justified as a means of achieving desired goals, a lesson that can be generalized to all sorts of social situations by the message recipient. There are now a number of investigations demonstrating that such justification—in terms of a simple good-guy vs. bad-guy dichotomy (e.g., Berkowitz & Rawlings, 1963; Berkowitz, 1965) or as vengeance and self-defense (Hoyt, 1967)—consistently produces more, rather than less, subsequent aggressive behavior on the part of the viewer.

A related issue concerns the portrayal of negative *consequences* of the observed aggression. All too often, the lack of proscriptions on the depiction of violence accompanied by the presence of prohibitions against dwelling on blood and gore, mutilated bodies, faces of dead people, and so forth results in the vivid presentation of violence itself with none of its brutal and fatal consequences. We have reasoned that the absence of these additional materials should stimulate even more subsequent aggression rather than reduce it, and this expectation has been confirmed in recent studies (cf. Coranson, 1969). The mechanisms involved in such an effect are still a matter of speculation and research—for example, the question arises of whether the arousal factor acts as a mediator, or whether the effect noted is due to the subject making cognitive causal connections between the violence and its negative consequences, or whether it is due to the sheer association of any negative stimulus with the particular film.

It is somewhat ironic that with both these variables—degree of justification, and negative consequences—current television practice tends to encourage the very conditions that foster an increased instigation of aggression. By depicting aggression as justified, it tends to sanction aggressive behavior. By deleting the negative consequences of aggression, it tends to "sanitize" it. Such a practice is probably not deliberate and is probably unwittingly naive, but since some degree of selection is necessary it amounts to a type of censorship nevertheless. It also points to the need of theoretically motivated research to serve as a systematic aid to help guide desirable practice and selection.

Another common practice that merits investigation is the use of *partial censorship*, in which part but not all of the aspects of a depicted (usually visual) event are deleted. The basic rationale is that by providing sufficient antecedent and/or subsequent cues regarding the nature of the event while deleting the actual presentation of it, more intense reactions to the message may actually be stimulated. The assumption is that if enough cues are provided, the individual is stimulated to engage in his own fantasy and imagination to fill in the missing details. In the first place, he may well fill in more vivid details than those actually deleted. Secondly, and more to the point theoretically, by actively engaging in

this filling-in fantasy behavior, the subject can become a more involved participant rather than a relatively passive receiver. This added *involvement*, it is reasoned, should then lead to additional arousal that can mediate more intense subsequent behavior.

We have made a modest start investigating such a conception of the effects of censorship. This has involved two preliminary studies, one dealing with erotic material and one with violence, and one more substantial undertaking with an erotic message.

Experiment V: The filling-in of deleted eroticism

Our initial study in this area (and the one which really precipitated our interest in the entire problem) stemmed from a case of actual censorship in a foreign country several years ago.[6] A feature film was scheduled, and local authorities had decided that a particular scene depicting an act of rape was to be excised for public showings. As is often the case with such acts of censorship, there was considerable controversy regarding the wisdom and justification for such action. The censoring authorities, in the usual manner, claimed the deleted segment was "overly explicit and vivid . . . pornographic in intent and content . . . (and) designed to stimulate immature minds." Equally predictable, the anticensorship forces countered by claiming that the act of censorship interfered with the "artistic integrity and expression" of the film, that it constituted "an act of rape more ravaging than the (censored segment)" and, most significant to our purposes here, that "the censoring act itself could be more stimulating in prurient ways than leaving the film as it was."

I happened to be visiting at the time, and became somewhat involved in the controversy by virtue of my supposed position as a so-called "communication expert." When called upon for a statement, I indicated that I felt both sides of the issue presented a plausible case in terms of potential effect but that, while I personally tended to favor one side, the question was really an empirical one and merited actual research investigation rather than continuing rhetoric. This plea for empirical investigation could not be accommodated to help resolve the current controversy (the censored version was upheld); however, several students and colleagues I was working with at the time joined me in setting up a simple experiment.

The purpose of this particular study concerned the content of the deleted material. As the formulation offered above notes (and, indeed, as pointed out during the testimony of the anticensorship forces in the actual case), when one deletes a section of a film, the viewer is not left in a total void. Often (as in the case in the film under consideration), there are abundant cues present before and

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6. Because the names and places involved are quite immaterial to the present context, and because the work was done under somewhat special unauthorized circumstances, I will refrain from indicating here the specific film and locale involved.

after the deleted scenes to point to the nature of the excised content, and the individual is stimulated to engage in the intellectual effort to fill in the missing material for himself. Thus, when viewers are left to their own imaginative devices, it cannot be predicted just what a given individual might fill in—it may be more vivid or less vivid than the actual material provided. Getting the viewer to engage his own faculties of fantasy and imagination is, of course, not a novel dramatic or aesthetic device, and it may well be operative in instances of deletion not deliberately created by the encoding artist but inadvertently introduced by some outside censor.

Three versions of the film were used for the study—the original version (Uncensored condition), the one with the critical scene deleted without any specific indication of a deletion having occurred (Unidentified Censored), and the same censored version with specific indication that the scene had been deleted at that point (Identified Censored). Two days after the exposure, subjects were presented with three pairs of verbal descriptions, each pair describing certain actions before and after a given segment of the film. Subjects were required to describe what happened between a given pair. One segment, of course, referred to the deleted material, and the descriptions of this passage formed the prime data for analysis.

Six coders were presented with the various descriptions, and asked to engage in a content analysis of the responses (without, of course, being aware of the version a particular description represented). Among other dimensions for allocations was a set of eight Lickert-scale type items intended to reflect the degree of "erotic vividness" of the written material. The various passages were randomly distributed among the coders, such that each coder rated an equal number from each version and that any given passage was rated by at least two coders. It was thus possible to obtain a "vividness index," ranging from a minimum score of 8 to a maximum (most vivid) score of 40, for each description and thus for each version.

The mean rating for the Uncensored version (27.82) was not significantly less than for the Unidentified Censored version (29.50) but was judged significantly ($p<.05$) less vivid than the mean rating for the Identified Censored version (33.67). The differences between the two censored versions did not quite reach statistical significance.

Thus, in terms of the missing material itself, we did find some support for the notion that the details provided by the viewers' own imaginations could be considerably more vivid than those explicitly depicted in the film itself, especially when it was known that the given segment had in fact been excised. At the very least, it is clear that the act of censorship did not produce less vivid descriptions, as the procensorship partisans had originally maintained.

Experiment VI: Self-reports of arousal in "censored" aggression

As part of a study conducted for a somewhat different purpose, we had the opportunity to obtain self-reports of level of arousal and involvement under two

varying conditions of the same aggressive scene. While such self-reports are of obvious limited utility, the fact that they were obtained independently under the different conditions does contribute sufficient credibility to merit our attention.

The particular film sequence under consideration depicted a rather vicious fight which takes place in a darkened hallway, accompanied by a particularly vivid sound track with few words but a considerable assortment of grunts and groans as the antagonists went at each other in an all-out effort. In the original version, while the critical scenes are shot in a darkened stairway and vestibule area, there is sufficient light to see most of the violence. We were able to prepare an additional version in which the screen is so dark most of the time during the critical scenes that little actual combat can be distinctly seen. Yet, given the context of the fight and the accompanying sound track, the overall effect is quite realistic and dramatic. This is obviously not "censorship" or "deletion" as we usually use the terms, yet it is germane to our present interest since it results in the two versions being quite different from one another in the degree of explicit visual content.

Two separate groups of subjects were exposed to the two versions and were subsequently asked to complete a questionnaire which included an item relating to their felt degree of involvement during the critical scenes and a set of items from the Nowlis Mood Scale (cf. Green & Nowlis, 1957; Norris, 1968) which have been employed as an index of "stress." Without stretching a point too much, it was reasoned that the latter could also be taken as an admittedly crude measure of arousal for the purposes of this study.

The findings were fairly clear. On both the involvement and arousal ratings, the mean scores for the "censored" version were higher than that for the original, the difference not quite reaching significance on the arousal measure ($10>p>.05$) but exceeding the .05 level on the involvement index. Again, such measures should be taken with more than the proverbial grain of salt and, of course, it is foolhardy to generalize beyond this particular film to all cases of censorship by deletion. Nevertheless, the data do contribute some support to the notion that in many cases deletion of explicit content may raise the degree of activation, rather than lower it, as might be expected by those advocating such acts of censorship.

Experiment VII: Effects of censored eroticism

The two studies reported above were regarded as preliminary to a more major investigation in which an attempt was made to obtain more reliable indices of arousal, and, more important, to obtain a measure of the behavioral consequences of censorship by deletion. Ideally, we would have preferred to obtain both the arousal and behavioral measures on the same set of subjects in the same experimental setting. However, the circumstances were such that this proved infeasible[7] and the two sets of indices were obtained on two separate sets of

7. One problem was that in several attempts to obtain such more-or-less simultaneous measures, we have found that the apparatus and attendant paraphernalia required to obtain one set of measures interferes from getting reliable measures on the other variable. We hope to redesign our apparatus to accommodate such simultaneous assessment with more reliability and less contamination.

subjects, indeed in two different locations. In a real sense, then, these represent two separate experiments—one with arousal as the dependent variable, the other with aggressive behavior as the dependent variable, but both with the same independent variables.

In both studies, three different versions of a quite explicit erotic film, designed to appeal to a youthful audience, were used. The Uncensored version lasted slightly more than 12½ minutes. During the first phase, lasting some 10½ minutes, various scenes of two couples independently involved in sex play were featured, along with abundant intermittent shots of such sex-related symbolic scenes as ocean water crashing onto rocks and dappled sunlight streaming through leaves. Although there is considerable nudity in this segment there is relatively little explicit sex activity depicted. There follows a segment of approximately 1½ minutes during which some highly explicit scenes of lovemaking are depicted, accompanied with appropriate motions at an appropriately increasing tempo. The third segment of the film lasts some 30 seconds and could be readily accepted as symbolically representing the aftermath of sexual intercourse. The entire film is done in a contemporary mode with rapidly alternating scenes rather than a specific "plot line," and while certain individuals may quarrel with its aesthetic qualities, it comes off as a reasonably artistic effort for most, particularly for the students who were subjects in our studies.[8]

A second copy of this film represented a censored version in which a strip of black leader was substituted for the explicit intercourse scenes[9] (Deleted condition). Subjects in this condition were informed that this was in fact a censored version of the original film.

Because of the relatively unstructured nature of this particular film—especially the lack of a directly apparent story line and the rapidly alternating scenes—it was felt that subjects might have some difficulty in visualizing explicitly sexual scenes during the deleted segment. In fact, one might expect that because of the rather extensive use of symbolism in the preceding segment, subjects might be more inclined to imagine even more symbolic rather than explicit scenes. For this reason, and because we wanted to make sure that the subjects' visual imagination and fantasy would be stimulated along lines similar to those provided in the Uncensored version, a third version was added. This Scenario condition was identical with the Deleted one except that subjects were presented with a verbal shot-by-shot account of the missing scenes, written, however, in a matter-of-fact manner with no verbal adornment or picturesque phraseology. This was presented

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8. It should be noted that this film was recognized as not being ideal for our purposes and represented a compromise with prevailing circumstances (mainly, a very restricted range of available materials and an acute shortage of time) from the very outset. The ideal situation would have been to have a film prepared more-or-less to our specifications, based on the needs of the research (this would be desirable for all our research using films, of course, but especially in this case). Tentative arrangements were actually made for such production assistance at a foreign professional film studio, but unfortunately the film could not be completed in time for the research.

9. Actually, since we found that most subjects became fidgety watching a blank screen for a full 1½ minutes, the blank leader appeared for only about half that time.

during the deleted segments with a period of 60 seconds allowed for the full reading before the end of the film was projected.

Arousal measures. For this study, measures of systolic and diastolic blood pressure and heart rate were employed with the usual combination of these indices being possible. Such measurements were obtained at four specific periods for each of the three groups–immediately prior to the film (T_1) to serve as a baseline index; approximately 10 minutes into the film, or some 30 seconds before the critically differentiating explicit scenes (T_2); approximately 30 seconds into the period of the explicit (or deleted) segment (T_3); and immediately following the film ending (T_4). Each of these four sets of measurements could be used to compute appropriate change scores for the assessment of relevant modification in arousal level. For example, since the three conditions did not differ in the initial part of the film, the change from T_1 to T_2 should be equal for the three groups. On the other hand, any difference in arousal effect due to the different censorship treatments during the period in which the explicit fantasizing is allegedly taking place should be apparent in the T_3-T_2 (or T_3-T_1) change scores. Since the main interest is with the end product of the differential treatments, the T_4 data are most directly appropriate, perhaps best assessed in terms of T_4-T_1 difference scores.

At the time of this writing, these arousal data have not been fully analyzed, and they probably will not be for some time. A number of factors have contributed to this situation which bear some consideration if future such efforts are contemplated. One problem is that despite random assignment to conditions, the three groups differed substantially in the initial T_1 ratings. The discrepancy may be due to slight differences in the wording of the initial instructions, and hence in level of anticipation, although it seems unlikely that such variation would be adequate to account for the differences noted. In any case, this should be fully checked before our procedure is repeated. As far as the present data are concerned, the differences have to be accommodated by some means, with analysis of covariance (of subsequent change scores, using the T_1 ratings as the covariate) as the most likely procedure to be used.

More important, it is apparent that although the blood pressure and heart rate measures comprise the main input data for arousal assessment, such measures are not pure, and additional physiological indices–particularly respiration and vasoconstriction measures–are needed as control devices to allow for a proper assessment of the reactions. Because of limitation in the available physiological apparatus at the time of this experiment, we did not obtain such additional measures and our data are consequently replete with "noise."

It is important to recognize that not all subjects react to various stimuli in the same physiological manner (cf. Lacey, 1962; and Obritz, 1963). This may be especially true for the particular kind of film and subjects we were dealing with here. For example, examination of the changes from T_1 to T_2, as well as the other change scores, reveals that while most subjects showed an increase in blood pressure, there were some who showed a sharp drop. It is quite possible that the

latter is a symptom of a general anxiety reaction, for example, which additional physiological information could help evaluate. We had not experienced such variety of changes in our limited previous work, but what is absolutely clear is the folly of making psychological interpretations based on a pattern of physiological responses that can arise from quite different sets of factors.

In any event, it is clear that the present data will be of limited use, especially so considering the high degree of variance in the data. We hope that more detailed subsequent analysis will point toward a clearer interpretation. In the meantime, some tentative trends do appear as follows: There is a general increase in arousal from the pre-exposure T_1 to the T_2 ratings for the three groups. The T_2-T_3 changes appear to be fairly negligible, which, if substantiated, would testify to a rather minimal immediate effect of the explicit material (for the Uncensored condition) or the deleting treatment (for the censored groups). There is the suggestion of a rise in the postfilm T4 ratings, somewhat more pronounced for the Scenario condition. However, it is doubtful that, with the high variance and hence inflated error terms, any change noted will be statistically significant between conditions. On the basis of the present limited data, then, we cannot accept the hypothesis of intensified arousal under conditions of deletion.

Aggression measures. Regardless of the incomplete–if anything, negative–nature of the arousal data, it is still meaningful to examine the results in the aggressive behavior experiment. Again, it should be remembered that this investigation used different subjects than the arousal study, although the three film versions were identical.

The procedure here followed the now typical aggression experimental format. Subjects were first angered by a confederate, then exposed to one of three films (again, with random assignment to conditions), and were then put in the response situation calling for the administration of electric shocks to the confederate. On this occasion, only eight shock trials were employed.

Table 5 reports the mean shock intensities for the three experimental conditions, and indicates a clear facilitative (of aggression) effect for the Scenario condition. Although the simple Deleted treatment produced slightly lower means than the control Uncensored condition, there was no significant difference between them. When the scenario was added to the Deleted version, however, the subsequent responses were significantly ($p<.05$) more intense. Thus, while the hypothesis is not supported by simple deletion, it receives strong support when cues about the missing material are supplied.

These findings receive additional support from the analysis of some *recall data* which were also collected in this study. Five to seven days after participation in the experiment, each subject was sent a questionnaire asking him (under the guise that the experimenter had "forgotton" to do so at the time of testing) to indicate which of nine specific scenes he could recall having seen in the film, the instructions being explicit in referring to visual presentations only. Of the nine, three were from the main part of the film which was common to all experimental

three were from the explicit or censored segment, and three did not appear in the film at all.

Table 5

MEAN SHOCK INTENSITIES FOR CENSORED AND UNCENSORED EROTIC FILM VERSIONS

Condition	Shock intensity
Uncensored	3.73_a
Deleted	3.65_a
Deleted and scenario	4.84_b

The findings suggest that while in general there is a higher degree of recall for those scenes that a particular group actually did see as compared to scenes they had not seen, there was also a surprisingly high level of positive responses in the Deleted and Scenario conditions for scenes not actually viewed. This is particularly true for the Scenario treatment, and particularly for those scenes alluded to in the scenario itself (although the wording describing the scenes in the questionnaire was different from that in the Scenario). A full 46.3% of the Scenario group testified to having seen scenes which in fact were not present but which had been verbally suggested, as opposed to 38.3% for the scenes neither present nor suggested. To be sure, 89.5% of the responses on these items for the Uncensored group correctly identified these scenes as having been in the film, clearly testifying to their vivid presence. However, only 33.1% were so identified by subjects in the fully Deleted condition.

There is little purpose in going into a complete analysis of these admittedly limited data. Verbal description of visual scenes are poor indicators of actual recall (we plan to use actual film scenes in subsequent research in this area), and this problem is undoubtedly compounded in the present case by the unstructured nature of the film itself. But limited as they are, the data nevertheless suggest that out of sight does not necessarily mean out of mind, especially when cues as to what has been deleted are provided. As such, the findings are at least consistent with the theoretical formulation.

Summary and discussion, experiments V-VII

We have obviously only begun our studies in this area of investigation and have barely scratched the surface to date. The results have been supportive enough of the basic rationale suggested to encourage further efforts along such lines, although the processes by which censorship has any effects will undoubtedly prove more complex once they are revealed.

While there is support for differential effects between censored and uncensored versions of a film, especially in the main study of aggressive behavior reported in Experiment VII, the mechanism by which such effects were achieved remains

obscure. In keeping with our central theoretical focus, an emotional arousal mechanism had been postulated as the main mediating process. However, the data regarding such a process are at best incomplete and probably not fully supportive of the theory.

An apparent alternative explanation, at least for the results of Experiment VII, stems from considering the findings in terms of the classical frustration-aggression formulation. It seems reasonable to assume that an individual, faced with the knowledge that something has been deleted at a particular point in a film and presumably motivated to have this desirable explicit input available to him, will experience a sense of frustration at not having it. This frustration, moreover, should be all the more intense if the person's appetite has been further whetted by more detailed information about the missing material, as in the Scenario version. He is presumably now more aware of what it is he is missing, and if we assume he found that degree of detail attractive to begin with, he should be all the more frustrated. According to the classical hypothesis, such frustration can be expected to manifest itself in the form of aggression toward another individual, especially when a convenient target (in the form of the confederate who had angered him earlier) and a convenient, even approved, outlet for aggression (sending electric shocks under the guise of giving feedback) is presented to him.

Such a conception seems perfectly consistent with the findings, and may provide a general model for the effects of various forms of censorship on subsequent aggressive behavior. There is certainly sufficient evidence in much previous research that a frustration mechanism plays a role in a great deal of hostile behavior (cf. Berkowitz, 1969), and we have seen that it can be applied to the present situation as well. What happens to such a formulation when the subsequent response situation does not involve aggression as such (e.g., as in Experiment II) is, of course, another matter. It should be noted that invoking the conceptual device of frustration does not rule out an emotional arousal mechanism (cf. Funkenstein, 1957), and hence that further work centered on measuring the arousal effects of various censorship treatments is warranted.

Such efforts must proceed with more than usual caution. The use of a set of physiological indices to obtain a single measure of excitation is an attractive lure. But its very simplicity can be deceptive. The work of Lacey (1962) and Obrist (1963) has demonstrated that different patterns of responses along a combination of physiological measures regularly occur for different kinds of stimuli and different task requirements—the main differences occurring when active mental processing of information is compared to passive reception. The fact that we have reasoned that such an active-passive distinction is also characteristic in the comparison between censored and uncensored messages makes this work particularly relevant here, and points to the need for multiple indicators to reflect what may be quite different psychological states.

Erotic materials may present a special problem in this regard, and may accordingly require somewhat different sets of measures for proper assessments. We saw an example of this in the Experiment VII data, and have some additional

evidence of irregular patterns—for example, in the pretesting for Experiment I, lower skin temperatures at the finger, reflecting at least localized vasoconstriction, was the more common response for erotic films but almost totally absent for any other kind of arousing film.

An additional warning that goes almost without saying is that any attempt at generalizing beyond the particular films used in these experiments is very tenuous, to say the least. This is a factor in almost any research, to be sure, but is especially relevant to the issue of censorship-by-deletion, where the particular content deleted—and, for that matter, the particular content retained—is of crucial significance. We plan to conduct several studies in the near future in which the locus of the deleted segments will be systematically varied to determine whether response patterns will differ. Such treatment should include deliberate selections varying in the explicitness of detail, the arousal potential of the content, and so on, but will also include variations introduced at random.

One condition deserving special attention is that in which the subject is told that some segment has been censored when in fact it hasn't. It may well be that the mere forewarning of an act of censorship will create a prior sensitization to the message, and thus influence its effect on the receiver. We have noted something to this effect in discussing the surprising differences in the initial (T1) physiological data in Experiment VII, speculating on the possibility that minor variations in the instructions (to accommodate later film treatments) might have been responsible for the observed discrepancies.

This issue also arises in the case of advance ratings and labels assigned to public films, such as those currently in use in most theaters in the United States. The intent behind such ratings is allegedly to serve as a guide to parents and children regarding the appropriateness of certain films for certain age groups. It may well serve such a purpose, but can have the added effect of creating a "forbidden fruit" situation whereby the very act of applying the more restrictive labels makes the product seem even more attractive. Under such circumstances, people, especially children, may have the tendency to put in more than is really there—an argument not unlike the one we originally advanced for the deletion type of censorship—and react in terms of what they read into the situation, what is there for them. It is quite likely, for example, that initial arousal level before the film actually begins will be higher in the case of a film rated R or X than the same film with a G rating.

It has often been said that "suggestion is more enticing than statement" (or words to that effect), especially in the presentation of erotic content, where the line between illusion and overt display may be particularly fragile and elusive. The critical point is that in formulating public policy on such matters, it would be well to recognize that acts of censorship—whether in the form of rating labels, deletion of visual and/or audio content, or any other means—can bring about more of the very condition they are designed to correct or reduce. We have seen instances of such boomerang effects in cases where aggressiveness is presented as justified or

when its brutal consequences are not portrayed; the same type of effect can readily occur in cases of censorship as well.

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Pornographic Films, Male Verbal Aggression Against Women, and Guilt

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ABSTRACT

One hundred and twenty male subjects participated in a laboratory study of verbal aggression against women. After establishing a base level of aggression, the college men either watched a pornographic or a neutral film. Half of the men were told they had to obtain a high level of aggression against the women if they wanted to see a second pornographic or neutral film; half were told they would see the films regardless of their aggression level. Sexual arousal did not lead to increased aggression. When aggression was instrumental to seeing a pornographic film, it increased. Men with more severe conscience systems or more disposed to guilt over aggression were more aggressive against the female assistants who might have been seen as morally "spoiled" by their willingness to serve as targets in such a study. High-sex-guilt men were instrumentally aggressive in order to see a pornographic film; however, if they had just seen a previous pornographic film, they were less interested in seeing a similar film and were less aggressive than were the low-sex-guilt men who seemed to enjoy the films without experiencing negative affects such as disgust. Different female assistants elicited different amounts of aggression.

INTRODUCTION

One commonly voiced argument against pornography is that it may serve to trigger sex aggression against women. However, there are few data to support such a proposition. Schmidt and Sigusch (1970) found no significant increase in

heterosexual behavior in a group of largely coitally experienced German university students of about 23 years of age in the 24 hours after viewing pornographic slides or movies. Mosher (1971b) found no increased heterosexual behavior in the 24 hours after viewing pornographic films in a group of 194 single American college men of about 19 years of age. In his research, Mosher used a measure of sex calloused attitudes towards women which had previously been shown to correlate significantly with reports of the use of physical force to gain intercourse and with the use of such exploitative tactics as falsely professing love, attempting to get one's date intoxicated, or the use of pornography or going to a sexy movie to gain intercourse (Mosher, 1971a). Males with more sex calloused attitudes (Mosher, 1971b) reported a stronger erectile response to the films, felt more excited, attracted, wilder, impulsive, and driven, and had decreased feelings of guilt, shame, and embarrassment; nevertheless, the incidence of increased heterosexual behavior in the 24 hours following the film was nil even for these subjects. Gebhard, Gagnon, Pomeroy, and Christensen (1965) in their book *Sex Offenders* reported that sex offenders were less responsive to pornographic stimuli than were groups of normal controls and prisoners who had never been convicted of sex crimes. The possession of pornography did not separate the sex offenders from the non-offenders in their interview sample. Gebhard et al. (1965) argued that a strong response to pornography requires imagination, the ability to project, and sensitivity, which are associated with increasing education and youthfulness, which were not found in the backgrounds of their sex offenders. However, college men, such as those in this study, would possess these characteristics.

The present experiment was an analogue developed to begin the exploration of the questions: Does sexual arousal from viewing a pornographic film increase the likelihood of aggression against women? When sexual stimulation or continued sexual stimulation is contingent upon aggressive behavior against women, does aggressive behavior increase? What is the influence of guilt as a personality disposition on aggression against women?

The method of measuring verbal aggression against women was adapted from procedures which had been developed to study verbal aggression in delinquents and college men (Mosher, 1965a). As developed, the laboratory measure of verbal aggression centered around a dyadic competition in assembling a formboard in which the subjects were encouraged to say anthing they wished to distract, anger, or frighten their opponent so that he would not do a good job. The resulting two-minute samples of verbal aggression were scored in ten-second intervals using a scoring system that covered a range of verbal aggression from silence, to intermittent and continuous distraction, to criticism, to stereotypic derogation without and with cursing, to severe derogation without and with cursing, to stream of profanity, and to threat of physical attack.

In another study (Mosher, Mortimer, & Grebel, 1968), 80 delinquent boys were subjected either to a mild or severe verbal attack by a delinquent accomplice. An intense verbal attack led to more retaliatory aggression than did the mild attack. These delinquent boys had taken the hostility guilt subscale of the Mosher

Forced-Choice Guilt Inventory. The procedure used had permitted the boy who assembled more pieces of the formboard to continue competing for a package of cigarettes, and it was arranged for the accomplice to win. This led some of the males to remain silent when they were supposed to attack and to not really try to assemble the formboard to win. However, it was also the case that some boys might have remained silent because of guilty inhibitions against aggression. A post facto analysis, which dropped the 17 boys who remained silent, indicated that the low-hostility-guilt boys were more verbally aggressive after being verbally attacked than were the delinquent boys who scored above the median on hostility guilt.

In a second study of delinquent boys (Mosher, Mortimer, & Grebel, 1968), 128 delinquent boys competed against one another in pairs which pitted boys from the same living unit who were nominated as either powerful or weak against one another. The results supported the prediction that the weak boys would aggress less against powerful "bullies" than against powerful nonaggressive or nonbullying boys, presumably because of a differential fear of retaliation. There were significant differences in verbal aggression as a function of attacker (powerful boys were more aggressive than weak boys), target (weak boys received more verbal aggression than powerful boys), and order of attack (boys attacking first were less aggressive than boys attacking second).

In a third study (Mosher & Proenza, 1968), 150 college men participated in a 2 by 2 by 2 + 2 incomplete factorial design with 15 subjects in each of the 10 cells. Eight cells comprised a 2 by 2 by 2 factorial design which varied intensity of attack (mild or severe), attacker (confederate 1 or confederate 2), and the subjects then aggressed against the same confederate who had attacked them (retaliation) or against the other confederate who had not attacked them (displacement). In the other two cells the subjects made the initial attack against one or the other of the two confederates, and thus had not been instigated to verbal aggression by prior attack. There were no significant differences between groups using a total aggression score which was the sum of the 12 aggression scores for each 10-second interval. The college men were much less aggressive than the delinquents; distraction and criticism that was task-focused and nonpersonal was the modal response. However, there were some brief outbursts of aggression. A peak aggression score was defined as the highest aggression score occurring in any of the subjects' 12 10-second intervals. Intense verbal attack by a confederate led to a higher outburst of aggression than did mild verbal attack or no prior attack by a confederate. Retaliatory verbal aggression against a confederate who had previously attacked the subject led to higher peak aggression than conditions in which the subject was attacked by one confederate but displaced his attack to a second confederate.

Several alterations were made in the procedures used above for this experiment. First, the males were instructed that this was an experiment on verbal aggression, were shown examples of the dimensions of verbal aggression used in the scoring procedure, and asked to aggress at as high a level as they would against a female confederate. After obtaining this initial sample of verbal aggression, subjects were

asked to sign an informed consent form if they wished to continue in the experiment which required viewing pornographic films. Subjects then viewed either a neutral film or a sexually arousing film. They were then given description of a second film which was either neutral or pornographic. Half of the subjects were told that seeing the second film was contingent upon their obtaining a high but not precisely specified level of aggression; the other half of the subjects were simply asked to aggress a second time against the female assistant. Subjects had previously completed a measure of three aspects of guilt. This design had 40 subjects randomly assigned to each of the three film treatments (Neutral-Pornographic; Pornographic-Neutral; Pornographic-Pornographic) which were further partitioned by random assignment into Contingent and Noncontingent conditions. Median splits on the measures of guilt generated a 12-cell design with approximately 10 subjects per cell. This design permitted the study of sexual arousal by a pornographic film on verbal aggression against a female, aggression against a female as instrumental to sexual stimulation or further sexual stimulation from pornographic films, and the influence of guilt on aggression against women.

METHOD

Subjects

The subjects were 120 males enrolled in introductory psychology who participated as one alternative way of meeting their course requirements. They were randomly contacted by telephone and asked to participate in a study of verbal aggression. They were not initially informed that this was a study that used pornographic films, and six potential subjects withdrew when the informed consent procedure was presented. One potential subject withdrew during the initial aggression because he felt very anxious while attacking the female assistant, and one other potential subject was eliminated because his laughter was contagious to the experimenter and female assistant.

Procedure

The subjects were met by one of four female assistants and were given the Mosher Forced-Choice Guilt Inventory to complete. The experimenter took the subjects to a nearby room where they were asked to aggress verbally against a female assistant while she was assembling a formboard. They were shown examples of verbal aggression and asked to be as aggressive as possible. Anonymity of the subjects' behavior was assured by using code numbers on the guilt inventory and tape recordings of verbal aggression. The scoring system for aggression was explained, and the experimenter in fact scored the 12 10-second intervals and reported a total aggression score to the subject after the two-minute verbal aggression period.

After the female assistant had withdrawn to another room, the experimenter presented the subjects with the following informed consent form:

> In January 1968, the President appointed a Commission on Obscenity and Pornography which the Congress charged with four tasks, which included studying the effect of obscenity and pornography upon the public. The present research is being funded by the Commission on Obscenity and Pornography to study psychological reactions to pornography. In particular, this research is investigating reactions to pornographic films. Participation in this research is completely voluntary. If you choose to participate you will, in addition to filling out questionnaires, view one or more pornographic films which may explicitly depict such sexual behaviors as masturbation, clothed or nude petting, oral-genital relations, and coitus in a variety of positions. Different sexual behaviors appear in different films, but all of the films are explicitly sexual. If you wish to participate it is necessary that we obtain your informed consent on this form. All subjects will be anonymous. The purpose of this research can be met without any personal identification of the respondents, but we do want participating subjects to be fully informed as to the purpose and procedures involved in exposing them to pornography. In addition to the usual journal publication of such research, the Commission will publish this research and its other findings, and thus it will become available to the general public. This will enable you to read the findings of this and similar scientific investigations. While we wish to obtain samples that are reasonably representative of the population at large, ethical considerations dictate that we not only obtain informed consent, insure anonymity, and emphasize the voluntary nature of participation, but that we also ask potential subjects who might have untoward reactions to pornography to decline participation. If you have been arrested for a sex offense, are under psychiatric care, believe that you may have a sex problem, have strong moral objections to viewing pornography for any purpose, or simply do not care to participate, then do not sign this form. If you wish to participate, you may indicate that you have given your informed consent by signing below.
>
> I understand the nature and purpose of this study and voluntarily wish to participate, and attest that there are no criminal, psychiatric, or moral reasons which would disqualify me from participation.
>
> _____
> Signature

The subjects who chose to continue were randomly assigned to view either a travelogue on Paris or the Petting I film of Schmidt and Sigusch (1970). The films lasted approximately 10 minutes. Subjects then completed a film reaction questionnaire. They were then given a description of a neutral or a pornographic film. The neutral film was a travelogue of Rome and the pornographic film was

the Coitus II film of Schmidt and Sigusch (1970). Subjects who were assigned to the Contingent conditions were told that in order to see the second film they would have to equal or exceed a total aggression score which was written on the back of an index card in front of them. Those in the Noncontingent conditions were, after hearing the film described, simply asked to aggress against the female assistant once again. Subjects who were to see the pornographic films or who had seen a pornographic film were assured that the female assistant did not know which films they had seen or would see.

The second sample of verbal aggression was tape recorded and simultaneously scored by the experimenter. Films were seen by 25 of the 60 subjects in the Contingent conditions who reached the required total aggression score. Following the second film, the 85 subjects who viewed it completed a second film reaction questionnaire. The subjects were then debriefed and thanked for their participation.

Female assistants

The female assistants were three undergraduate psychology majors and a graduate student in English. The assistants were counterbalanced across film treatments and contingency conditions until the medical hospitalization of one assistant required the random assignment of the last nine of her subjects to the other three assistants. The assistants knew the general nature of the study but not the exact design or questions under investigation, and they were blind as to the subjects' assignment to experimental treatments. The assistants were pretrained in assembling the formboard and in receiving verbal abuse. They were taught to assemble the formboard in a relatively standard fashion. Their feelings about receiving intense verbal aggression were discussed, and practice was given until they were relatively desensitized to male verbal aggression. They were instructed to remain calm and placid while under attack. Subjects and assistants did see one another at the close of the experiment, since the assistants helped in the debriefing.

Films

Pornographic films. The first pornographic film was the Petting I film of Schmidt and Sigusch (1970). It is a color film of an attractive couple who enter a room and begin to kiss and pet. The kissing and manual genital petting continue while the couple disrobe to their underwear. The second pornographic film, which is the Coitus II film of Schmidt and Sigusch (1970), shows the same couple quickly undressing, kissing, petting, and engaging in cunnilingus and fellatio followed by coitus in about six positions.

Neutral films. The first neutral film was a color travelogue entitled *Paris a Mon Coeur.* The second neutral film was a color travelogue entitled *Rome, Eternal City.* Both of these films were about 10 minutes in length and were run silently as were the pornographic films.

Measures

Verbal aggression. The two-minute samples of verbal aggression were scored from the tape recordings without knowledge of their experimental assignment. Each of the 12 10-second intervals was assigned a score from 0 to 7; 0 was assigned for silence; 1 for intermittent distraction (e.g., "The square piece is over here"); 2 for continuous distraction for 10 seconds; 3 for criticism (e.g., "Hurry up! You don't have all day. You're working too slow!"); 4 for derogation (e.g., "You stupid idiot! Can't you tell the square ones from the round ones?"); 5 for derogation with cursing (e.g., "You are really a dumb - - - - -!"); 6 for a severe derogation (e.g., "I've never seen a woman as ugly as you, when I look at you I want to puke."); 7 for severe derogation with cursing (e.g., "I bet you - - - - - your - - - - - - - - - - father!"). The one instance of stream of profanity and of a threat of physical attack were also assigned a score of 7. The scoring required only minor alterations in the manual developed to score male verbal aggression against males. A Pearson correlation of .96 was obtained between two raters' total aggression scores for 28 two-minute samples of verbal aggression randomly chosen except for equal numbers from the first and second opportunities to aggress.

Film reaction questionnaire. The film reaction questionnaire consisted of nine seven-point rating scales. The first rating began with "I found watching this movie:" and the subjects could select a rating from 1 ("not at all enjoyable") to 7 ("extremely enjoyable"). The next seven ratings were introduced by "While watching this movie, I felt:" and the seven adjectives used were "sexually aroused," "anxious," "guilty," "ashamed," "disgusted," "angry," and "calm." Subjects rated the extent to which they experienced each feeling from "not at all" (1) to "extremely" (7). The final film rating asked, "How much would you like to see a similar film?" and the ratings ranged from "not at all interested" (1) to "extremely interested" (7). The film reaction questionnaires were completed immediately after the films.

Mosher Forced-Choice Guilt Inventory. The Mosher Forced-Choice Guilt Inventory (Mosher, 1966) was a 79-item inventory in forced-choice format which measured three aspects of guilt: sex guilt, hostility guilt, and morality-conscience. The inventory was developed from completions given to the Mosher Incomplete Sentences Test using an internal consistency item analysis and ratings of social desirability. Together with the sentence completion and true-false versions, the forced-choice version was administered to 95 college males, and the resulting correlations between the three aspects of guilt as measured by the three methods were examined in a multitrait-multimethod matrix (Mosher, 1966). While the three aspects of guilt were correlated, the correlations between the same guilt trait as measured by different methods were higher than different traits as measured by the same method. Further evidence of discriminant validity was provided by results indicating that guilt could be discriminated from anxiety and social desirability. Split-half reliability coefficients for the three subscales of the forced-choice inventory were in the .90's. The following are examples of items from the sex guilt, hostility guilt, and morality-conscience subscales respectively:

Sex relations before marriage. . .
A. help people to adjust.
B. should not be recommended.

When anger builds inside me. . .
A. I feel like killing somebody.
B. I get sick.

I regret. . .
A. getting caught, but nothing else.
B. all of my sins.

The measures of guilt were conceptualized as measuring an acquired behavioral disposition rather than the episodic affective state of guilt (Mosher, 1968). A series of studies (Galbraith & Mosher, 1968, 1970; James & Mosher, 1967; Lamb, 1968; Mosher, 1965b, 1966, 1968, 1971a, 1971b; Mosher & Cross, 1970; Mosher & Greenberg, 1969; Okel & Mosher, 1968; Oliver & Mosher, 1968; Persons, 1970; Ruma & Mosher, 1967) attest to the construct validity of the Mosher Forced-Choice Guilt Inventory.

RESULTS

Subjects were divided at the median on the distributions of the three guilt subscales. Subjects were then available to be partitioned into three film treatments by two contingency conditions by high and low guilt with approximately 10 subjects per cell.

Table 1

SUMMARY OF SIGNIFICANT F RATIOS FOR FILM REACTIONS TO THE FIRST FILM AS A FUNCTION OF FILM TREATMENTS AND GUILT

	Film reactions					
Source	Enjoyable	Sexually aroused	Anxious	Disgusted	Calm	Interested
A (Film treatments)	F=14.91***	F=120.46***	F=14.70***		F=14.69***	F=30.56***
B (Sex guilt)	F= 4.27*			F=7.09**		F= 8.95**
AB						

*p<.05.
**p<.01.
***p<.001.

Film ratings of first films

Table 1 contains a summary of the significant *F* ratios for the film reaction questionnaire which contained nine seven-point ratings scales primarily consisting of affective reactions to the films. There were significant differences in response to the films for the ratings of "enjoyable," "sexually aroused," "anxious," "calm," and "interested." From the means in Table 2, it was clear that the 80 subjects who saw the Petting I film were moderately sexually aroused, interested

Table 2

MEANS OF SIGNIFICANT DIFFERENCES IN FILM RATINGS FOR FIRST FILM

Source	Film reactions				
Films	Enjoyable	Sexually aroused	Anxious	Calm	Interested
Paris a Mon Coeur	2.92	1.17	2.22	5.80	2.08
Petting I[a]	4.47	4.52	4.05	4.07	4.35
Petting I	4.50	4.65	4.05	4.25	4.52

Sex guilt	Enjoyable	Disgusted	Interested
High sex guilt	3.60	2.29	3.08
Low sex guilt	4.34	1.70	4.22

a. Petting I was seen by two groups of 40 subjects each who later saw the *Rome, Eternal City* or Coitus II films respectively.

in seeing another similar film, and enjoyed the film more than the 40 subjects who saw *Paris a Mon Coeur*, even though they were also somewhat more anxious and less calm than the subjects who viewed the latter film. Although analyses of variance were computed for all three aspects of guilt, only sex guilt was significantly related to the reactions to the films. From Tables 1 and 2 it can be seen that low-sex-guilt subjects enjoyed the films more, were more interested in seeing a similar film, and were less disgusted by the films than high-sex-guilt subjects.

Total aggression

Table 3 contains a summary of the analysis of variance of total aggression as a function of film treatments and contingency conditions. In order to fully understand these results, it is necessary to note the means in Table 4. In spite of the fact that the triple interaction in Table 3 only reached the .10 level of significance, a Newman-Keuls test for differences between the means in Table 4 was computed. It revealed that the Neutral-Pornographic, Noncontingent group's

Table 3

SUMMARY OF ANALYSIS OF VARIANCE OF TOTAL AGGRESSION AS A FUNCTION OF FILM TREATMENTS AND CONTINGENCY CONDITIONS

Source	df	Mean squares	F ratios	Significance level
A (Film treatments)	2	991.13	2.07	
B (Contingency)	1	37.58	.08	
AB	2	340.08	.71	
Error between	114	478.63		
C (Aggression trials)	1	142.58	3.18	.07
AC	2	211.91	4.72	.01
BC	1	161.64	3.60	.06
ABC	2	104.92	2.34	.10
Error within	114	44.91		

Table 4

MEANS OF TOTAL AGGRESSION SCORES FOR THE FILMS BY CONTINGENCY BY AGGRESSION TRIALS INTERACTION

	Contingent		Noncontingent	
Film treatments	Agg. I	Agg. II	Agg. I	Agg. II
Neutral-Pornographic	31.50	38.15	39.25	41.50
Pornographic-Neutral	33.75	30.90	31.45	30.35
Pornographic-Pornographic	29.40	35.15	31.25	29.80

Aggression I mean of 39.25 was significantly elevated above the other Aggression I means in spite of the intended random assignment of subjects. This group of 20 subjects was more aggressive upon entry into the experiment before the relevant experimental treatments had been introduced. The elevation of the means was caused by extreme total aggression scores. Some subjects were either very aggressive or nonaggressive. Table 5 presents the medians for each of the experimental groups which were more orderly than the means. The elevated mean of this group caused the contingency by trials interaction and the main effect of trials to barely miss the customary .05 level of significance. The BC interaction was a function of an increase in aggression on Trial II for subjects in the Contingent condition which reached the .06 level of significance. The AC interaction reflected a significant increase in aggression on Trial II for the Neutral-Pornographic group while the Pornographic-Pornographic group showed a nonsignificant increase and the Pornographic-Neutral group showed a nonsignificant decrease using the Newman-Keuls test.

Analyses of variance were computed for total aggression which used film treatments and the three aspects of guilt as between-groups variables in an analysis of total aggression scores separately for the 60 Contingent and 60 Noncontingent subjects. There were no significant differences for the three analyses of variance of the Noncontingent subjects' total aggression scores. A summary of the significant *F* ratios for the Contingent subjects' total aggression scores is in Table 6. There were significant treatment by aggression trials interactions and main effects for aggression trials. Table 7 contains the means for the film treatments by

Table 5

Medians Of The Total Aggression Scores For The Experimental Groups

	Contingent		Noncontingent	
Film treatments	Agg. I	Agg. II	Agg. I	Agg. II
Neutral-Pornographic	36	41	36	40
Pornographic-Neutral	35	33	35	33
Pornographic-Pornographic	34	39	34	31

Table 6

SUMMARY OF SIGNIFICANT F RATIOS FOR CONTINGENT SUBJECTS' TOTAL AGGRESSION AS A FUNCTION OF FILM TREATMENTS AND GUILT

Source	Hostility guilt	Sex guilt	Morality-conscience
A (Film treatments)			
B (Guilt)			F = 7.52**
AB		F = 4.60*	
C (Aggression trials)	F = 6.25*	F = 7.01*	F = 5.01*
AC	F = 7.43**	F = 6.08**	F = 5.19**
BC	F = 10.48**		
ABC		F = 4.37*	

*p < .05.
**p < .01.

Table 7

MEANS OF FILM TREATMENTS BY AGGRESSION TRIALS INTERACTION FOR CONTINGENT SUBJECTS' TOTAL AGGRESSION

	Trials		
Film treatments	Aggression I		Aggression II
Neutral-Pornographic	31.50	*	38.15
			*
Pornographic-Neutral	33.75		30.90
Pornographic-Pornographic	29.40	*	35.15

Note: Asterisks indicate significant difference using the Newman-Keuls Test.

aggression trials interaction. When their seeing the Coitus II film was contingent upon earning a high total aggression score, subjects increased significantly in total aggression over earlier base levels, but subjects were less aggressive than before when seeing a travelogue of Rome was contingent upon being aggressive against a female. The main effect of films indicated that overall there was more aggression on Trial II than on Trial I but that increase was, of course, due to the large changes of the pornography-contingent groups.

All three of the guilt subscales were related to total aggression for the Contingent group, but the relationships were not identical. Morality-conscience was related to total aggression as a main effect such that those with more severe conscience systems were more aggressive (M = 38.48) than those with less severe consciences (M = 28.15). The interaction between hostility guilt and aggression trials was significant. The low-hostility-guilt subjects had a mean total aggression of 31.79 for Trial I and 31.41 for Trial II and the high-hostility-guilt subjects had mean total aggression scores of 31.32 for Trial I and 37.84 for Trial II. The total

aggression score of the high-hostility-guilt subjects for their second aggression trial was significantly higher than the other three means. For sex guilt there was a significant interaction between sex guilt and film treatments and a triple interaction between sex guilt, film treatments, and aggression trials which was of major interpretive importance. Table 8 contains the means for that triple interaction. High-sex-guilt subjects in the Neutral-Pornographic film treatment increased their total aggression from Trial I to II, but in the Pornographic-Pornographic treatment it was the low-sex-guilt subjects who significantly increased on aggression from Trial I to II. The means of the aggression scores for the high-sex-guilt subjects in the Pornographic-Neutral film treatment were higher than the overall aggression means of the low-sex-guilt subjects in that treatment. However, it was also the case that the mean of the high-sex-guilt subjects for aggression I in the Pornographic-Neutral treatment was unfortunately higher than that of the high-sex-guilt subjects in the Pornographic-Pornographic treatment.

Table 8

MEANS OF THE THREE-WAY INTERACTION BETWEEN FILM TREATMENTS, SEX GUILT, AND AGGRESSION TRIALS FOR THE CONTINGENT SUBJECTS' TOTAL AGGRESSION SCORE

	High sex guilt		Low sex guilt	
Film treatments	Agg. I	Agg. II	Agg. I	Agg. II
Neutral-Pornographic	31.60 *	42.00	31.40	34.30
Pornographic-Neutral	41.86	38.86 *	29.38	26.62
	*	*		
Pornographic-Pornographic	24.27	25.18	35.67 *	47.33

Note: Asterisks have been used to indicate the important significant differences found with the Newman-Keuls Test.

Peak aggression

The peak aggression score was the highest aggression rating obtained in any one of the 12 10-second intervals during a two-minute aggression trial. Peak aggression represented the highest level of aggression obtained rather than the total amount of aggression. It should be noted that in this study subjects were instructed in how to obtain a high total aggression score and the Contingent conditions required a high total aggression score, so that score remains the major dependent variable. Peak aggression scores served as a subsidiary dependent variable, but seemed worth analyzing since there was enough unexpected variance in Trial I total aggression scores to complicate the interpretation of the total aggression data.

An analysis of variance of the peak aggression scores for the three film treatments by two contingency conditions yielded no significant differences. A summary of significant *F* ratios for the Contingent subjects' peak aggression scores as a function of film treatments and guilt, analogous to the summary for

total aggression reported in Table 6, can be found in Table 9. From Table 9 it can be seen that film treatments had no effect on peak aggression scores, whereas total aggression scores changed across aggression trials as a function of the film treatments. The main effect of morality-conscience on peak aggression was similar to that of total aggression, that is, subjects with a more severe conscience system had more verbally aggressive outbursts (M=4.60) than did the subjects with less severe consciences (M=3.65). In addition for peak aggression there was a morality-conscience by aggression trials interaction such that high-morality-conscience subjects tended to increase on peak aggression from Trial I (M=4.41) to Trial II (M=4.79) while low-morality-conscience subjects tended to decrease from Trial I (M=3.84) to Trial II (M=3.45). A similar aggression trials by hostility guilt interaction was found for the peak aggression score. The hostility guilt by aggression trials interaction for total aggression was also similar. For the peak aggression data, as was also the case for the total aggression data, there were significant two-way and three-way interactions involving sex guilt. The triple interaction was between film treatments, sex guilt, and aggression trials, and the means are in Table 10. By comparing these means for peak aggression with those in Table 8 for total aggression, one can observe a similarity in pattern. Once again,

Table 9

SUMMARY OF SIGNIFICANT F RATIOS FOR CONTINGENT SUBJECTS' PEAK AGGRESSION AS A FUNCTION OF FILM TREATMENTS AND GUILT

Source	Hostility guilt	Sex guilt	Morality-conscience
A (Film treatments)			
B (Guilt)			F = 6.81*
AB		F = 4.38*	
C (Aggression trials)			
AC			
BC	F = 6.76*		F = 4.88*
ABC		F = 4.84*	

*$p < .05$.

Table 10

MEANS OF THE CONTINGENT SUBJECTS' PEAK AGGRESSION SCORES FOR THE THREE-WAY INTERACTION BETWEEN FILM TREATMENTS, SEX GUILT, AND AGGRESSION TRIALS

	High sex guilt		Low sex guilt	
Film treatments	Agg. I	Agg. II	Agg. I	Agg. II
Neutral-Pornographic	3.40	4.30	4.30	4.30
Pornographic-Neutral	4.71	4.86	3.92	3.54
Pornographic-Pornographic	4.00	3.09	4.67	5.44

high-sex-guilt subjects in the Neutral-Pornographic treatment increased in peak aggression from Trial I to II, while the low-sex-guilt subjects in the Pornographic-Pornographic treatment increased the level of their hostile outbursts from Trial I to Trial II. Newman-Keuls tests revealed that the differences between means in the Pornographic-Pornographic treatment contributed most of the variance to the significant interaction.

An analysis of variance was computed for each of the 12 10-second aggression scores as a repeated dependent variable. It indicated that the peak of aggression occurred in the second 10-second interval. The higher levels of aggression were found in the first 30 or 40 seconds with a decline in the level of aggression after that.

Film ratings of second films

All 60 subjects in the Noncontingent condition and 25 subjects in the Contingent condition viewed the second films and completed a second film rating questionnaire. A summary of the significant *F* ratios of the reactions to the second film as a function of film treatments and guilt is reported in Table 11. The film treatments had a considerable impact upon film reactions. The means reported in Table 12 indicated that the subjects who saw the travelogue of Rome found it less enjoyable and less sexually arousing, and they had less interest in seeing a similar film; however, they were more calm and less anxious, guilty, and disgusted than were the subjects who saw the Coitus II film. The subjects who were seeing their first pornographic film tended to find it more enjoyable and sexually arousing, and they were more interested in seeing a similar film. Table 13 reports the means of the three significant sex guilt by film treatment interactions. All of the subjects who were seeing their first pornographic film found it more

Table 11

SUMMARY OF SIGNIFICANT F RATIOS OF REACTIONS TO SECOND FILM

	Film reactions							
Source	Enjoyment	Arousal	Anxiety	Guilt	Disgust	Anger	Calm	Interest
A (Film conditions)	F=7.64**	F=65.03***	F=17.55***	F=3.32*	F=3.42*		F=10.67***	F=5.64**
B (Hostility guilt)								
AB								
A (Film conditions)	F=8.81***	F=79.17***	F=19.72***				F=10.68***	F=5.96**
B (Sex guilt)								
AB	F=4.01*				F=6.76**	F=3.43*		
A (Film conditions)	F=8.96***	F=66.13***	F=16.91***				F=10.02***	F=6.18**
B (Morality-conscience)					F=4.59*			
AB								

*p < .05.
**p < .01.
***p < .001.

Table 12

MEANS OF THE SIGNIFICANT DIFFERENCES IN FILM RATINGS AS A FUNCTION OF FILM TREATMENTS

Film treatments	Film reactions: Enjoyable	Sexually aroused	Anxious	Guilty	Disgusted	Calm	Interested
Neutral-Pornographic (N = 28)	5.14	5.15	4.46	1.72	2.64	3.96	4.43
Pornographic-Neutral (N = 26)	3.33	1.12	1.73	1.12	1.54	5.74	2.69
Pornographic-Pornographic (N = 31)	4.39	4.77	4.13	1.84	3.06	3.74	4.03

Note: The means were taken from the hostility guilt analyses of variance. "Guilty" and "disgusted" were not significantly different when subjects were partitioned by sex guilt or morality-conscience.

Table 13

MEANS OF THE SECOND FILM RATINGS FOR THE SIGNIFICANT INTERACTIONS BETWEEN FILM TREATMENTS AND SEX GUILT

	Film reactions: Enjoyable		Disgusted		Angry	
Film treatments	High Sex guilt	Low Sex guilt	High Sex guilt	Low Sex guilt	High Sex guilt	Low Sex guilt
Neutral-Pornographic	5.05	5.34	2.84	2.22	1.32	1.33
Pornographic-Neutral	3.77	2.69	1.08	2.00	1.08	1.46
Pornographic-Pornographic	3.50	5.12	4.21	2.12	2.21	1.53

enjoyable than did the subjects seeing their first travelogue. Most importantly, low-sex-guilt subjects seeing their second pornographic film continued to enjoy it whereas high-sex-guilt subjects reported that the film was less enjoyable. Similarly, high-sex-guilt subjects in the Pornographic-Pornographic film treatment reported feeling more disgusted and angry while watching the Coitus II film than did the low-sex-guilt subjects in that treatment or the subjects in the other treatments. The data indicated that high-sex-guilt subjects seeing their second pornographic film enjoyed it less and felt moderately disgusted and a little angry.

Female assistant differences

An analysis of variance of total aggression using female assistants, film treatments, and contingency groups as between groups variables and total aggression scores as a dependent variable revealed differences in total aggression as a function of the female assistants and as an interaction between female assistants

and contingency groups. These findings mean that males were more aggressive to some of the female assistants than to others and that the targets who elicited more aggression changed as a function of the Contingent-Noncontingent conditions. Table 14 reports a summary of the significant *F* ratios for the Contingent and Noncontingent subjects analyzed separately. From Table 14 it can be seen that the *F* ratio for female assistants was significant in each instance, although as mentioned previously the order of the female assistants in eliciting aggression differed in the two conditions. **The main effect** of aggression trials and the interaction of film treatments by aggression trials for the Contingent subjects represents the same effects as in Table 6. The main effect of film treatment for the Noncontingent subjects was not significant in the earlier partitioning of subjects, although it had approached significance. The Noncontingent subjects' peak aggression scores also had a significant treatment main effect. In every instance the main effect was due to the elevation of the Neutral-Pornographic means above the means of the other two film treatment groups.

Table 14

SUMMARY OF SIGNIFICANT F RATIOS FOR FEMALE ASSISTANT EFFECTS FOR CONTINGENT AND NONCONTINGENT SUBJECTS ON TOTAL AGGRESSION

Source	df	Contingent subjects	Noncontingent subjects
A (Film treatments)	2		F = 3.38*
B (Female assistants)	3	F = 4.29*	F = 4.39*
AB	6		
C (Aggression trials)	1	F = 4.25*	
AC	2	F = 4.28*	
BC	3		
ABC	6		

*$p < .05$.

The most important feature of these results from the standpoint of interpretation was the failure to find interactions between female assistants and either film treatments or aggression trials. Had such interactions existed, then the other analyses reported would have had to include female assistants as an additional between-groups factor. It was not feasible to enter guilt as another between-groups factor in the analyses reported in Table 14 since that would have reduced the cell numbers to only two or three subjects.

DISCUSSION

Part of the intention of this study was to ferret out relationships between pornography and aggression against women. As an experimental study it had the advantage of achieving clarity in whether the treatments did in fact make a difference. As an experimental-laboratory study, it had the disadvantage of trying to generalize from a specific controlled situation to other life situations. It would

be easy to cavil that the pornography used was not representative and lacked any modeling of male aggression, that verbal aggression is not like sexual assault or rape, that seeing a second pornographic film is not like having coitus, that having a strange female assistant in the presence of a male experimenter in a laboratory setting is not conducive to sexual acting-out, and so on. Nevertheless, the present research was a beginning, and only future research using a variety of methods will determine those situations in which generalization is warranted and those in which it becomes fantasy.

Does sexual arousal lead to aggression against women?

The results failed to support the argument that sexual arousal leads to aggression against women. The males who watched the Petting I film were moderately sexually aroused by it and reported that they found it moderately enjoyable. They were made moderately anxious by it and were less calm than the subjects who viewed a control film. They were moderately interested in seeing a similar film. Before viewing the films, the males had all been asked to aggress at as high a level as they would against a female assistant. This first aggression was included to provide a base level against which a subsequent change could be compared. Any increase in the level of a subsequent aggression could then be attributable to the relevant experimental treatments. From the means in Table 4 it can be seen that the men who had seen the Petting I film were not more aggressive unless that aggression was instrumental to their seeing a second, even racier, pornographic film. The means of the men who were to see a travelogue or who were in the Noncontingent group scheduled to see the Coitus II film regardless of their level of aggression had very slight declines in their total aggression means. These data fail to support the proposition that sexual arousal per se leads to aggression against women.

Does aggression against women increase when it is instrumental to sexual stimulation?

The data clearly supported the proposition that aggression against women increases when that aggression is instrumental to securing sexual stimulation. Significant increases in aggression were present for both the Neutral-Pornographic and the Pornographic-Pornographic groups in the Contingent condition, while the Pornographic-Neutral group in the Contingent conditions and all three film treatment groups in the Noncontingent conditions had slight declines in their level of total aggression on the second aggression trial. While the Contingent-Noncontingent difference was of borderline significance, it should be remembered that only two of the three groups in the Contingent condition were going to see a pornographic film if they reached an unspecified high level of aggression.

There was no difference in the amount of the increase in aggression between the subjects in the Contingent conditions who were in the Neutral-Pornographic

and Pornographic-Pornographic groups; both increased about the same amount although the latter groups were already in a state of moderate sexual arousal following their viewing of the Petting I film. To understand fully this finding it is necessary to consider the role that individual differences in guilt played in influencing aggression against women when that aggression leads to further sexual stimulation.

What is the influence of the personality disposition of guilt on aggression against women?

The phrasing of the question suggests that the answer is simpler than it indeed was. The nature of the psychological situation plays an important role in the relation of guilt to aggression, and different aspects of a conscience system may play different roles in certain psychological situations. To argue that the data of the present experiment provide a simple answer would be misleading. The data do not yield a pattern that stands as a sharply etched figure against a ground, rather they yield a figure that is incomplete but which the laws of conceptual simplicity urge toward closure.

Individual differences in the personality disposition of guilt were differentially related to aggression only in the Contingent conditions. The most general statement to be made about the influence of guilt on aggression in this experiment was that the more guilty males were generally more aggressive, particularly if the aggression was instrumental in leading to rewards. Morality-conscience was related to the total aggression of the Contingent subjects as a main effect and to the peak aggression scores of the Contingent subjects as a main effect and in interaction with aggression trials. Hostility guilt was related to both the total aggression and peak aggression scores of the Contingent subjects in interaction with aggression trials. These interactions were similar enough to conclude that high-guilt males increased their verbal aggression when it was instrumental to seeing a second film while low-guilt males had a nonsignificant decrease in their level of verbal aggression against women. For morality-conscience there was a main effect for total aggression and even in the peak aggression interaction with aggression trials, the males with the more severe conscience systems were more aggressive on the initial aggression trial.

The findings that males with the more severe conscience systems were more aggressive against women and that guilty males increased their level of aggression when that aggression was instrumental in gaining such a reward as viewing a pornographic film may seem dissonant with our conception of the relation between guilt and aggression. Past research has shown that delinquents scored lower on morality-conscience and hostility guilt than did matched nondelinquents; these guilt subscales also were inversely related to self-reports of delinquent behavior and to staff ratings of cheating, lying, and stealing behavior (Ruma, 1967). Ruma and Mosher (1967) found that delinquents scoring higher on these subscales received higher ratings of guilt based upon an interview related

to the transgression which resulted in their incarceration than did the boys less disposed to guilt. Persons (1970) recently reported moderately large inverse correlations between these subscales and criminal histories. College men who scored higher on hostility guilt and who had been verbally aggressive against a peer when that aggression was unwarranted and led to emotional upset reported increased feelings of guilt (Okel & Mosher, 1968). These findings are consistent with the commonly held view that guilt serves to inhibit antisocial aggression and that the personality disposition of guilt is predictive of the episodic states of guilty feelings.

There have been three studies relating the disposition of sex guilt in college women to moral punitiveness, and these seem to be more consonant with the present results. Mosher and Greenberg (1969) found that college women disposed to guilt over sex felt more guilty after reading an erotic literary passage than did low-sex-guilt women. Corey (1970) had the same passage read by college women who were to imagine themselves on a disciplinary board that was considering the case of the girl who had engaged in intercourse as described in the passage. High-sex-guilt women evaluated the girl as less good and moral and recommended more severe disciplinary action than did the less guilty women. Mendelsohn (1970) used a role playing situation to study moral condemnation-approval of a college girl who had engaged in her initial experience with intercourse. Her sexual behavior was more often condemned if it involved a sex relationship with an attractive but barely known male rather than with a loving, affianced male. High-sex-guilt women were more condemning than low-sex-guilt women in the role play. A third study used techniques developed by Farina (Farina, Holland, & Ring, 1966; Farina, Sherman, & Allen, 1968) to study the relation of sex guilt in women to moral stigma. Under the guise of a nonverbal communication task, females were permitted to vary the intensity and duration of electric shocks to a confederate who had either described herself as a typical college girl or as having once taken money for having sex with a stranger. More intense shocks were given in the morally stigmatized than the control condition. High-sex-guilt women gave more intense electric shocks than did low-sex-guilt women. The latter finding was a main effect rather than the interaction which had been expected in which it was believed that high-sex-guilt women would be particularly punitive toward the morally stigmatized confederate. While that cell mean was moderately elevated, there was a smaller elevation of the high-sex-guilt-control mean as well.

The present data then might be interpreted to mean that the more guilty subjects were more aggressive against women either because the laboratory situation was artificial enough to provide some outlet for their ordinarily unexpressed aggression or because the identity of the female assistants was "spoiled" by their willingness to be targets for male aggression in a pornography study.

The relation of sex guilt to aggression against women in the Contingent groups was even more complicated than the relations of morality-conscience and hostility guilt. High-sex-guilt males who had yet to see a pornographic film increased in

aggression while low-sex-guilt males in that film treatment did not. High-sex-guilt males in the Pornographic-Pornographic treatment, however, did not increase whereas the low-sex-guilt males increased their level of aggression. The data for the peak aggression scores were similar to that for total aggression. The present interpretation of the data invokes the differential response of high- and low-sex-guilt males to viewing pornographic films. The high-sex-guilt males reported they enjoyed the first film less, were more disgusted by it, and were less interested in seeing a similar film than were the low-sex-guilt subjects. However, those results were a main effect rather than an interaction of sex guilt by films. Both previous research (Mosher, 1971b), which indicated that high-sex-guilt males view pornographic films as more disgusting and offensive and have less pleasant affective states after viewing them than less guilty males, and the results of the second film viewing strengthen the argument. High-sex-guilt males viewing their second pornographic film (the majority of these subjects were in the Noncontingent condition) enjoyed it less, were moderately disgusted by it, and were slightly angry. Low-sex-guilt subjects seeing their second pornographic film and high-sex-guilt subjects seeing their first pornographic film responded with greater enjoyment and little disgust or anger. The sex guilt by film treatment interaction on total aggression is believed to be a function of this differential reaction to the films. High-sex-guilt subjects who have yet to see a pornographic film are eager to do so and aggressing against a "spoiled" woman seems a low price to pay for a "legitimate" reason to view a pornographic film. It is not morally offensive to view pornography as an experimental subject, just as it is not morally offensive to view pornography as a censor. Since college males high on sex guilt have had less opportunity to view pornography (Mosher, 1971b), their aggression was instrumental in leading to a unique reward with few negative consequences such as social disapproval or guilty feelings. The prospect of seeing the film may be less attractive for the less guilty males who are generally more experienced with pornography and more sexually experienced. After the males had viewed a pornographic film, then the psychological situation was changed. The low-sex-guilt males enjoyed the first film more and were more interested in seeing a similar film, while the high-sex-guilt males felt more disgusted. The less positive response of the high-sex-guilt males may leave them with little incentive to see a second pornographic film while the positive response of the low-sex-guilt males may make seeing a second more sexually explicit film more attractive than they had originally anticipated.

Do different women elicit different levels of aggression?

Different women do seem to elicit different levels of aggression in this situation. In the Contingent condition the ordering of the female assistants is consistent with the writer's impression of how males would rank them by physical appearance on a "good" girl to "bad" girl dimension. Of course, such impressions are valueless in scientific currency. Further research is required to provide

evidence that women who look more morally stigmatized elicit more aggression in this type of laboratory situation.

One surprising feature of the data deserves comment. The college males in this experiment were more aggressive even on Trial I against female confederates than they had been against male confederates in previous research (Mosher & Proenza, 1968). The experimental procedures were dissimilar enough to leave this finding uninterpretable but suggestive for future research.

CONCLUSIONS

1. Sexual arousal from viewing pornographic films did not lead to increased aggression against women.

2. Aggression against women increased when that aggression was instrumental in viewing a pornographic film. It should be remembered that viewing pornography is an unusual reward not ordinarily found in everyday life. The parallel, if one can be drawn with everyday living, would be that the expectancy that aggression will lead to a sexual goal makes aggressive behavior more likely, a finding that is quite consistent with present knowledge of the roles of expectancies in goal-directed behavior (Rotter, 1954).

3. Males who were disposed to guilt over aggression and who had severe conscience systems increased their level of aggression when it was instrumental to seeing a second film. These findings were interpreted to mean that the laboratory situation provided them with an outlet for their often unexpressed aggression or that the female assistants had a "spoiled" identity which made them suitable targets for their moral punitiveness.

4. High-sex-guilt males who had yet to see a pornographic film increased their instrumental aggression more than low-sex-guilt males in order to see one. After seeing a pornographic film, however, high-sex-guilt males seemed less attracted and were less instrumentally aggressive than were the low-sex-guilt males who were now more interested in seeing a second more sexually explicit pornographic film.

5. The female assistants elicited different levels of aggressive attack from the male subjects.

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