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Effects of sexual guilt upon affective responses to subliminal sexual stimuli

Michael Barton Magri

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EFFECTS OF SEXUAL GUILT UPON AFFECTIVE RESPONSES
TO SUBLIMINAL SEXUAL STIMULI

A Dissertation Presented to the
Faculty of the School of Education
College of William and Mary in Virginia

In Partial Fulfillment
of the Requirements for the degree
Doctor of Education

by

Michael B. Magri

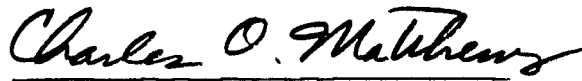
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We the undersigned do certify that we have read this dissertation and that in our individual opinions it is acceptable in both scope and quality as a dissertation for the degree of Doctor of Education.

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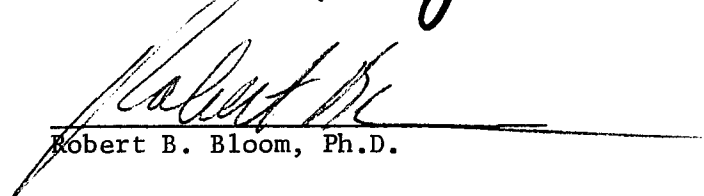
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TABLE OF CONTENTS

	<u>Page</u>
Chapter 1. INTRODUCTION	2
Statement of the Problem	3
Need for the Study	5
Definition of Terms	9
Limitations	11
Hypotheses	13
Ethical Consideration	14
Overview	15
Chapter 2. SURVEY OF THE LITERATURE	16
Conceptualization and Measurement of Sexual Guilt	16
Sex-Related Behavior Differences	25
Effects of Sexually Explicit Material	30
Differential Perceptual Processes	37
Overview of Subliminal Perception	44
Summary	48
Chapter 3. METHODOLOGY	52
Subjects	52
Instruments	53
Mosher Forced-Choice Guilt Inventory	53
14-Item Adjective Check List	54
Visual Stimuli	55

	<u>Page</u>
Galvanic Skin Response Monitor	56
Tachistoscope	56
Procedure	56
Presentation of the Stimuli	59
Post-treatment Affective Measurement	59
Methods of Data Analysis	60
Statistical Procedures	61
Chapter 4. ANALYSIS OF RESULTS	63
Physiological Responses to Subliminal Sexual Stimulation	63
Differences by Sexual Guilt in Affective Arousal to Subliminal Sexual Stimulation	64
Table 1	65
Table 2	66
Differences by Sexual Guilt in Affective Guilt to Subliminal Sexual Stimulation	68
Affective Arousal Differences as Influenced by Subliminal Treatment	68
Table 3	69
Table 4	70
Affective Guilt Differences as Influenced by Subliminal Treatment	71
Interaction Effects Between Sexual Guilt and Subliminal Stimulation	71
Summary	72
Chapter 5. SUMMARY AND CONCLUSIONS	74
Summary	74
Conclusions	79

	<u>Page</u>
Recommendation for Future Research	82
Appendix	83
References	107

Effects of Sexual Guilt Upon Affective Responses
To Subliminal Sexual Stimuli

Chapter 1

INTRODUCTION

Research in the field of human sexuality is a relatively recent development. Although there is a vast amount of scientific knowledge about human reproduction, information about the nonreproductive aspects of human sexual behavior is woefully lacking. Until recently, human sexuality was mainly studied through inferences from animal behavior and by observations of primitive cultures. The pioneering work of Kinsey and his associates (1948, 1953) along with Masters and Johnson (1966, 1970), shifting the focus of sexual research to the typical human male and female, brought the subject of sexual research to the public's awareness. In his introduction to Sexual Behavior in the Human Male (Kinsey, Pomeroy, & Martin, 1948), Alan Gregg Noted:

Certainly no aspect of human biology in our current civilization stands in more need of scientific knowledge and courageous humility than that of sex. The history of medicine proves that insofar as man seeks to know himself and face his whole nature, he has become free from bewildered fear, despondent shame, or arrant hypocrisy. As long as sex is dealt with in the current confusion of ignorance and sophistication, denial and indulgence,

suppression and stimulation, punishment and exploitation, secrecy and display, it will be associated with a duplicity and indecency that lead neither to intellectual honesty nor human dignity (p. vii).

Research in the area of human sexual behavior gained added momentum when the Commission on Obscenity and Pornography was established by President Johnson in 1968. With the social acceptability of sexual research provided by governmental sanction, sexual behavior has begun to be explored within the framework of current scientific methodology with an emphasis not only on the description of sexual behavior but also on its antecedents and predictors. Besides its intrinsic interests, it seems obvious that most findings relating to sex have direct and immediate applicability to a ubiquitous aspect of the lives of all of us.

Statement of the Problem

Within the past few decades, a great deal of research has been conducted concerning the changing sexual patterns in our society. The major emphasis of research, however, has been primarily descriptive. From the initial works of Kinsey et al. (1948) to the present polls conducted in contemporary magazines, a great deal of information has been accumulated about the lifestyle and sexual behaviors of the typical American male and female. Consequently, quite a bit is known about what people are doing but very little information has been gathered about why people act as they do in sex-related situations.

Sexuality involves strong emotions and feelings. One of these feelings is guilt. Considered as a sort of voice of the conscience, guilt feelings develop as a result of violating one's code of proper behavior. Guilt assumes increasing importance considering the current generation's emphasis on the new morality. Today young people are sometimes caught in a bind. On the one hand, they espouse, intellectually, the acceptance of sex in the proper context as a source of pleasure and something good. The proper context is frequently defined in terms of an existing relationship (D'Augelli & Cross, 1975). But on the other hand, guilt is acquired during childhood and the prevalent social norms at that time associated sex with guilt. Gagnon and Simon (1973) contend that, in the American culture, to learn about sex is to learn about guilt. In support of this contention, it has been empirically demonstrated that one of the most consistent predictors of the occurrence of sexual behaviors is the individual's level of sexual guilt (Abramson, Michalak, & Alling, 1977; Abramson & Mosher, 1975; D'Augelli & Cross, 1975; Galbraith, 1968; Galbraith, Hahn, & Lieberman, 1968; Janda, 1975; Janda & Magri, 1975; Janda, Magri, & Barnhart, 1977; and Mosher, 1961, 1965, 1966, 1968, 1973).

Sexual guilt has been shown to significantly influence the resisting of temptation (Mosher & Cross, 1971), the restricting of sexual behaviors (Galbraith and Mosher, 1968; Schill, Evans, & McGovern, 1976; and Langston, 1973), and the disruption of cognitive processes (Galbraith, 1968; Galbraith & Sturke, 1974; Galbraith & Wynkoop, 1976; and Schwartz, 1973). The research in the area of

sexual guilt typically deals with how sexual guilt mediates an individual's response to a consciously perceived stimulus such as reading erotic literature (Mosher & Greenberg, 1969) or viewing sexually explicit material (Ray & Walker, 1973; Mosher, 1973; and Abramson, Golberg, Mosher, Abramson, and Gottesdiener, 1975).

A marked omission in the literature on sexual guilt concerns the effects of visual stimuli presented outside of the subject's awareness. Since a method exists for the presentation of stimuli at a level at which the subject perceives it but is unaware of it, considerably more empirical information about the role that sexual guilt plays in the effects of subliminally presented sexual stimuli is needed.

Need for the Study

Rarely has a topic in psychology generated as much controversy as the claim that a person's behavior is not always under his conscious control, that is, that an individual can be influenced by stimuli of which he is not consciously aware. In his extensive review of subliminal research, Dixon (1971) states that most people's view of perception is exemplified as: "When lights or sounds become too faint I cease to be aware of them. For me, they become non-existent. If they are non-existent, they cannot affect me, nor can I respond to them (p. 1)." This notion of not being influenced by things that are not heard or seen is based on the premise that perception is a totally conscious process. In order to respond to a given stimulus we must be aware

of it consciously. It is indeed a somewhat frightening thought to consider that an individual may not be in complete control of his behavior, that he may be influenced by stimuli that remain outside of his awareness. The idea of behavior totally being a function of consciously perceived stimuli has not been supported in theory or research. For example, in attempting to explain Freud's psychodynamic theory within the framework of learning theory, Dollard and Miller (1950) posit the existence of unconscious determinants of behavior, which they divide into those that have never been conscious and those that were once conscious but are no longer so. The first category consists of drives, responses, and cues, learned before the advent of speech, to which a label had never been affixed. The second group represents an explanation of repression, the learned avoidance of certain thoughts. In this case the thoughts produce anxiety and the response of "not thinking" reduces the anxiety. This response of "not thinking" about certain things becomes an anticipatory response, outside of awareness, and tends to become self-sustaining. In this way an individual may be influenced by a stimulus with the response being "not thinking" about the stimulus, this response being elicited from prior learning.

Another instance in which behavior is not dependent on the conscious awareness of a stimulus concerns response-response learning, the learning of an entire chain of responses. This type of learning is most prevalent in the area of motor skills where there is insufficient time for a response to initiate a stimulus to produce the next

response. Hebb (1958) points out that it would be physically impossible to play a fast musical passage if the musical performance was dependent on a chain of successive stimuli and responses. Travers (1972) states that "the brain sends out a sequence of correct signals to the muscles and that the total performance is monitored only in a very general way. The brain seems capable of running off whole sequences of commands to the muscles without waiting to see what happens to each (p. 26)."

A third way in which an individual may be affected by a stimulus without consciously being aware of the stimulus is that of subliminal stimulation. This method entails the presentation of a stimulus at a level below the individual's threshold of conscious perception but above his absolute threshold of perception. There is a considerable amount of experimental evidence that supports the validity of the concept of subliminal perception. Subliminal techniques have produced significant results in the physiological responses to words (Dixon, 1958). Subjects have also been conditioned to subliminally presented light (Newhall & Sears, 1933), auditory stimuli (Baker, 1938), and nonsense syllables (McCleary & Lazarus, 1949).

The existence of subliminal perception was brought to the awareness of the general public by the claim of a commercial firm (McConnell, Cutler, & McNeil, 1958) that the sales of popcorn and Coca-Cola increased dramatically at theaters where the audiences were subliminally presented the message "Eat Popcorn" and "Drink

Coca-Cola." This created quite a stir and was hailed by many advertisers as the "new look," the use of psychological principles to enhance sales. In his books on the use of subliminal techniques in advertising, Key (1973, 1976) states that advertisers have been using subliminal suggestions to sell their products for years. Commenting on the subliminal use of explicitly sexual words and pictures in advertising, McLuhan questions, "will the graffiti hidden under the lush appeal expedite sales or merely impede the maturity quotient of the buyer? Will the graffiti lurking in the glamor crevices set up a resonant interval of revulsion against the consumer appeals, or will the confrontation of fur and feces in the ads merely sadden and deepen and mature the childish consumer world (Key, 1973, p. xvii)?"

Since subliminal techniques have been used in advertising and are continuing to be used, it is important to attempt to assess the impact of these techniques in areas other than sales. What are people's reactions to subliminally presented stimuli of a sexual nature? Are they aroused? What about people high in sexual guilt who are predisposed to react to sexual material with feelings of guilt? Does the subliminal presentation of sexual material cause these people to feel guilty? Since the public is bombarded by subliminal messages, many of which are explicitly sexual, it is imperative that their influence in triggering guilt feelings in high sexual guilt individuals be measured. It is the purpose of this study to investigate the effects of subliminally presented sexual stimuli on the physiological and affective responses of individuals and to determine

if the individual's level of sexual guilt mediates that person's responses.

Definition of Terms

In order to insure that ambiguities remain at a minimum and to enhance an understanding of the present investigation, the following terms are defined below: "affective arousal," "conscious," "liminal stimulus," "nonconscious," "perceptual threshold," "physiological awareness," "sexual guilt," "stimulus presentation rate," "subception," "subliminal," and "subliminal stimulus." These definitions are also considered to be the operational definitions of these terms.

a. Affective arousal: A momentary affective state of sexual arousal as measured by responses to the 14-item adjective check list.

b. Conscious: The thoughts or feelings a person is aware of at any given moment, reaching awareness.

c. Liminal stimulus: A particular physical stimulus that just barely evokes a sensory response, or that just barely brings a sense datum to awareness (English & English, 1958).

d. Nonconscious: Outside of conscious awareness.

e. Perceptual threshold: As determined by the method of limits, the point on the ascending presentation of the stimulus at which the subject reports the complete absence of the stimulus.

f. Physiological awareness: Awareness of the reception of a subliminal stimulus as indicated by an increase in the subject's galvanic skin response (GSR).

g. Sexual guilt: A generalized expectancy for self-mediated punishment for violating or anticipating violating internalized standards of proper behavior in sex-related situations. Sexual guilt functions as a personality disposition manifesting itself through the following behavioral referents--resistance to sexual temptation, inhibition and suppression of sexual behavior, or distruption of cognitive processes in sex-related situations. If a prohibited act is committed, sexual guilt may manifest itself as an affective state. This affective state includes reports of self-blame, self-punishment, self-remorse, confession of wrong doing, and restititional behavior. For the purpose of this study, sexual guilt is understood to mean the personality disposition, not the affective state, and is determined by the subject's responses to the Mosher Forced-Choice Guilt Scale.

h. Stimulus presentation rate: The speed at which the subject is presented the stimulus during the experiment.

i. Subception: Postulating a heirarchy of response thresholds, a process in which a subject makes a correct discrimination of some kind although he is unable to consciously make a correct discrimination.

j. Subliminal: A stimulus, the presence and nature of which the subject is totally unaware; the intensity of the stimulus is below the subject's threshold of awareness.

k. Subliminal stimulus: A stimulus presented at a level 20% below the subject's lowest reported level of awareness as measured

during the ascending series of the method of limits used to determine the subject's perceptual threshold.

Limitations

As with most psychological investigations, a number of limitations to the quality and generalizability of the findings are imposed by the research procedures. A few of the more salient constraints will be discussed below.

The applicability of these findings is somewhat limited by the subject population. Considering the high academic standards, the female students at the College of William and Mary may not be representative of the typical American college female, especially in terms of the psychosocial environments from which the students come. Another problem concerns the possibility of volunteer bias. Although recent research has indicated that the use of female subjects in sex research does not significantly bias the results, investigators did find that subjects who volunteered to come to a research site to participate in a sex research project, as opposed to filling out a questionnaire in class, tended to hold more liberal views and attitudes, to date more frequently, and to have more noncoital experience (Bauman, 1973; Kaats & Davis, 1971; and Sorensen, 1973). The present data may not be free from the above influences.

The subliminal presentation of the stimuli at 20% below the subject's lowest reported perceptual threshold may be a limiting factor. Although there is extensive literature on subliminal

stimulation, there is no apparent agreement on the selection of a stimulus presentation rate considered to be subliminal and each researcher's selection of a presentation rate seems to be an arbitrary one. As such, the selection of 20% below the subject's lowest reported threshold may be too far below the threshold to influence affective responses. However, since the subject's physiological responses to the stimuli are being monitored, it was considered imperative to ensure that any findings could be attributed only to the subliminal stimulation and not to alternate explanations such as particle cues or after image.

A potential limitation concerns the stimulus words used in treatment condition. Four of the ten words were sexual in nature and served as the sexual stimulation. The words (sex, penis, vagina, and naked) may not, however, be sufficiently powerful to produce any effect on the physiological or affective domains. Ethical consideration dictated the selection of treatment words that would produce an effect but would not subject the individual to unnecessary stress or discomfort. As such, the four sexual words selected for the treatment condition represent a compromise between ethical concerns and stimulus discriminatory power.

A final limitation may be the use of a self-report instrument to measure the affective states of arousal and guilt. Responses to this instrument may be influenced by the subject's desire (or lack of desire) to be truthful and candid, and by her present mood as influenced by recent experiences and pressures. The possibility

also exists that the subject may not be able to label her internal arousal or guilt because she would not be presented conscious cues.

Hypotheses

The object of the present study is to assess the impact of subliminal stimulation, especially as it pertains to sexual guilt. The following hypotheses, stated in null form, are made:

a. There is no significant difference in the physiological responses, as measured by galvanic skin response, between subjects presented with subliminal sexual stimuli and subjects presented with subliminal neutral stimuli.

b. There is no significant difference in the reported level of affective arousal, as measured by the 14-item Adjective Check List, between high sex guilt subjects and low sex guilt subjects presented with subliminal sexual stimuli.

c. There is no significant difference in the reported level of affective guilt, as measured by the 14-item Adjective Check List, between high sex guilt subjects and low sex guilt subjects presented with subliminal sexual stimuli.

d. There is no significant difference in the reported level of affective arousal, as measured by the 14-item Adjective Check List, between subjects presented with subliminal sexual stimuli and subjects presented with subliminal neutral stimuli.

e. There is no significant difference in the reported level of affective guilt, as measured by the 14-item Adjective Check List,

between subjects presented with subliminal sexual stimuli and subjects presented with subliminal neutral stimuli.

f. There is no significant interaction effect.

Ethical Consideration

As with most other aspects of human behavior, the study of sexuality is largely a product of the present century. Unlike most other behaviors, however, matters having to do with sex are typically burdened with taboos, anxieties, legal restrictions, and the prevailing notion that such investigations are somehow not quite respectable. However, the fact remains that continuing scientific investigation in the area of human sexuality is necessary because a society cannot ignore the contribution of sexuality, especially in the area of sexual guilt, to various social problems of the day such as emotional distress and marital madadjustment.

Although the importance of studies concerning sexual behavior cannot be under stressed, it is equally important to provide proper safeguards to insure that individual human rights are not violated. To this end, the present study used only volunteers and they were informed of the nature of the study prior to its commencement. The general purpose of and methods used in the experiment were described in an informed consent form and all subjects were required to read the form and sign it if they wished to participate in the study. A copy of the informed consent form is located in Appendix C. The subjects were also given the option of leaving the experiment at any time with no

questions asked. Assured of their anonymity, each subject was informed that the experimenter or another counselor was available to see her if she felt uncomfortable or for any other reason. The subjects were also made aware of the Center for Psychological Services on campus which is available free of charge to all students of the College of William and Mary.

Overview

The present chapter deals with the recent emergence of research in the area of human sexuality. It is pointed out that one of the most consistent predictors of an individual's behavior in a sex-related situation is that person's level of sexual guilt. Research involving sexual guilt has focused on subjects' reactions to sexual stimuli that are consciously perceived. With the use of subliminal techniques in advertising, many of which are of an explicit sexual nature, it appears important to attempt to assess the impact of subliminally presented sexual material on individuals who differ in their level of sexual guilt.

The remaining chapters will be organized as follows: Chapter 2 contains a review of the pertinent literature in the area of sexual guilt, including a section on subliminal preception. Research methodology is discussed in Chapter 3. The results are presented and the data analyzed in Chapter 4. Chapter 5 is devoted to a review of the investigations and the presentation of conclusions and a summary of the study.

Chapter 2

SURVEY OF THE LITERATURE

In this chapter, a survey of the literature in the field of sexual guilt along with an overview concerning the use of subliminal techniques is presented. The literature review is organized into five main areas of consideration. The first four deal with sexual guilt while the fifth area concerns subliminal perception. The five areas are:

- a. the conceptualization and measurement of sexual guilt,
- b. sex-related behavior differences,
- c. the effects of sexually explicit material,
- d. differential perceptual processes, and
- e. overview of subliminal perception.

Conceptualization and Measurement of Sexual Guilt

Guilt has been recognized as an important variable in situations involving human sexual behavior and plays an integral role in a major personality theory (Freud, 1938). With its conceptual significance for human sexuality established, Mosher (1961, 1965) operationalized the construct of guilt in sex-related situations. Mosher considered sexual guilt as operating within the framework of Rotter's (1954) social learning theory. In his theory, Rotter employs three basic constructs:

Behavior Potential (BP), Expectancy (E), and Reinforcement Value (RV). This theory places a great deal of emphasis on situational values. Social learning theory may be explained by the following basic formula:

$$BP_{(x-n),s(1-n),R(a-n)} = f(E_{(x-n),s(1-n),R(a-n)} \& RV_{(a-n)})$$

This may be read as follows: The potentiality of the functionally related behaviors x to n to occur in the specific situation 1 to n in relation to potential reinforcement a to n is a function of the expectancies of these behaviors leading to these reinforcements in these situations and the values of these reinforcements (Rotter, 1954, p. 109).

It can, therefore, be seen that within a specific situation, an individual may choose to either behave in a certain manner or not behave in a certain manner and his choice depends on the extent to which he believes that his behavior will enable him to attain a reward and the value that the particular reward holds for him. Social learning theory can be considered as a generalized expectancy theory, in that the potential for the occurrence of a given behavior revolves around a generalized expectancy of receiving a worthwhile reward. To Rotter's theory, Mosher (1961, 1965) added the generalized expectancy for fear and guilt. Fear is considered to be the expectancy of external punishment. Fear is elicited by situational cues that indicate that the exhibition of certain unacceptable behaviors will possibly result in the application of negative reinforcement. Guilt may be defined as a "generalized expectancy for self-mediated punishment (i.e., negative

reinforcement) for violating, anticipating the violation of, or failure to attain internalized standards of proper behavior" (Mosher, 1965, p. 162).

Mosher assumed that in stimulus situations involving guilt, a person's behavior could best be understood in terms of an approach-avoidance conflict resolution paradigm. He proposed that the potential for either an approach or avoidance behavior in a given situation could be determined by the following two formulae:

$$BP_{x'}^{ap}, s_{f-g}, r_a = f(E_{x', s_{f-g}, r_a} \& RV_a)$$

$$BP_{x'}^{av}, s_{f-g}, r_{a'} = f(E_{x', e}, s_{f-g}, r_{a'}, \& RV_{a'}, \& GE^g)$$

The initial formula expresses the approach behavior and states: "the potential for approach behavior x to occur in a fear-guilt situation in relation to positive reinforcement a is a function of the expectancy that approach behavior x will lead to positive reinforcement a ." Avoidance behavior is presented in the second formula which may be read: "the potential for avoidance behavior x' to occur in a fear-guilt situation in relation to external negative reinforcement a' is a function of the expectancy that behavior x' will lead to external negative reinforcement a' ; the value of external negative reinforcement a' ; and the generalized expectancy for self-mediated punishment for violating, anticipation of the violation of, . . . internalized standards of proper behavior (Mosher, 1965, p. 162)." From these two formulae, Mosher states that the behavior potential (BP) that is the highest in a stimulus situation dictates the behavior that will be exhibited.

An individual, therefore, is considered to have a generalized expectancy for guilt and this expectancy prompts the person to obey internalized codes or proper and acceptable behavior. It appears that an individual's generalized expectancy for guilt is determined, to some extent, by that person's past history of reinforcement by his parents involving violations of the standards of proper behavior. Generalized expectancy for guilt (GEG) is thought to vary with delay of administering punishment, in that, the extent to which immediate punishment by the parents is not forthcoming, the child is more likely to develop a high GEG. As the child grows older, this GEG shifts from the external, anticipation of punishment by the child's parents, to the internal and the GEG now manifests itself as an anticipatory response of self-criticism or self-punishment.

To construct of sexual guilt, as envisioned by Mosher (1961), is a "generalized expectancy for self-mediated punishment for violating or for anticipating violating standards of proper sexual conduct" (p. 27). An individual's code of proper conduct consists of a set of internalized standards acquired in a developmental fashion by the person while he was a child. It represents the learning of acceptable and unacceptable behavior. Like GEG, the degree of sexual guilt that a person has is dependent primarily upon the extent to which punishments for transgressions were delayed while he was a child. The more an individual was threatened with vague punishment as a child, the greater the degree of sexual guilt that person will probably possess.

Once acquired, an individual's level of sexual guilt tends to

remain rather stable over time and, in any situation portending the possible elicitation of a behavior that violates his standard of proper sexual conduct, the individual's sexual guilt can be activated. Sexual guilt also appears to operate independently of fear. Referring to Mosher's (1965) approach-avoidance formulae, therefore, the behavioral response in a given conflict situation that might provoke improper sexual behavior can be considered as dependent upon the relative strength of the expectancies of obtaining external reward and avoiding internal punishment along with the values attached to the reinforcements. The reinforcement values can be both internal and external.

In order to assess an individual's level of sexual guilt, Mosher (1961) constructed an incomplete sentences test. The Mosher Incomplete Sentences Test (MIST) attempted to measure three aspects of guilt: hostile guilt, sexual guilt, and morality-conscience guilt. It is composed of fifty sentence stems of which fourteen relate to each of the three categories of guilt with the remaining eight items being unscored fillers. The sexual guilt subscale of the MIST consists of stems such as "Masturbation . . .," "If in the future I committed adultery . . .," and "When I have sexual desire" Mosher has developed a scoring manual for guilt (Mosher, 1961) which relies on a psychoanalytic conception of guilt. It gives protocols for scoring along a five-point dimension of guilt with the sexual guilt subscale having a possible range of scores from 0 to 56. The split-half and test-retest reliability coefficients for the sexual guilt subscale of the MIST were reportedly .72 and .77, respectively. Mosher also found

that intelligence, as measured by the Ohio State Psychological Examination, did not significantly correlate with sexual guilt, as measured by the MIST. He noted that social desirability, as measured by either the Edwards Social Desirability Scale (Edwards, 1957) or the Marlowe-Crown Social Desirability Scale (Crown & Marlowe, 1964), did not significantly correlate with sexual guilt either.

Although the MIST is a useful device and has been utilized successfully to predict numerous sex-related behaviors (Galbraith, 1968; Lamb, 1968; Mosher, 1965, 1966; and Mosher & Mosher, 1967), its sentence completion form assumes the subject will make a response that will fall somewhere along a guilt continuum. It also introduces the possibility of interjudge fallibility. In order to remedy this difficulty, Mosher (1966) constructed two additional measures of guilt using true-false and forced-choice formats. He selected 504 common item responses to the MIST and administered them to 129 college males. An item analysis that discriminated the top 27% from the bottom 27% yielded 103 statements that could be placed in a true-false design. The forced-choice inventory was constructed by taking the guilty and the nonguilty stem completions that were found to discriminate high guilt individuals from low guilt individuals in the item analysis. Seventy-nine items were selected to compose the forced-choice guilt inventory. Both the true-false and the forced-choice inventories were balanced for both response acquiescence and social desirability. Since the present study uses the forced-choice inventory to assess sexual guilt, further discussion will deal with a description

of this instrument and, more specifically, with the sexual guilt subscale of the Mosher Forced-Choice Guilt Inventory (MFCGI).

The MFCGI is composed of 79 items of which 28 items constitute the sexual guilt subscale (SGS). The hostile guilt subscale and the morality-conscience subscale consist of 29 and 22 items, respectively. Examples of items making up the sexual guilt subscale are:

As a child, sex play . . .

- A. never entered my mind.
- B. is quite widespread.

Sex relations before marriage . . .

- A. ruin many a happy couple.
- B. are good in my opinion.

Mosher (1966) subjected the responses of 95 male college students to a multitrait-multimethod matrix analysis of the three guilt scales (sentence completion, true-false, and forced-choice) and found that the sexual guilt subscale of the MFCGI correlated .79 with the original MIST sexual guilt subscale. He also showed that the three subscales do measure distinctly different constructs. Mosher was concerned about the possible contamination effects of anxiety and social desirability on the forced-choice measure of sexual guilt. However, he found only a small portion of the variance attributable to either anxiety ($\underline{r} = .29$ using the Taylor Manifest Anxiety Scale and $\underline{r} = .05$ using the Christie-Budnitzky Short Forced-Choice Anxiety Scale) or social desirability ($\underline{r} = .25$ and $\underline{r} = .17$ as measured by

the Edwards Social Desirability Scale and the Christie-Budner Short Forced-Choice Social Desirability Scale, respectively).

A considerable amount of research has supported Mosher's original conceptualization of sexual guilt and has provided convergent and discriminant validity for the sex guilt subscale of the MFCGI. A summary of the research results is presented in Table 1 in the appendix. The contents of Table 1 demonstrate that sexual guilt is a construct distinct from anxiety and social desirability. O'Grady and Janda (1978) found no correlation between sexual guilt and anxiety, as measured by the State-Trait Anxiety Inventory, in a sample of 135 female and 101 male college students. They also found sexual guilt to be unrelated to either Repression-Sensitization or Locus of Control. Supporting Mosher's (1965) conceptualization of guilt as a personality disposition as opposed to an affective state, Janda and Magri (1975) and Janda, Magri, and Barnhart (1977) found a lack of a significant relationship between the sexual guilt subscale of the MFCGI and the Perceived Guilt Index (Otterbacher and Munz, 1973), an affective measure of guilt.

Concerning convergent validity, research has shown an inverse relationship between measures of sexual interest or experience and sexual guilt. With a sample of 71 male undergraduates, Galbraith, Hahn, and Leiberman (1968) obtained a significant negative relationship ($r = -.56$) between scores on the sexual guilt subscale of the MFCGI and scores on the Edwards Personal Preference Schedule Heterosexual Subscale. A similar finding was reported by Abramson, Mosher, Abramson, and Wochowski (1977). These authors, using an undergraduate

sample of 108 males and 41 females, replicated the earlier research and found that the sexual guilt subscale of the MFCCI correlates with the Edwards Personal Preference Schedule Heterosexual Subscale ($r = -.29$ for males and $r = -.44$ for females). A number of researchers have investigated the relationship between the sexual guilt subscale of the MFCCI and measures of sexual behavior. Langston (1973) compared scores on the sexual guilt subscale with scores on the Bentler Heterosexual Behavior Scale (Bentler, 1968). He used a college population, 76 males and 116 females, and found a significant relationship for males ($r = -.43$) and females ($r = -.41$), the higher the level of sexual guilt, the lower the level of sexual experiences. D'Augelli and Cross (1975) found a significant relationship between scores on the sexual guilt subscale and sexual experience, as reported by the Sexual Experience Inventory (Brady and Levitt, 1965), for a sample of 119 unmarried college women ($r = -.41$). Similar results have been found using various forms of the Sexual Experience Inventory (Abramson and Mosher, 1975; Carlson and Coleman, 1977; Mosher, 1973; and Mosher and Cross, 1971) and the Thorne Sex Inventory (Galbraith, 1969). Comparing the sexual guilt subscale with their newly devised Negative Attitudes to Masturbation Scale, Abramson and Mosher (1975) report correlations of .47 for a sample of 96 college males and .61 for a sample of 102 college females.

Considering the above information, the convergent and divergent validity of the sexual guilt subscale of the MFCCI seems to be well established. The sexual guilt subscale has clearly differentiated

individuals on the basis of dispositional guilt without being influenced by other competing constructs such as anxiety or social desirability. It is also interesting to note that in almost all the studies involving both male and female college students, the correlations between scores on the sexual guilt subscale of the MFCGI and other measures of sexual attitudes and behavior were higher for females. It appears that in sex-related situations, both the individual's level of guilt and the individual's sex play important roles in the determination of that person's behavior. The next section of this review deals more specifically with these differences.

Sex-Related Behavior Differences

A number of studies have provided evidence of clear-cut differences between high sexual guilt and low sexual guilt individuals concerning their sexual experience. Mosher and Cross (1971) used the sexual guilt subscale of the MFCGI to measure the sexual guilt of 136 never-married undergraduate college students (60 males and 76 females). The subjects were also administered the Sexual Experience Inventory (Brady and Levitt, 1965) to establish the level of sexual intimacy of their behaviors. They were also asked to indicate if the experiences in which they had engaged had been with a loved-one or a nonloved-one, and to indicate the sexual experiences that they thought were acceptable as premarital behavior and as postmarital behavior for males and females. As predicted, sexual guilt was negatively correlated with the occurrences of the more intimate forms of premarital sexual experience.

High sex guilt males had experienced significantly fewer of the following behaviors than had low sex guilt males: manual manipulation of the female genitalia, oral contact with the female breast, manual manipulation of their own genitalia by a female, oral contact with female genitalia, ventral-dorsal intercourse, and homosexual relations. High sex guilt females also had significantly fewer sexual experiences than low sex guilt females. They differed on the following experiences: manual manipulation of their unclad breast by a male, manual manipulation of their genitalia by a male, manual manipulation of a male's genitalia, ventral-ventral intercourse, and oral contact with their genitalia by a male. In terms of differential experiences as a function of sexual guilt, Mosher and Cross (1971) concluded that for male subjects, being manually masturbated by a female, oral contact with a female partner's genitalia, and ventral-dorsal intercourse discriminated high sexual guilt from low sexual guilt individuals. For females, the manual manipulation of their unclad breast distinguished high sexual guilt individuals from low sexual guilt individuals in that high guilt females had not had their unclad breast manipulated nor had they engaged in the more intimate forms of sexual behaviors.

Examination of the reasons for nonparticipation of certain sexual activities revealed that high sexual guilt males consistently gave the following reasons for not participating in these behaviors:

- (1) ventral-ventral intercourse--afraid of pregnancy or disease, believed it was morally wrong, and too much respect for the girl;
- (2) oral contact with female genitalia--afraid of pregnancy or

or disease; (3) oral contact with their own genitalia by a female--afraid of pregnancy or disease, too much respect for the girl; and (4) ventral-dorsal intercourse--believed it was morally wrong. The only reasons for nonparticipation that differentiated high sexual guilt females from low sexual guilt females was their belief that the specific sexual behavior was morally wrong. Mosher and Cross (1971) noted that one of the specific reasons for nonparticipation in certain sexual behaviors, fear of other people finding out, did not differentiate the high sexual guilt and low sexual guilt subjects. They cite this as further evidence in support of Mosher's (1966) distinction between guilt and anxiety.

Langston (1973, 1975) provided evidence in support of the inverse correlation between sexual guilt and sexual behavior. Using a sample of 76 male and 116 female undergraduates at two universities and one school of nursing in Houston, he found that sexual guilt was positively related to religious activity and negatively related to sexual activity, as measured by the Bentler Heterosexual Behavior Assessment Scale (Bentler, 1968). Langston (1973) found that high sex guilt females but not high sex guilt males, avoided R and X rated movies and obscene or pornographic books. His 1975 study yielded results very similar to those of Mosher and Cross (1971). Langston reported that manual manipulation of male genitalia, oral contact with female genitalia, and ventral-dorsal intercourse distinguished high sex guilt males from low sex guilt males. For females, the following experiences differentiated high guilt from

low guilt subjects: manual manipulation of male genitalia, manual manipulation of female genitalia, ventral-ventral intercourse, and oral contact with female genitalia. Langston made the interesting observation that both males and females high in sexual guilt are more likely to conform to societal norms regarding sexual behavior. High sex guilt males were significantly more likely to be involved in assertive sexual behavior than were low sexual guilt males while the opposite was the case for females differing in level of sex guilt. Langston views these findings as an indication of the sexually conservative manner in which high sexual guilt individuals operate.

In a study investigating the influence of sexual guilt and moral reasoning on sexual behavior, D'Augelli and Cross (1975) found that both sexual guilt and moral reasoning were related to sexual behavior. Females who operated at the authority maintaining level (law and order) of moral reasoning, as measured by Kohlberg's (1963) Moral Dilemma Questionnaire, differed from females oriented at the other stages in that they had significantly fewer sexual experiences, had a significantly higher level of sexual guilt, and were more likely to be virgins. While both sexual guilt and moral reasoning influenced sexual behavior, sexual guilt was a better predictor of sexual behavior. D'Augelli and Cross noted that, in dating couples, the women in their sample acceded to male determined standards of appropriate sexual behavior and, thus, the sexual guilt of the male partner tended to be the best predictor of the couple's sexual experience. Sexual guilt of the male was followed by the male's stage of moral reasoning and the female's level of sexual guilt as predictors of the couple's sexual

experiences. The sexual experience of the couple, therefore, seems to be strongly influenced by the sexual guilt of both the male and the female partner. The combined results of Mosher and Cross (1971) and D'Augelli and Cross (1975) suggest that higher scores on the sexual guilt subscale of the MFCCI are associated with a restricted range of acceptable sexual behaviors in that high sexual guilt individuals tend to practice only the more conventional and socially acceptable types of sexual experiences.

Love, Sloan, and Schmidt (1976) found that sexual guilt was inversely related to the amount of time an individual spent viewing pornographic material and that, for low sexual guilt individuals, viewing time increased as the pornographic content of the material increased. Sexual guilt scores were also negatively correlated with reported purchases or exposure to pornographic material, ratings of explicit sexual material as unobjectionable, and sexual experience for the previous month. Concerning viewing explicit sexual material, Schill and Chapin (1972) found that sexual guilt scores discriminated individuals who were more likely to pick up and look through copies of men's magazines while waiting for an appointment.

Other research has indicated that sexual guilt is a valid predictor of a wide variety of sex-related behaviors for both males and females. Researchers have discovered that sexual guilt is significantly inversely related to frequency of intercourse (Mosher, 1973), frequency of masturbation (Abramson and Mosher, 1975), number of sexual partners (Mosher, 1973), and ease of retaining birth control

information (Schwartz, 1973). In terms of differentiating individuals concerning the occurrences of sex-related behaviors, the construct validity and the utility of the sexual guilt subscale of the MFCGI have been strongly supported by experimental evidence.

Effects of Sexually Explicit Material

Numerous studies have shown sexual guilt to consistently discriminate individuals on the basis of their reactions to explicit sexual material. Prior to 1970, research in the area of psychological reactions to erotic stimuli dealt with subjects' reactions to pinups, slides of sexual activity, and reading or listening to sexual prose (Brehm and Behar, 1966; Dean, Martin, and Streiner, 1968; Jacobovits, 1965; Levitt and Hinesley, 1967; and Schmidt, Sigusch, and Meyberg, 1969). Mosher and Greenberg (1969) divided 72 female undergraduates into high sexual guilt and low sexual guilt groups based on their scores on the MFCGI. The subjects were then randomly assigned to one of four treatment conditions: reading an erotic passage with the experimenter present, reading an erotic passage with the experimenter absent, reading an academic passage with the experimenter present, and reading an academic passage with the experimenter absent. Mosher and Greenberg were interested in the affective states of guilt, sexual arousal, and anxiety with these states being assessed by a modified form of the Nowlis Mood Adjective Check List (Nowlis and Green, 1964). The results of the study indicated that the half of the sample who read the erotic literary passage also showed a significant increase in

their level of affective guilt. This increased affective guilt was not present in any of the other groups and it is interesting to note that the high sexual guilt subjects who read the erotic passage reported both increased affective guilt and sexual arousal. Of further importance was the finding that increases in reported anxiety occurred only with the subjects who read the erotic passage with the experimenter present. Mosher and Greenberg point to the lack of any interaction effect between presence of the experimenter and sexual guilt as further evidence of Mosher's (1966) distinction between guilt and anxiety. This study also provides evidence for the conceptual distinction between sexual arousal and sexual behavior and the conceptual distinction between guilt as an affective state and guilt as a personality disposition. In a similar experiment, Schill (1972) found that reading an erotic passage produced an increase in sexual arousal in undergraduate males. The increased sexual arousal was independent of sexual guilt with both high sexual guilt and low sexual guilt individuals showing similar increases. Schill concluded that sexual guilt inhibited sexual behavior but had no effect on sexual arousal.

Ray and Walker (1973), noting an absence in the literature of responses to erotic visual stimuli as the sole dependent measure, divided 60 unmarried females students at Baylor University into high and low sexual guilt groups based on their scores on the MFCGI. Each subject was shown the same four color slides depicting dating, masturbation, petting, and coitus. Subjects were then asked to rate the slides on five semantic differential scales and to respond to a 14-item

adjective check list (Mosher and Greenberg, 1969). The experimenter found that high sex guilt subjects rated the dating slides more favorably than did the low sex guilt subjects. The high sexual guilt group considered the masturbation, petting, and coitus slides as significantly more dangerous, unpleasant, and disgusting than did the low sexual guilt group. These results are congruent with those of Mosher and Greenberg (1969) and Schill (1972).

Love, Sloan, and Schmidt (1976) divided 35 undergraduate males into groups of high sexual guilt, moderate sexual guilt, and low sexual guilt on the basis of their scores on the MFCGI. The subjects were assigned the task of rating 18 slides along a 5-point scale for obscenity, disgust, attractiveness, and artistic values. The major dependent variable, however, was an unobtrusive measure of time spent viewing each slide. The results showed that viewing time remained relatively constant for high sexual guilt subjects for all 18 slides. The viewing time increased for low sexual guilt subjects as a function of increased obscenity ratings while moderate sexual guilt subjects displayed a curvilinear viewing pattern. They increased their viewing time as the slide content moved from mildly to moderately obscene but decreased the amount of time spent viewing the slides as the slides became extremely obscene. The moderate sexual guilt group is of special interest because they displayed attributes of both the high sexual guilt and the low sexual guilt groups. The moderate sexual guilt subjects tended to react more like the low sex guilt group in their viewing behavior but responded, in terms of perceiving explicit

sexual stimuli as obscene, in a fashion similar to that of the high sex guilt subjects. It is conceivable that it is from this group that the censors come.

The use of sexually explicit films to study the physiological reactions to erotic material was advanced by the Institute for Sex Research, University of Hamburg, West Germany (Schmidt, Sigusch, and Meyberg, 1969; Schmidt and Sigusch, 1970; and Sigusch, Schmidt, Reinfeld, and Wiedemann-Sutor, 1970). In extending the work done in Germany, Mosher (1971) assessed the impact of two sexually explicit films, obtained from the Institute of Sex Research in Hamburg, portraying ventral-ventral sexual intercourse and oral-genital sexual contact. The subjects were 194 male and 183 females unmarried undergraduate college students. Based on their scores on the MFCGI, subjects were divided into high sexual guilt and low sexual guilt groups, shown the films and then asked to rate them. The subjects' affective states and subsequent sexual behavior were also assessed. Mosher found that females, high sexual guilt subjects, and less sexually experienced subjects tended to rate the films as more offensive, disgusting, and pornographic. His findings concerning high sexual guilt subjects were later supported by Ray and Walker (1973). Both high sexual guilt and low sexual guilt males and females reported equal arousal (in terms of genital sensations) to the film involving coitus but females reported lower levels of arousal to the film involving the oral-genital behavior than did males while high sexual guilt males and females viewed the oral-genital activity as abnormal. High sexual guilt subjects related

feeling ashamed, depressed, disgusted, embarrassed, and guilt immediately after viewing the films. Twenty-four hours later, the high sex guilt subjects reported mild increased feelings of nervousness, guilt, and general internal unrest. In terms of behavior, there was no reported increase in the frequencies of heterosexual petting, coitus, oral-genital sex, or masturbation in the twenty-four hours following the viewing of the films as compared to the twenty-four hours prior to seeing the films. Mosher concluded that sexual arousal to erotic stimuli is not influenced by sexual guilt but sexual guilt does affect the person's reaction to this arousal. The high sexual guilt individual tends to avoid erotic stimuli. If, however, he comes in contact with this type of stimuli, he will become aroused and then feel disgusted, offended, and devalued afterward. Mosher also noted that high sexual guilt males, but not high sexual guilt females, reported an increase in their desire for sexual contact after watching the films, though they felt guilty about their desires.

Other studies were designed to measure individual's reactions to sexually explicit films (Abramson, Michalak, and Alling, 1977; Abramson, Goldberg, Mosher, Abramson, and Gottesdiene, 1975; Lenes and Hart, 1975; and Mosher and Abramson, 1977). In their 1977 study, Abramson et al found results quite similar to those reported by Mosher (1971) in that both high sexual guilt and low sexual guilt subjects related increased genital arousal after viewing sexually explicit films. Mosher and Abramson (1977) showed 198 male and female undergraduate films of males and females masturbating. Affective responses reported

by the subjects after viewing the films were collected and it was found that high sex guilt subjects reported significantly more anger, affective guilt, disgust, and shame than did low sex guilt subjects. Using scores on the MFCGI, Lenex and Hart (1975) divided 52 undergraduate females at Syracuse University into high sexual guilt and low sexual guilt groups. The subjects were then shown either a violent film, a neutral film, or a sexually explicit film. The experimenters found that high sexual guilt subjects differed from low sexual guilt subjects in their reported increased affective responses to the sexually explicit film with their reactions being feelings of repulsion and disgust. Lenex and Hart commented that the overall affective reactions to the pornographic film were much less than those elicited by the violent film. This finding suggests that perhaps media censors could make more judicious use of their efforts to protect society by focusing on violence instead of on sex.

Ray and Thompson (1974) examined the relationship between physiological arousal to sexually explicit material and sexual guilt by showing slides to 60 college females. The slides displayed a dating couple, a female masturbating, and a couple engaged in coitus. The subjects' physiological responses to the slides were measured by their heart rate and their galvanic skin response. High sexual guilt subjects did not differ from low sexual guilt subjects for galvanic skin response to any of the slides and they did not differ in their cardiac responses to the slides depicting dating or masturbation. However, low sexual guilt subjects viewing the coitus slide showed

a significant cardiac deceleration while high sexual guilt subjects had an insignificant cardiac acceleration.

Another physiological index of arousal that has been investigated is the presence of specific secretions, such as the enzyme acid phosphatase, in the urine (Clark and Treichler, 1950; and Gustafson, Winokur, and Reichlin, 1963). Howard, Reifler, and Liptzin (1971) found that the acid phosphatase levels in the urine of subjects who had been shown sexually explicit films decayed much faster than the levels of control subjects who had not viewed the films. A later exploration of sexual arousal using analysis of the level of acid phosphatase in the urine was conducted by Pagano and Kirschner (1978) who were interested in the relationship between sexual guilt and sexual arousal. The subjects were 36 male undergraduate college students who were required to provide a urine sample before the experiment began. They were given the MFCGI and exposed to a series of sexually explicit slides. Another urine sample was obtained from the subjects after viewing the slides. It was found that sexual guilt was significantly related to both pretreatment acid phosphatase level and post-treatment acid phosphatase level (adjusted for the initial level) with high sexual guilt subjects having low levels of the enzyme and low sexual guilt subjects having high levels of acid phosphatase both before and after exposure to the slides.

Research in the area of the effects of sexually explicit material has been augmented, to a great extent, by the use of sexual guilt as a predispositional variable. A consistent, positive relation-

ship exists between an individual's level of sexual guilt and his negative affective and physiological reactions to erotic material. This finding is consistent with Mosher's (1965) conceptualization of guilt as self-mediated punishment for the violation or anticipation of violation of one's internalized standards of proper behavior. The experimental evidence also provides additional support for the construct validity of the sexual guilt subscale of the MFCGI.

Differential Perceptual Processes

This last section of research in the area of sexual guilt concerns the extent to which perception and sensitivity are influenced by the interaction between environmental conditions and sexual guilt. This line of research follows from Mosher's (1965) investigation into the interaction between fear and sexual guilt and his conceptualization of guilt as an expectancy variable. In a moral conflict situation, the low sexual guilt individual's behavior is a function of the probability (expectancy) of incurring externally administered rewards or punishments along with the expected strength of this reinforcement, either positive or negative. However, the high sexual guilt person relies upon his internalized standards to govern his behavior and, thus, reinforcement for this person is self-monitored. It is this self-monitoring reinforcement system that supplies the motive strength of avoidance in moral approach-avoidance conflict situations (Bandura and Perloff, 1967).

In his 1965 study, Mosher assigned 80 college males the task of rating photographs of nude and seminude females taken from men's magazines.

This pretreatment manipulation was designed to produce sexual arousal. The subjects were then divided into high sexual guilt and low sexual guilt groups and randomly assigned to either the "fear induction" or the "fear reduction" condition. In the "fear induction" condition, the experimenter mentioned that he enjoyed looking at those pictures and frequently read men's magazines. The dependent measure tapped perceptual defense and consisted of 10 stimulus words, 5 of which were considered to be taboo (whore, urine, bitch, penis, and raped). The remaining neutral words were: ranch, scent, towel, spray, and cable. Using a technique of successive carbons (Cower and Beier, 1950), the subjects were given the stimulus words. Each word had 20 carbon copies progressing from least clear to clearest. A subject's perceptual defense score was obtained by finding the difference between the number of carbons viewed until recognition of the neutral words and the number of carbons required for recognition of the taboo words.

As anticipated, there was a significant interaction between sexual guilt and fear. Also, as expected, the low sexual guilt subjects in the "fear reduction" condition showed the lowest mean perceptual defense score. However, Mosher assumed that the high sexual guilt subjects in the "fear induction" condition would have the highest mean perceptual defense score and this expectation was not borne out. Low sexual guilt subjects in the "fear induction" condition had the highest mean perceptual defense score. The behavior of the high sexual guilt subjects remained the same in both of the experimental conditions. Mosher explained this finding by stating that "individuals who attend

almost exclusively to external cues in governing their unacceptable behavior become more sensitive to situational cues related to the probability of external punishment or disapproval" (Mosher, 1965, p. 166). Therefore, while high sexual guilt individuals are relatively unresponsive to external cues, low sexual guilt individuals are readily influenced by them.

Extending the findings of Mosher's (1965) study, Galbraith and Mosher (1968) attempted to assess the effects of external contingencies of approval, sexual arousal, and sexual guilt on the responses to double-entendre words. One hundred and sixty-eight male college students were divided into high sex guilt and low sex guilt groups based on their scores on the MFCGI. Subjects were then randomly assigned to one of four treatment conditions: (1) sexual stimulation with high expectancy for external censure; (2) sexual stimulation with low expectancy for external censure; (3) sexual stimulation with no approval/disapproval contingencies; and (4) no sexual stimulation and no expectancy for external censure. The sexual stimulation was provided by having the subjects spend seven minutes looking at photographs of seminude or nude girls taken from men's magazines. In order to insure involvement, the subjects were asked to identify the girls on the basis of various stereotypes, such as: most sexually appealing, most likely to be a virgin, and most likely to be a nymphomaniac. After the sexual stimulation, the expectancy for external censure manipulation was performed by the experimenter role playing either the high expectancy or low expectancy for censure condition. In the

high expectancy for censure condition, the experimenter conveyed a condemnatory attitude toward sexual arousal, pin-up pictures, the public expression of any forms of sexuality, and he apologized for having put the subjects through this ordeal, justifying it in the name of scientific research. In the low expectancy for external censure condition, the experimenter portrayed himself as a reader of men's magazines who liked pin-up pictures and felt that most college men enjoyed men's magazines too. Immediately following this expectancy for censure manipulation, the subjects were given a 50-item double-entendre word association test which was comprised of 30 sexual words and 20 neutral words. After the subjects responded to the word association test, it was administered a second time in order to determine whether or not a sexual word had a sexual meaning for the subject. During this second administration, the subject replied either "yes" or "no" as to whether or not the word had any sexual meaning for him. The results of the study demonstrated that low sexual guilt individuals gave significantly more sexual responses to double-entendre words than did high sexual guilt individuals. The low sexual guilt subjects were also significantly more aware of the sexual meanings of double-entendre words than were high sexual guilt subjects. The high sexual guilt individuals were unresponsive to the two external contingencies conditions (conditions 1 and 2) while the low sexual guilt individuals varied their responses in accordance with the external cues. The low sexual guilt group increased their sexual responsiveness as a function of sexual stimulation while the sexual stimulation manipulation had no effect on the high sexual guilt group.

In summary, this study, along with a later replication by Galbraith (1968), demonstrated the inhibitory effects of high sexual guilt on sexual responses to and awareness of the sexual meanings of double-entendre words, along with the unresponsiveness of high sexual guilt individuals to the influences of sexual stimulation and external contingencies for censure.

The Galbraith and Mosher (1968) study raised questions about the role of sexual guilt in the perception of double-entendre words. Did the high sex guilt individuals give fewer sexual response because they had actively avoided learning the sexual meanings of the words or did the sexual meanings of the words occupy a position so low in the subject's response hierarchy that they were virtually inaccessible? In an attempt to more clearly define the role that sexual guilt plays in sexual responding, Galbraith and Sturke (1974) divided 56 male college students into high sexual guilt and low sexual guilt groups on the basis of their scores on the MFCGI and randomly assigned them to either an ascending or descending order of stimulus presentation. In the ascending order, each stimulus word was more sexually loaded than the word that preceded it. The reverse was the case for the descending order. Repeated measures were used for the variable of stimulus strength (strongly sexual, moderately sexual, and asexual) with each subject receiving all three conditions. The dependent variable was response latency.

As would be predicted by Mosher's (1965) theory, response latencies were affected by the sexual strength of the stimulus word,

with highly sexual words such as prostitute, rubber, and screw having the longest response latencies. There was no significant effect for the order of presentation of the stimulus words. It was assumed that high sexual guilt individuals would have a longer response latency when confronted with highly sexual stimulus words than would the low sexual guilt subjects, since the high sexual guilt subjects would have to deal with a sex-related situation that they would otherwise choose to avoid. The results, however, found that just the opposite was the case. The high sexual guilt subjects responded more quickly to the sexual words than did the low sexual guilt subjects. In an attempt to explain their results, Galbraith and Sturke (1974) considered the stimulus encoding process (Martin, 1968) with the assumption that high and low sexual guilt individuals use different methods to encode stimuli of a sexual nature. They speculated that low sexual guilt individuals encode double-entendre words sexually and, therefore, affectively. When presented with the stimulus word, they search for sexual responses that have low availability, which takes time. High sexual guilt subjects tend to encode the stimulus word asexually and, thus, nonaffectively. With the presentation of the stimulus word, they go directly to their high availability asexual associative response.

Kerr and Galbraith (1975) empirically tested the stimulus encoding theory with respect to the effects of sexual guilt in a restricted word association procedure. Forty-eight female undergraduates at Washington State University were given the MFCGI and, based on their scores, assigned to high and low sexual guilt groups. The

response latencies associated with sexual and asexual responses were examined by administering a 20-item double-entendre word association test twice. The first administration entailed the subjects being required to respond to the stimulus words with an asexual association. After going through all 20 words, the subjects were then required to respond with a sexual association to each of the stimulus words during a second administration of the test.

The theoretical predictions were that, when required to make a sexual association to a stimulus word, high sexual guilt subjects would have a significantly longer response latency than would low sexual guilt individuals. Concerning asexual responses to double-entendre words, it was assumed that there would be no significant difference between the response latencies of high and low sexual guilt individuals. A third prediction was that there would be no differences between the latencies for sexual and asexual response in low sexual guilt subjects but there would be a significant difference between these latencies for high sexual guilt subjects, with the sexual responses having greater latencies. The results of this study generally supported these hypotheses. High sexual guilt subjects did display longer latencies of sexual response than did low sexual guilt subjects while they did not differ on latencies of asexual response. Sexual responses were accompanied by longer latencies than asexual response in both the low and the high sexual guilt groups, but the latencies were significantly longer in the high sexual guilt group. Using 76 male undergraduates at Arizona State University, Galbraith and Wynkoop (1976) replicated

and extended the findings of the above study. These studies lend considerable support to the stimulus encoding theory and, more generally, to the effects of sexual guilt on differential perceptual processing.

Overview of Subliminal Perception

Although the notion that a person can possibly be influenced by stimuli of which he is consciously unaware is not a new one, there has recently been an increased interest in the use of subliminal stimulation. In his excellent review of the field of subliminal perception, Dixon (1971) explains its basic theory through the use of parallel processing. This type of processing is based on the assumption of the existence of two independent systems, one physiological-behavioral and the other physiological-phenomenal. As illustrated in Figure 1, parallel processing entails the stimulation of a receptor which initiates sensory processes. At this point the stimulus input can affect the physiological-phenomenal system and/or the physiological-behavioral system. It is the stimulus effect on the physiological-behavioral system alone that defines subliminal perception. Dixon (1971) reports that substantial experimental evidence supports the parallel processing model and states that "it seems that stimuli can 'enter' the nervous system, activate memory traces, initiate autonomic responses, influence verbal behavior and ongoing perceptual experience, without ever themselves achieving phenomenological status . . . there is evidence to suggest that subliminal stimuli fail to achieve

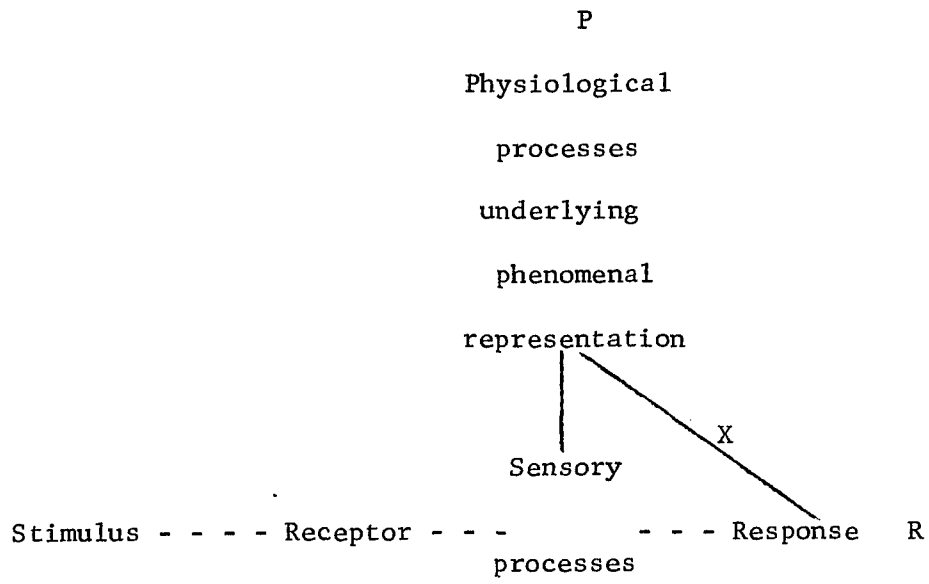


Figure 1. Parallel Processing (Dixon, 1971, p. 2).

phenomenal representation not because the specific information which they yield is unsuccessful in reaching the cortical receiving areas, but partly because such stimuli do not provide sufficient activation of the self-same areas (p. 308)."

Although references to being affected by consciously unperceived stimuli have been traced back to Democritus and Plato (Beare, 1906), experimental investigations in the field of subliminal perception have been a relatively recent development. Suslowa (1863) examined the ability of subjects to make discriminations between one- and two-point electrical stimulation with the stimulation level so low that the subjects were unaware of its presence. Sidis (1898) demonstrated that subjects could correctly distinguish letters from numbers at a distance so great that the subjects thought that they were just guessing. This study was replicated in 1908 by Stroh, Shaw, and Washburn. Other researchers using subliminal techniques found that subjects could discriminate diagonal from vertical crossed lines, and a dot-dash from a dash-dot auditory pattern (Baker, 1937), and could discriminate between different geometric figures (Miller, 1939).

Lazarus and McCleary (1951), in their now classic experiment, presented 9 subjects with 10 five-letter nonsense syllables. These nonsense syllables were divided into two sets of five each by equating their prior recognition and frequency of use by the subjects. Both sets of nonsense syllables were presented tachistoscopically for one second periods. One set was paired with electric shock. The subjects were then presented the 10 nonsense syllables at very short exposure

times while their galvanic skin responses (GSR) were monitored. Although the subjects failed to recognize shock-paired from nonshock-paired nonsense syllables, all 9 of the GSR measures were greater for the shocked than for the nonshocked nonsense syllables. Lazarus and McCleary called this effect subception to indicate that perceptual discrimination can occur without consciousness awareness; in this case autonomic activity versus verbal report. A number of other experimenters have used GSR measures to demonstrate that a behavioral response can be elicited by stimuli presented below subjects' level of awareness (Taylor, 1953; and Worthington, 1961).

The subception hypothesis advanced by Lazarus and McCleary (1951) has been attacked by Howes (1954) and Eriksen (1956) on the grounds that it could be an artifact produced by the experimental design (limited verbal response categories). In an attempt to circumnavigate the criticisms of the design used by Lazarus and McCleary (1951), Dixon (1958) used a potentially infinite range of report categories from which subjects could respond to subliminal stimulation. Seven undergraduates were subliminally presented 12 stimulus items, 10 words and 2 straight lines. Four of the words were emotionally neutral, such as barn and seven, while the remaining 6 words were emotionally charged, such as penis, vagina, and whore. GSR measures were obtained during presentation of the stimuli and it was found that all subjects had significantly higher GSRs for the emotionally charged words than for the emotionally neutral words.

More recently, O'Grady (1977) presented 12 male and 12 female

undergraduate psychology students at San Francisco State University with 14 pictures at 1, 2, and 3 standard deviations below their experimentally derived perceptual threshold. One half of the pictures were sexually explicit while the other half were emotionally neutral. O'Grady found that the mean GSR measures for the sexually explicit pictures were significantly higher than the mean GSR for the emotionally neutral pictures. He also found that this effect held constant at all three exposure times and that GSRs did not differ significantly within either the sexual pictures or the neutral pictures condition at the three subliminal exposure presentations. In other words, stimuli presented at three standard deviations below the subject's perceptual threshold produced the same effects as stimuli presented two standard deviations or one standard deviation below the subject's perceptual threshold.

Summary

The review of the literature presented in this chapter provides a great deal of evidence for the validity of the personality variable of sexual guilt, as measured by the Mosher Forced-Choice Guilt Inventory (Mosher, 1966). Defined as a generalized expectancy for self-mediated punishment for the violation or anticipation of the violation of one's internalized code of proper behavior, guilt has been presented within a social learning theory (Rotter, 1954) framework. Mosher (1966) has constructed a forced-choice and a true-false scale for measuring three aspects of guilt (sexual guilt, hostility guilt, and morality-conscience

guilt). The guilt scales were controlled for the effects of anxiety ($r = -.29$ and $r = .05$ with the Taylor Manifest Anxiety Scale and the Christie-Budnitzky Short Forced-Choice Anxiety Scale, respectively) and social desirability ($r = .25$ with the Edwards Social Desirability Scale and $r = .17$ with the Christie-Budner Short Forced-Choice Social Desirability Scale). A number of studies have consistently demonstrated the construct validity and the convergent and divergent validity of the Mosher Forced-Choice Guilt Inventory (Abramson and Mosher, 1975; Galbraith, Hahn, and Leiberman, 1968; Janda and Magri, 1975; Janda, Magri, and Barnhart, 1977; Mosher, 1966, 1968, 1971, 1973; and O'Grady and Janda, 1978).

The sexual guilt subscale of the Mosher Forced-Choice Guilt Inventory, which has a split-half reliability of .97, has been useful in predicting a wide variety of sex-related behaviors. Sexual guilt, as measured by the subscale, has been shown to be significantly related to frequency of intercourse (Mosher, 1971, 1973), frequency of masturbation (Abramson and Mosher, 1975), number of sexual partners (Mosher, 1973), and difficulty retaining birth control information (Schwartz, 1973). Subjects higher in sexual guilt report experiencing fewer and less intimate forms of sexual experience (Abramson, 1976; Abramson and Mosher, 1975; Langston, 1973; and Mosher and Cross, 1971), having negative attitudes toward masturbation (Mosher, 1973), being more religiously active (Langston, 1975), spending less time viewing pornographic material (Love, Sloan, and Schmidt, 1976; and Schill and Chapin, 1972), preferring G and PG movies (Langston, 1973), and they

tend to rate explicit sexual material as pornographic and objectionable (Langston, 1975).

Sexual guilt has also been shown to be inversely related to overt sexual associations given to double-entendre words (Galbraith, 1968; Galbraith, Hahn, and Leiberman, 1968; Galbraith and Mosher, 1968; and Schill, 1972) and is correlated with free associative response latencies (Galbraith and Sturke, 1974; Galbraith and Wynkoop, 1976; and Kerr and Galbraith, 1975). Sexual guilt has been found to interact with moral reasoning in the determination of sexual standards for dating couples (D'Augelli and Cross, 1975). Females who are high in sexual guilt tend to orient at Kohlberg's authority maintaining level of moral reasoning (D'Augelli and Cross, 1975) and they find sexual stimuli less arousing (Ray and Walker, 1973). High sexual guilt individuals are also relatively uninfluenced by situational cues portending the probability of approval for sexual behaviors while low sexual guilt individuals are heavily influenced by such cues (Galbraith, 1968; Galbraith and Mosher, 1968; and Mosher, 1965).

This survey of the literature leaves little doubt that the personality variable of sexual guilt is significantly correlated with a wide range of behaviors, with the strongest relationship being in the area of sexual experience. Numerous studies dealing with sexual issues have supported Mosher's (1965) hypothesis that, in conflict situations involving sexual behavior, the behavior of the low sexual guilt individual is more strongly influenced by a generalized expectancy for external reward while the behavior of the high sexual

guilt individual is more likely to be influenced by a generalized expectancy for internal punishment (guilt).

Chapter 3

METHODOLOGY

The purpose of the present study was to explore the potential sexual arousing and guilt-inducing effects of the subliminal presentation of sexual stimuli as influenced by sexual guilt. The basic research design of this investigation is a post-test only control group design with one treatment group and one control group. The design is a 2 x 2 factorial with the independent variables being treatment and dispositional guilt. The dependent measures are level of arousal, level of affective guilt (a state measure) and galvanic skin response.

Subjects

The subjects were 36 female undergraduates at the College of William and Mary who are enrolled in an introductory educational psychology course. They all volunteered to participate in the investigation and ranged from age 18 to age 25. The subjects were informed verbally that the study concerned the speed at which they could recognize words and their reaction to words. The subjects were also required to read and sign an informed consent form which described the nature and procedure of the experiment. They were asked to fill out the Mosher Forced-Choice Guilt Inventory (Mosher, 1966). On the basis of the scores they received on the sex guilt subscale, 36

subjects were divided into high sex guilt and low sex guilt groups. The 18 females receiving the highest scores were the high sex guilt group and the 18 lowest scoring females were the low sex guilt group. The high sex guilt subjects and the low sex guilt subjects were then randomly assigned to either the treatment or the control group, with each group consisting of 18 subjects--9 high sex guilt and 9 low sex guilt individuals.

Instruments

Two self-report instruments were used in this research along with a physiological monitor. Brief descriptions of each of these instruments are presented below.

Mosher Forced-Choice Guilt Inventory

The Mosher Forced-Choice Guilt Inventory (Mosher, 1966) was used to measure dispositional guilt. Three types of guilt are assessed by this 79-item instrument: sex guilt, hostile guilt, and morality-conscience guilt. The sex guilt subscale, which was used in this study, has a corrected split-half reliability of .97 and consists of 28 items. Extensive validation support for the MFCGI was presented in Chapter 2. Scores on this subscale range from 0 to 28 with low scores indicating a relative absence of sexual guilt and high scores pointing to a high level of sexual guilt. The following are examples from the sex guilt subscale:

Petting . . .

A. is something that should be controlled.

B. is a form of education.

"Dirty jokes" in mixed company . . .

A. are not proper.

B. are exciting and amusing.

14-Item Adjective Check List

The affective states of sexual arousal and guilt are measured by a 14-item adjective check list (Mosher and Greenberg, 1969). This check list was created to augment the Nowlis Mood Adjective Check List (Nowlis, 1965) which, composed of a number of adjectives, reflects momentary affective states. Originally used by Haefner (1956), the 14-item adjective check list has received construct validation support for its ability to measure the affective states of guilt and sexual arousal with coefficients ranging from .52 to .80 (Okel and Mosher, 1968; Mosher and Greenberg, 1969; and Ray and Walker, 1973). Subjects are required to respond to each of the 14 adjectives as it applies to how the subject is feeling right now. The adjectives making up the 14-item check list are: titilated, sensuous, aroused, tantalized, hot, passionate, excited, contrite, repentant, ashamed, blameworthy, guilty, conscience stricken, and remorseful. The responses available to the adjectives are:

1. Definitely does not apply.
2. Undecided

3. Slightly applies.
4. Definitely applies.

Visual Stimuli

The visual stimuli consisted of 14 words. Ten of the 14 words were neutral nonsexual words which have been used in past research (Galbraith, 1968; Galbraith and Lieberman, 1972; Galbraith and Mosher, 1968; Galbraith and Wynkoop, 1976; and Janda and Magri, 1975; and Janda, Magri, and Barnhart, 1977). The 4 sexual words were chosen on the basis of their emotional content. The 14 stimulus words were divided into two groups, treatment and control. The stimuli comprising the two groups are:

<u>Control</u>	<u>Treatment</u>
1. river	1. penis
2. set	2. sex
3. carpet	3. vagina
4. stove	4. naked
5. chair	5. chair
6. ocean	6. ocean
7. light	7. light
8. street	8. street
9. flower	9. flower
10. table	10. table

Galvanic Skin Response Monitor

A model 12-13R Galvanic Skin Response monitor, manufactured by the Marietta Apparatus Company, was used to measure the subject's physiological response. This instrument provides both a visual and taped reading of the subject's response with the electrical contact being established by a pair of electrodes attached to the first and third fingers of the subject's left hand.

Tachistoscope

A 3-channel tachistoscope, model GB, was used to display the visual stimuli in this experiment. Manufactured by the Scientific Prototype Manufacturing Corporation of New York, this instrument presents a visual field 12.7 centimeters high, 17.78 centimeters wide and 119.4 centimeters from the subject.

Procedure

Seventy-four undergraduate college females enrolled in an Educational Psychology course at the College of William and Mary were given the Mosher Forced-Choice Guilt Inventory (MFCGI). On the basis of their scores on the MFCGI, they were divided into high sex guilt and low sex guilt groups. Eighteen subjects scoring in the upper 27% were assigned to the high sex guilt group while those eighteen subjects receiving scores in the lower 27% were assigned to the low sex guilt group. The scores of the low sex guilt group ranged from 0 to 10. The scores of the high sex guilt group varied from 16 to 27. The

selection of this particular criteria was based on reports of mathematical analyses (Davis, 1951) which indicate that division of a group in this manner maximizes the differences between the extreme groups along the criterion variable. In essence, these percentages offer a very serviceable, statistically defensible method of discriminating between two groups measured on a normally distributed variable.

The subjects, having been divided into high and low sex guilt groups and randomly assigned to either the treatment or the control condition, were seen individually for the experimental manipulation. The subjects were seated in a comfortable armchair in a small room in front of the viewing hood of the tachistoscope. Before the presentation of the experimental stimuli, each subject's visual perceptual threshold was determined. Prior to the threshold measurement, two recording electrodes were attached to the subject's left hand and the experimenter explained the purpose of these, assuring the subject that the GSR was only a monitor and would not shock her. The experimenter asked the subject to position her left arm so that it was comfortable and she was asked not to move her left hand during the experiment. It was explained to the subject that keeping the left hand still was necessary to insure an accurate GSR reading. While a baseline GSR was being established, the subject's perceptual threshold was determined by the psychophysical method of limits. The following instructions were read to all subjects:

I am going to present a stimulus superimposed on this white background. I want you to tell me if you see anything other than this white background. You don't have to identify the stimulus, just tell me if you detect something other than the white stimulus field.

The subject was first shown the white stimulus field which remained constant throughout the experiment. She was then shown the white stimulus field with the experimental stimulus superimposed on it. Each subject was shown the stimulus at 2 milliseconds initially. The speed of presentation was increased by increments of 1 millisecond until the subject detected the presence of the stimulus. During the threshold determination, each stimulus presentation was accompanied by a 10 second pause before the presentation of the next stimulus. This 10 second duration was considered necessary to eliminate the possibility of partial cues functioning additively (after image). After the subject detected the stimulus, the presentation rate was recorded and the procedure was repeated with subsequent initial presentation speeds being randomized for each new trial. The ascending perceptual threshold was determined for each subject over a 10 trial session using the words "cabbage" and "sour." These two words were selected from the Word Association Test (Galbraith and Mosher, 1968) as were the other 14 stimulus words used in the investigation. "Cabbage" and "sour" were selected for the perceptual threshold measurement because of their established neutral, nonsexual meanings (Galbraith, 1968; and Galbraith and Mosher, 1968) and for their

varying word length.

After establishing the subject's perceptual threshold, the subject's individual stimulus presentation rate was calculated by multiplying the lowest reported threshold over the 10 trial session by 0.80. The obtained number, 20% below the subject's lowest reported level of awareness, was used as the subject's stimulus presentation rate. This stimulus presentation rate value was selected to insure that the experimental stimuli remained in the realm of subliminal perception.

Presentation of the Stimuli

Each subject was subliminally presented ten stimulus words, either the treatment list or the control list, at her experimentally derived stimulus presentation rate. The order of presentation of the stimulus words was randomized for each subject. After each stimulus presentation, time was allowed for the subject's GSR to return to the baseline reading before the next stimulus presentation. There was a minimum duration of 10 seconds between each stimulus presentation. All of the subjects were asked to immediately report if they saw anything other than the white stimulus field. The entire session, including the perceptual threshold determination, required approximately 30 minutes for each subject.

Post-treatment Affective Measurement

Following the subliminal presentation of the last stimulus word, it was announced that the perceptual task was completed and the

GSR was unhooked from the subject's left hand. Each subject was given the 14-Item Adjective Check List, the affective reactions measure, and asked to respond to it. This measure had instructions printed at the top of it concerning how to fill out the form. These instructions were also read to the subjects, with an emphasis placed on any changes in feeling or mood that the subject might have noticed from the time she came into the room until the present moment. After the subject completed the 14-Item Adjective Check List, she was informed that the experiment was over. Before each subject was debriefed, she was asked if she could guess what the experiment was about. Subjects' guesses and reported reactions to the experiment are dealt with in Chapter 5. She was then thoroughly debriefed as to the nature and the purpose of the experiment along with the implications of subliminal perception, especially if used by the advertising industry. Following the debriefing and answering of any questions pertaining to the experiment, the subject was assured of her anonymity, thanked for her participation, and urged not to reveal the nature of the study.

Methods of Data Analysis

All data analysis was performed on an IBM 360/50 digital computer at the College of William and Mary Computer Center. Prior to statistical manipulation, each subject's mean affective arousal and mean affective guilt scores were determined by summing her responses on the 14-Item Adjective Check List (7 adjectives for arousal and 7 adjectives for guilt) and dividing both the arousal

total and the guilt total by 7. Specific aspects of the analysis are discussed in the following paragraphs.

Statistical Procedures

Since the experimental paradigm is a 2x2 factorial design, the data was analyzed principally by means of analysis of variance. The use of this statistical method is based on the assumption that the obtained data is parametric and interval in nature. The data was treated in such a way that each hypothesis could be separately tested.

The first hypothesis concerned a comparison of GSRs between subjects in the treatment condition and subjects in the control condition. Each subject had 10 words presented to her subliminally, therefore, there were 10 GSR measures for each subject. The control subjects had 10 neutral subliminal stimuli producing their GSR results while the treatment subjects had 6 neutral and 4 sexual subliminal stimuli producing their GSR measures. Since the effect of the treatment condition was dependent upon the subjects' reactions to the four sexual stimuli, the mean GSR reactions per subject to the four sexual words served as the GSR responses in the treatment condition while the mean GSR reactions per subject to the 16 neutral words comprised the GSR responses in the control condition. An analysis of variance was performed to test the first hypothesis with treatment level being the independent variable and GSR responses serving as the dependent measure.

The second and third hypotheses were tested by an analysis of variance. These hypotheses state that there is no difference in the

level of affective arousal and affective guilt between high sexual guilt and low sexual guilt subjects under conditions of subliminal sexual stimulation. An analysis of variance was performed with level of dispositional sexual guilt as the single independent variable, to ascertain if high sex guilt subjects differed from low sex guilt subjects, and mean affective arousal and mean affective guilt serving as the dependent variables.

While the second and third hypotheses deal with differential effects as a function of sexual guilt, the fourth and fifth hypotheses are concerned with overall subliminal effects. These hypotheses state that there is no difference in the level of affective arousal and affective guilt between subjects receiving subliminal sexual stimuli and subjects receiving subliminal neutral stimuli. An analysis of variance was also used to test these hypotheses. Affective arousal and affective guilt were the dependent variables and treatment was the independent variable.

Chapter 4

ANALYSIS OF RESULTS

The results of the present study investigating the effects of sexual guilt upon the affective responses to subliminal sexual stimuli are presented below. In order to present the results in as clear a manner as possible, the findings concerning each of the six null hypotheses are individually specified in the following order:

- a. Physiological responses to subliminal sexual stimulation,
- b. Differences by sexual guilt in affective arousal to subliminal sexual stimulation,
- c. Differences by sexual guilt in affective guilt to subliminal sexual stimulation,
- d. Affective arousal differences as influenced by subliminal treatment,
- e. Affective guilt differences as influenced by subliminal treatment, and
- f. Interaction effects between sexual guilt and subliminal stimulation.

Physiological Responses to Subliminal Sexual Stimulation

The first hypothesis concerns physiological responses to subliminal stimuli. It states that there is no significant difference in the physiological responses, as measured by galvanic skin response

(GSR), between subjects presented with subliminal sexual stimuli and subjects presented with subliminal neutral stimuli. Table 1, divided into sexual (treatment) and neutral (control) conditions, presents the GSR mean and standard deviation for each stimulus word. An analysis of variance was performed with mean GSR being the dependent measure of physiological response. The results of the analysis of variance by sexual guilt and by treatment are presented in Table 2. The resulting F ratio ($F = 0.370$) was not significant. The first hypothesis was not rejected.

Differences by Sexual Guilt in Affective Arousal
to Subliminal Sexual Stimulation

The second hypothesis states that there is no significant difference in the reported level of affective arousal, as measured by the 14-Item Adjective Check List, between high sexual guilt subjects and low sexual guilt subjects presented with subliminal sexual stimuli. This hypothesis was tested by calculating a one-way analysis of variance by sexual guilt for the 18 subjects in the subliminal sexual stimulation (treatment) condition. The results of this statistical treatment are presented in Table 3. The obtained F ratio for affective arousal was $F = 4.527$ ($p < .05$), indicating that the low sexual guilt subjects were significantly more affectively aroused than were the high sexual guilt subjects. Therefore, the second hypothesis was rejected.

Table 1

Mean Skin Resistance (GSR) and Standard Deviation
in milliamperes for Emotional and Neutral Words

Words	<u>Treatment</u>		<u>Control</u>	
	Mean	Standard Deviation	Mean	Standard Deviation
Sex	0.5292	0.0606		
Penis	0.5115	0.1147		
Vagina	0.4992	0.1246		
Naked	0.4938	0.1231		
River			0.4700	0.1309
Carpet			0.4787	0.1374
Stove			0.4727	0.1356
Set			0.4853	0.1346
Ocean	0.4800	0.1511	0.4713	0.1243
Light	0.4708	0.1109	0.4713	0.1274
Street	0.4654	0.1393	0.4713	0.1336
Flower	0.4777	0.0991	0.4680	0.1302
Table	0.4662	0.1178	0.4733	0.1309
Chair	0.4892	0.1501	0.4793	0.1399
Mean GSR	0.5085	0.0741	0.4741	0.1304

Table 2

Analysis of Variance by Sexual Guilt and Treatment

Source of Variation	Sum of Squares	DF	Mean Square	F	Significance of F
<u>GSR by Treatment and Sexual Guilt</u>					
Main Effects	0.907	2	0.454	0.370	0.695
Treatment	0.794	1	0.794	0.647	0.429
Guilt	0.079	1	0.079	0.064	0.802
2-Way Interactions	0.852	1	0.852	0.694	0.413
Treatment Guilt	0.852	1	0.852	0.694	0.413
Explained	1.759	3	0.586	0.478	0.701
Residual	29.455	24	1.227		
Total	31.214	27	1.156		
			<u>Mean</u>		<u>Variance</u>
High Sex Guilt/Treatment			0.497		0.004
Low Sex Guilt/Treatment			0.521		0.001
High Sex Guilt/Control			0.501		0.001
Low Sex Guilt/Control			0.456		0.226
<u>Arousal by Treatment and Sexual Guilt</u>					
Main Effects	3.176	2	1.588	8.275	0.001
Treatment	0.477	1	0.477	2.484	0.125
Guilt	2.699	1	2.699	14.065	0.001
2-Way Interactions	0.250	1	0.250	1.303	0.262
Treatment Guilt	0.250	1	0.250	1.303	0.262
Explained	3.426	3	1.142	5.951	0.002
Residual	6.141	32	0.192		
Total	9.566	35	0.273		

	<u>Mean</u>	<u>Variance</u>
High Sex Guilt/Treatment	8.44	2.025
Low Sex Guilt/Treatment	11.11	10.543
High Sex Guilt/Control	9.00	2.889
Low Sex Guilt/Control	13.89	18.543

Affective Guilt by Treatment and Sexual Guilt

Main Effects	0.839	2	0.419	2.110	0.138
Treatment	0.184	1	0.184	0.924	0.344
Guilt	0.655	1	0.655	3.296	0.079
2-Way Interactions	0.082	1	0.082	0.410	0.526
Treatment Guilt	0.082	1	0.082	0.410	0.526
Explained	0.921	3	0.307	1.543	0.222
Residual	6.363	32	0.199		
Total	7.283	35	0.208		

	<u>Mean</u>	<u>Variance</u>
High Sex Guilt/Treatment	10.33	17.555
Low Sex Guilt/Treatment	7.78	0.617
High Sex Guilt/Control	10.56	10.469
Low Sex Guilt/Control	9.44	6.913

Differences by Sexual Guilt in Affective Guilt
to Subliminal Sexual Stimulation

A one-way analysis of variance by sexual guilt for the 18 subjects in the treatment condition was used to test the third hypothesis. This hypothesis states that there is no significant difference in the reported level of affective guilt, as measured by the 14-Item Adjective Check List, between high sexual guilt subjects and low sexual guilt subjects presented with subliminal sexual stimuli. The results of this one-way analysis of variance are presented in Table 3. The calculated F ratio was $F = 2.875$ which was not significant. The third hypothesis was not rejected.

Affective Arousal Differences as Influenced
by Subliminal Treatment

The fourth hypothesis tests the effects of subliminal stimulation and states that there is no significant difference in the reported level of affective arousal, as measured by the 14-Item Adjective Check List, between subjects presented with subliminal sexual stimuli and subjects presented with subliminal neutral stimuli. This hypothesis was tested by calculating a one-way analysis of variance for affective arousal between the 18 subjects in the treatment group and the 18 subjects in the control group. The results of this analysis are presented in Table 4. The obtained F ratio was $F = 1.783$. Since this F ratio is not significant, the fourth hypothesis was not rejected.

Table 3

One Way Analyses of Variance by Sexual Guilt

<u>Affective Arousal by Sex Guilt</u>					
Variable ARSAL					
<u>Source</u>	<u>D.F.</u>	<u>Sum of Squares</u>	<u>Mean Squares</u>	<u>F Ratio</u>	<u>F Prob.</u>
Between Groups	1	0.6531	0.6531	4.527	0.0493
Within Groups	16	2.3084	0.1443		
<u>Total</u>	<u>17</u>	<u>2.9614</u>			
			<u>Mean</u>	<u>Variance</u>	
High Sex Guilt			8.72	2.534	
Low Sex Guilt			12.50	16.472	

<u>Affective Guilt by Sex Guilt</u>					
Variable AFGLT					
<u>Source</u>	<u>D.F.</u>	<u>Sum of Squares</u>	<u>Mean Squares</u>	<u>F Ratio</u>	<u>F Prob.</u>
Between Groups	1	0.5998	0.5998	2.875	0.1093
Within Groups	16	3.3379	0.2086		
<u>Total</u>	<u>17</u>	<u>3.9376</u>			
			<u>Mean</u>	<u>Variance</u>	
High Sex Guilt			10.33	13.481	
Low Sex Guilt			8.61	4.460	

Table 4

One Way Analyses of Variance by Treatment

<u>Affective Arousal by Treatment</u>					
Variable ARSAL					
Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	1	0.4768	0.4768	1.783	0.1906
Within Groups	34	9.0896	0.2673		
Total	35	9.5663			
			<u>Mean</u>	<u>Variance</u>	
Treatment			9.78	8.061	
Control			11.44	16.691	
<u>Affective Guilt by Treatment</u>					
Variable AFGLT					
Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	1	0.1837	0.1837	0.879	0.3550
Within Groups	34	7.0998	0.2088		
Total	35	7.2834			
			<u>Mean</u>	<u>Variance</u>	
Treatment			9.060	10.719	
Control			10.000	8.444	

Affective Guilt Differences as Influenced
by Subliminal Treatment

The possibility of experiencing affecting guilt due to subliminal stimulation was explored in the fifth hypothesis. This hypothesis states that there is no significant difference in the reported level of affective guilt, as measured by the 14-Item Adjective Check List, between subjects presented with subliminal sexual stimuli and subjects presented with subliminal neutral stimuli. A final one way analysis of variance was performed for affective guilt between the treatment and the control groups. The results of this analysis are contained in Table 4. The resulting F ratio was not significant ($F = 0.879$). The fifth hypothesis was not rejected.

Interaction Effects Between Sexual Guilt
and Subliminal Stimulation

The final hypothesis deals with interaction effects and states that there is no significant interaction effect between sexual guilt and subliminal treatment. A separate two-way analysis of variance was calculated for each of the three dependent measures to test for an interaction effect. The results are presented in Table 2. None of the three dependent measures showed a significant interaction effect between sexual guilt and subliminal treatment. The obtained F ratios were: GSR, $F = 0.694$; affective arousal, $F = 1.303$; and affective guilt, $F = 0.410$. The sixth hypothesis was not rejected.

A complete breakdown of the data is presented in Appendixes

D through F. Included in these appendixes are means and standard deviations for each of the 7 affective arousal and 7 affective guilt adjectives and GSR measures for each of the 14 stimulus words.

Appendix D presents the dependent measures divided into subliminal sexual stimulation and subliminal neutral stimulation categories.

Appendix E displays the dependent measures of the high sexual guilt group only divided into subliminal sexual stimulation and subliminal neutral stimulation. Appendix F presents the same data as Appendix E but for the low sexual guilt group.

Summary

The data obtained by this investigation indicates that:

1. There was no significant difference in the physiological responses between subjects presented with subliminal sexual stimuli and subjects presented with subliminal neutral stimuli.

2. There was a significant difference in the reported level of affective arousal between high sexual guilt subjects and low sexual guilt subjects presented with subliminal sexual stimuli, with low sexual guilt subjects reporting a higher level of affective arousal.

3. There was no significant difference in the reported level of affective guilt between high sexual guilt and low sexual guilt subjects presented with subliminal sexual stimuli.

4. There was no significant difference in the reported level of affective arousal between subjects presented with subliminal sexual stimuli and subjects presented with subliminal neutral stimuli.

5. There was no significant difference in the reported level of affective guilt between subjects presented with subliminal sexual stimuli and subjects presented with subliminal neutral stimuli.

6. There was no significant interaction effect between sexual guilt and subliminal treatment.

Chapter 5

SUMMARY AND CONCLUSIONS

In this final chapter, a summary of the investigation and the findings are presented. Conclusions drawn from an analysis of the data and recommendations for further research are also presented.

Summary

The present study was designed to explore the influence of sexual guilt on the physiological and affective responses of female college students to subliminal sexual stimuli. Sexual guilt has been shown to be one of the most consistent predictors of an individual's behavior in sex-related situations. However, research in the area of sexual guilt has focused primarily on subject's reactions to sexual stimuli that are consciously perceived. With the use of subliminal techniques in advertising, many of which are of an explicit sexual nature, it was considered important to attempt to assess the impact of subliminally presented sexual stimuli, especially on individuals who differ in their tendency to react with feelings of guilt in sex-related situations. The purpose of the present investigation was to provide information about the influence of sexual guilt on the effects produced by subliminal stimulation with particular attention being directed toward the following questions:

1. What are the physiological responses to sexual words presented subliminally to female undergraduate students?
2. Does the subliminal presentation of sexual words cause increased levels of affective arousal and affective guilt in college females?
3. Do high sexual guilt college females differ from low sexual guilt college females in their affective responses to the subliminal presentation of sexual words?

In order to address these questions, six null hypotheses were formulated:

1. There is no significant difference in the physiological responses, as measured by galvanic skin response, between subjects presented with subliminal sexual stimuli and subjects presented with subliminal neutral stimuli.
2. There is no significant difference in the reported level of affective arousal, as measured by the 14-Item Adjective Check List, between high sexual guilt subjects and low sexual guilt subjects presented with subliminal sexual stimuli.
3. There is no significant difference in the reported level of affective guilt, as measured by the 14-Item Adjective Check List, between high sexual guilt subjects and low sexual guilt subjects presented with subliminal sexual stimuli.
4. There is no significant difference in the reported level of affective arousal, as measured by the 14-Item Adjective Check List, between subjects presented with subliminal sexual stimuli and subjects presented with subliminal neutral stimuli.

5. There is no significant difference in the reported level of affective guilt, as measured by the 14-Item Adjective Check List, between subjects presented with subliminal sexual stimuli and subjects presented with subliminal neutral stimuli.

6. There is no significant interaction effect between sexual guilt and sexual subliminal presentation.

The research sample consisted of 36 female undergraduate volunteers from the College of William and Mary. To facilitate the testing of the hypotheses, the subjects were divided into high sexual guilt and low sexual guilt groups on the basis of their scores on the Mosher Forced-Choice Guilt Inventory. The subjects were then randomly assigned to either the treatment (subliminal sexual stimulation) condition or the control (subliminal neutral stimulation) condition. This assignment of subjects resulted in a 2 X 2 factorial design, as depicted in Figure 2. The dependent measures in this investigation were physiological response which was measured by galvanic skin response, affective arousal, and affective guilt, both of which were assessed by responses to the 14-Item Adjective Check List.

Before the experimental manipulation, each subject's visual perceptual threshold was determined over a 10-trial series. During the threshold determination, the subject's baseline galvanic skin response (GSR) was being measured. The subject's individual subliminal stimulus presentation rate was defined as 20% below the lowest perceptual threshold in the 10-trial series. The stimulus words, either treatment or control condition, were then presented while the subject's GSR was

being monitored. Following the presentation of all 10 stimulus words, each subject completed the 14-Item Adjective Check List.

The data obtained in this research provides support for 5 of the 6 null hypotheses. Hypothesis 1 was tested by comparing the physiological responses of subjects in cells 1 and 2 with the physiological responses of subjects in cells 3 and 4 (see Figure 2 for this and subsequent cell comparisons). Since no significant difference was found in the physiological responses between subjects in cells 1 and 2 and subjects in cells 3 and 4, hypothesis 1 was not rejected. Hypothesis 2 involved the comparison of reported levels of affective arousal between subjects in cell 1 and subjects in cell 2, high sexual guilt and low sexual guilt, respectively. A significant difference was found to exist. Low sexual guilt subjects in the treatment condition reported higher levels of affective arousal than high sexual guilt subjects in the treatment condition. Therefore, the second hypothesis was rejected. The third hypothesis concerned a comparison of the reported levels of affective guilt between high and low sexual guilt individuals (cells 1 and 2, respectively) in the treatment condition. No significant difference was found to exist and hypothesis 3 was not rejected. Hypothesis 4 was tested by comparing the reported level of affective arousal between subjects in cells 1 and 2 and subjects in cells 3 and 4 (treatment versus control). No significant difference was found in the reported level of affective arousal and hypothesis 4 was not rejected. The fifth hypothesis concerned differences in the reported level of affective guilt between subjects in cells 1 and 2 and subjects

SEXUAL GUILTEXPERIMENTAL CONDITIONS

	Treatment	Control
High Sexual Guilt		
Low Sexual Guilt		

n = 9 per cell

Figure 2. Experimental Design

in cells 3 and 4. No significant differences were found to exist between these two cell groups in their reported level of affective guilt. Hypothesis 5, therefore, was not rejected. The final hypothesis dealt with interaction effects between sexual guilt (cells 1 and 4 versus 2 and 3) and subliminal stimulation (cells 1 and 2 versus cells 3 and 4). No significant differences were found among the four cells. Hypothesis 6 was not rejected.

Conclusions

The results of this study indicate that sexual stimuli perceived in a subliminal manner do not produce significant effects in terms of individuals' affective arousal, affective guilt, and physiological responses. However, the physiological measure of galvanic skin response (GSR) was included as a dependent measure to verify that the stimulus words were perceived subliminally. Increased physiological response to emotionally charged stimuli (words and pictures) have been demonstrated by a number of researchers (Dixon, 1958; McGinnies, 1949; and O'Grady, 1977). Since there was no significant difference in the galvanic skin response (GSR) measures of subjects receiving subliminal sexual stimulation (treatment) and subjects receiving subliminal neutral stimulation (control), the other results of this investigation must be viewed with caution. Three possible explanations for the failure of this study to demonstrate significant differences in GSR measures between treatment and control conditions are:

1. subliminally presented sexual stimuli do not produce a change in skin resistance,
2. the sexual words did not differ from the neutral words in their emotional content,
3. the sexual stimuli were not perceived subliminally.

The first possible explanation, that physiological responses are not affected by subliminal sexual stimuli, is not consistent with prior research. Indeed, one of the reasons for the inclusion of GSR as a dependent measure was the established relationship between emotionally charged subliminal stimuli and increased states of physiological arousal. The first explanation, therefore, is not considered as being very probable. The second possibility, that the sexual words did not differ significantly from the neutral words in their emotional content, does not appear to be likely. Both the neutral words and the sexual words have been used in prior research and have been found to differ in their emotional content (Dixon, 1958; Galbraith, 1968; and Janda and Magri, 1975).

The third possible explanation, that the sexual stimuli were not subliminally perceived, seems to be the most logical interpretation. Dixon (1971) points out that if subliminal stimulation can affect behavior, then it will obviously do so over a very limited range of stimulus values. Therefore, it has been suggested that the physiological (subliminal) threshold may not be too much lower than the awareness threshold (L. Silverman, personal communication, April 6, 1979). If this is, indeed, the case, the subliminal stimulus presenta-

tion rate may have been too low. There is no apparent agreement in the literature concerning the lower limit defining a subliminal presentation rate and the selection of 20% below the subject's perceptual threshold that was used in this study may have been too low. A stimulus presentation rate below the subject's physiological threshold would produce no effects. Essentially, that was what was found in this investigation. The only significant difference between groups of subjects occurred between high sexual guilt and low sexual guilt subjects in the treatment condition, where low sexual guilt subjects reported significantly higher levels of affective arousal. However, a closer examination of the data reveals that this difference is a subset of an overall difference between high sexual guilt and low sexual guilt subjects regardless of experimental condition. In other words, the low sexual guilt subjects, in both the treatment and control condition, reported a significantly higher level of affective arousal than did the high sexual guilt subjects in either the treatment or the control condition. A possible explanation for this was found prior to the subject's debriefing, when each subject was asked to guess what the study was about. Of the 36 subjects, 11 stated that they thought they would be shown "dirty pictures" or "dirty words." These expectations, which occurred primarily with low sexual guilt subjects (9 of 11), may have contributed to the increased states of affective arousal in the low sexual guilt subjects. Specific conclusions concerning the influence of sexual guilt on individuals' physiological and affective responses to subliminal sexual stimulation are not warranted because of the indication the

experimental manipulation was probably ineffective.

Recommendation for Future Research

The most obvious recommendation is that this experiment be replicated using a stimulus presentation rate that would insure that the stimulus was perceived subliminally. Silverman (1976), for example, uses 4 milliseconds as a universal subliminal stimulus presentation rate. The next recommendation concerns the strength of the experimental manipulation. Perhaps more definite results could be obtained by comparing the responses to 10 sexual words presented subliminally with 10 neutral words presented subliminally. Another recommendation dealing with the strength of the experimental manipulation concerns the choice of the sexual words. Although the 4 words used in this study have been found to produce significant results in the past, their present emotional value may not be all that high. The use of stronger, more explicit words or possibly pictures may produce more of an impact. Naturally, this last suggestion should be tempered by ethical considerations. A final recommendation involves insuring that the subject population is naive. In the present study, this may have been a serious confound.

Appendix

Appendix A

Mosher F-C Inventory

INSTRUCTIONS: This questionnaire consists of a number of pairs of statements or opinions which have been given by college men in response to the "Mosher Incomplete Sentences Test:" These men were asked to complete phrases such as "When I tell a lie . . ." and "To kill in war . . ." to make a sentence which expressed their real feelings about the stem. This questionnaire consists of the stems to which they responded and a pair of their responses which are lettered A and B.

You are to read the stem and the pair of completions and decide which you most agree with or which is most characteristic of you. Your choice, in each instance, should be in terms of what you believe, how you feel, or how you would react, and not in terms of how you think you should believe, feel, or respond. This is not a test. There are no right or wrong answers. Your choices should be a description of your own personal beliefs, feelings, or reactions.

In some instances you may discover that you believe both completions or neither completion to be characteristic of you. In such cases select the one you more strongly believe to be the case as far as you are concerned. Be sure to find an answer for every choice. Do not omit an item even though it is very difficult for you to decide, just select the more characteristic member of the pair.

Your answers are to be recorded on a separate answer sheet.

If alternative A is more characteristic of you for a particular item,
 T
 blacken the space in the column under 1. If alternative B is more
 characteristic of you for a particular item, blacken the space under
 F
 the column headed 2.

1. When I tell a lie . . .
 - A. it hurts.
 - B. I make it a good one.
2. To kill in war . . .
 - A. is a job to be done.
 - B. is a shame but sometimes a necessity.
3. Women who curse . . .
 - A. are normal
 - B. make me sick.
4. When anger builds inside me . . .
 - A. I usually explode.
 - B. I keep my mouth shut.
5. If I killed someone in self-defense, I . . .
 - A. would feel no anguish.
 - B. think it would trouble me the rest of my life.
6. I punish myself . . .
 - A. for the evil I do.
 - B. very seldom for other people do it for me.
7. If in the future I committed adultery . . .
 - A. I won't feel bad about it.
 - B. it would be sinful.
8. Obscene literature . . .
 - A. is a sinful and corrupt business.
 - B. is fascinating reading.
9. "Dirty" jokes in mixed company . . .
 - A. are common in our town.
 - B. should be avoided.

10. As a child, sex play . . .
 - A. never entered my mind.
 - B. is quite wide spread.
11. I detest myself for . . .
 - A. my sins and failures.
 - B. for not having more exciting sexual experiences.
12. Sex relations before marriage . . .
 - A. ruin many a happy couple.
 - B. are good in my opinion.
13. If in the future I committed adultery . . .
 - A. I wouldn't tell anyone.
 - B. I would probably feel bad about it.
14. When I have sexual desires . . .
 - A. I usually try to curb them.
 - B. I generally satisfy them.
15. If I killed someone in self-defense, I . . .
 - A. wouldn't enjoy it.
 - B. I'd be glad to be alive.
16. Unusual sex practices . . .
 - A. might be interesting.
 - B. don't interest me.
17. If I felt like murdering someone . . .
 - A. I would be ashamed of myself.
 - B. I would try to commit the perfect crime.
18. If I hated my parents . . .
 - A. I would hate myself.
 - B. I would rebel at their every wish.
19. After an outburst of anger . . .
 - A. I usually feel quite a bit better.
 - B. I am sorry and say so.
20. I punish myself . . .
 - A. never.
 - B. by feeling nervous and depressed.
21. Prostitution . . .
 - A. is a must.
 - B. breeds only evil.

22. If I killed someone in self-defense, I . . .
 - A. would still be troubled by my conscience.
 - B. would consider myself lucky.
23. When I tell a lie . . .
 - A. I'm angry with myself.
 - B. I mix it with truth and serve it like a Martini.
24. As a child, sex play . . .
 - A. is not good for mental and emotional well being.
 - B. is natural and innocent.
25. When someone swears at me . . .
 - A. I swear back.
 - B. it usually bothers me even if I don't show it.
26. When I was younger, fighting . . .
 - A. was always a thrill.
 - B. disgusted me.
27. As a child, sex play . . .
 - A. was a big taboo and I was deathly afraid of it.
 - B. was common without guilt feelings.
28. After an argument . . .
 - A. I feel mean.
 - B. I am sorry for my actions.
29. "Dirty" jokes in mixed company . . .
 - A. are not proper.
 - B. are exciting and amusing.
30. Unusual sex practices . . .
 - A. are awful and unthinkable.
 - B. are not so unusual to me.
31. When I have sex dreams . . .
 - A. I cannot remember them in the morning.
 - B. I wake up happy.
32. When I was younger, fighting . . .
 - A. never appealed to me.
 - B. was fun and frequent.
33. One should not . . .
 - A. knowingly sin.
 - B. try to follow absolutes.

34. To kill in war . . .
A. is good and meritable.
B. would be sickening to me.
35. I detest myself for . . .
A. nothing, I love life.
B. not being more nearly perfect.
36. "Dirty" jokes in mixed company . . .
A. are lots of fun.
B. are coarse to say the least.
37. Petting . . .
A. is something that should be controlled.
B. is a form of education.
38. After an argument . . .
A. I usually feel better.
B. I am disgusted that I allowed myself to become involved.
39. Obscene literature . . .
A. should be freely published.
B. helps people become sexual perverts.
40. I regret . . .
A. my sexual experiences.
B. nothing I've ever done.
41. A guilty conscience . . .
A. does not bother me too much.
B. is worse than a sickness to me.
42. If I felt like murdering someone . . .
A. it would be for good reason.
B. I'd think I was crazy.
43. Arguments leave me feeling . . .
A. that it was a waste of time.
B. smarter.
44. After a childhood fight, I felt . . .
A. miserable and made up afterwards.
B. like a hero.
45. When anger builds inside me . . .
A. I do my best so suppress it.
B. I have to blow off some steam.

46. Unusual sex practices . . .
A. are O.K. as long as they're heterosexual.
B. usually aren't pleasurable because you are preconceived feelings about their being wrong.
47. I regret . . .
A. getting caught, but nothing else.
B. all of my sins.
48. When I tell a lie . . .
A. my conscience bothers me.
B. I wonder whether I'll get away with it.
49. Sex relations before marriage . . .
A. are practiced too much to be wrong.
B. in my opinion, should not be practiced.
50. As a child, sex play . . .
A. is dangerous.
B. is not harmful but does create sexual pleasure.
51. When caught in the act . . .
A. I try to bluff my way out.
B. truth is the best policy.
52. As a child, sex play . . .
A. was indulged in.
B. is immature and ridiculous.
53. When I tell a lie . . .
A. it is an exception or rather an odd occurrence.
B. I tell a lie.
54. If I hated my parents . . .
A. I would be wrong, foolish, and feel guilty.
B. they would know it, that's for sure!
55. If I robbed a bank . . .
A. I would give up I suppose.
B. I probably would get away with it.
56. Arguments leave me feeling . . .
A. proud, they certainly are worthwhile.
B. depressed and disgusted.
57. When I have sexual desires . . .
A. they are quite strong.
B. I attempt to repress them.

58. Sin and failure . . .
A. are two situations we try to avoid.
B. do not depress me for long.
59. Sex relations before marriage . . .
A. help people to adjust.
B. should not be recommended.
60. When anger builds inside me . . .
A. I feel like killing somebody.
B. I get sick.
61. If I robbed a bank . . .
A. I would live like a king.
B. I should be caught.
62. Masturbation . . .
A. if a habit that should be controlled.
B. is very common.
63. After an argument . . .
A. I feel proud in victory and understanding in defeat.
B. I am sorry and see no reason to stay mad.
64. Sin and failure . . .
A. are the works of the Devil.
B. have not bothered me yet.
65. If I committed a homosexual act . . .
A. it would be my business.
B. it would show weakness in me.
66. When anger builds inside me . . .
A. I always express it.
B. I usually take it out on myself.
67. Prostitution . . .
A. is a sign of moral decay in society.
B. is acceptable and needed by some people.
68. Capital punishment . . .
A. should be abolished.
B. is a necessity.
69. Sex relations before marriage . . .
A. are O.K. if both partners are in agreement.
B. are dangerous.

70. I tried to make amends . . .
A. for all my misdeeds, but I can't forget them.
B. but not if I could help it.
71. After a childhood fight, I felt . . .
A. sorry.
B. mad and irritable.
72. I detest myself for . . .
A. nothing, and only rarely dislike myself.
B. thoughts I sometimes have.
73. Arguments leave me feeling . . .
A. satisfied usually.
B. exhausted.
74. Masturbation . . .
A. is all right.
B. should not be practiced.
75. After an argument . . .
A. I usually feel good if I won.
B. it is best to apologize to clear the air.
76. I hate . . .
A. sin
B. moralists and "do gooders."
77. Sex . . .
A. is a beautiful gift of God not to be cheapened.
B. is good and enjoyable.
78. Capital punishment . . .
A. is not used often enough.
B. is legal murder, it is inhuman.
79. Prostitution . . .
A. should be legalized.
B. cannot really afford enjoyment.

Appendix B

Affective Reactions Measure

Below you are to report your affective reactions. I am particularly interested in any change in feeling or mood that you might have noticed from the time you came in here to the present moment. Listed below are adjectives describing various affective or mood states. Please read each adjective and write the number that best describes your present feelings. Please respond to each adjective by selecting number 1, 2, 3, or 4 where 1 = definitely does not apply; 2 = undecided; 3 = slightly applies; and 4 = definitely applies.

- | | |
|----------------------|-------------------------------|
| _____ 1. ashamed | _____ 8. guilty |
| _____ 2. titillated | _____ 9. aroused |
| _____ 3. sensuous | _____ 10. tantalized |
| _____ 4. contrite | _____ 11. hot |
| _____ 5. passionate | _____ 12. remorseful |
| _____ 6. repentant | _____ 13. excited |
| _____ 7. blameworthy | _____ 14. conscience stricken |

Appendix C

Informed Consent

The purpose of the present research is to extend some of the earlier findings associated with the President's Commission on Obscenity and Pornography. Participation in this research is completely voluntary. If you choose to participate, in addition to filling out a questionnaire concerning your sexual attitudes, you will be shown words via a tachistoscope and will fill out a short inventory which assesses your reaction to the words. A galvanic skin response measure will also be used during the presentation of the words. Following your participation in the experiment, the study will be described in detail and all questions you may have regarding the experimental procedures or inventories will be answered. If you wish to participate, it is necessary that I obtain your informed consent on this form. I want participating subjects to be fully informed as to the purpose and procedures involved in exposing them to potentially arousing words. While it is advantageous to obtain samples that are reasonably representative of the population at large, ethical considerations dictate that I not only obtain informed consent, insure anonymity, and emphasize the voluntary of the participation, but I also ask potential subjects who might have untoward reactions to arousing words to decline participation. If you wish to participate, you may indicate that you have given your informed consent by signing below.

Signature

Appendix D

Means and Standard Deviations of Measures of GSR,
Affective Arousal, and Affective Guilt by Experimental Condition

	<u>Treatment</u>		<u>Control</u>	
	<u>Mean</u>	<u>Standard Deviation</u>	<u>Mean</u>	<u>Standard Deviation</u>
<u>Affective Guilt:</u>				
ashamed	1.00	0.0	1.400	0.828
contrite	1.462	0.660	1.600	0.737
repentant	1.077	0.277	1.467	0.640
blameworthy	1.385	0.768	1.267	0.458
guilty	1.231	0.599	1.400	0.632
remorseful	1.231	0.599	1.200	0.414
conscience stricken	1.385	0.768	1.467	0.640
<u>Affective Arousal:</u>				
titillated	1.154	0.376	1.600	0.737
sensuous	1.308	0.855	1.267	0.594
passionate	1.077	0.277	1.133	0.516
aroused	1.462	0.662	2.200	1.146
tantalized	1.385	0.650	1.867	1.125
hot	1.538	0.967	1.667	1.113
excited	1.769	0.927	2.267	0.961
<u>GSR:</u>				
sex	5.292	0.606		
penis	5.115	1.147		
vagina	4.992	1.246		
naked	4.938	1.231		
river			4.700	1.309
set			4.787	1.374
carpet			4.727	1.356
stove			4.793	1.399
chair	4.892	1.501	4.853	1.346
ocean	4.800	1.511	4.713	1.243
light	4.708	1.109	4.713	1.274

street	4.654	1.393	4.713	1.336
flower	4.777	0.991	4.680	1.302
table	4.662	1.178	4.733	1.309
mean GSR	5.085	0.741	4.741	1.304

Appendix E

Means and Standard Deviations of Measures of GSR,
Affective Arousal, and Affective Guilt by Experimental Condition

High Guilt

	<u>Treatment</u>		<u>Control</u>	
	<u>Mean</u>	<u>Standard Deviation</u>	<u>Mean</u>	<u>Standard Deviation</u>
<u>Affective Guilt:</u>				
ashamed	1.000	0.000	1.333	0.516
contrite	1.500	0.837	2.000	0.894
repentant	1.167	0.408	1.500	0.548
blameworthy	1.500	0.837	1.167	0.408
guilty	1.500	0.837	1.500	0.548
remorseful	1.500	0.837	1.333	0.516
conscience stricken	1.667	1.033	1.500	0.548
<u>Affective Arousal:</u>				
titillated	1.00	0.00	1.167	0.408
sensuous	1.00	0.00	1.000	0.00
passionate	1.00	0.00	1.000	0.00
aroused	1.333	0.816	1.500	0.837
tantalized	1.500	0.837	1.167	0.408
hot	1.167	0.408	1.333	0.816
excited	1.667	1.033	2.000	0.894
<u>GSR:</u>				
sex	5.550	0.731		
penis	4.750	1.255		
vagina	4.833	1.891		
naked	4.633	1.822		
river			5.133	0.308
set			5.167	0.383
carpet			5.083	0.392
stove			5.133	0.572

chair	4.567	2.197	4.933	0.427
ocean	4.433	2.124	5.017	0.313
light	4.567	1.661	4.917	0.349
street	4.383	2.101	4.900	0.297
flower	4.683	1.513	4.883	0.349
table	4.400	1.766	4.900	0.253
mean GSR	4.943	1.057	5.007	0.298
MFCGI	20.667	4.885	21.500	2.881

Appendix F

Means and Standard Deviations of Measures of GSR,
Affective Arousal, and Affective Guilt by Experimental Condition

Low Guilt

	<u>Treatment</u>		<u>Control</u>	
	<u>Mean</u>	<u>Standard Deviation</u>	<u>Mean</u>	<u>Standard Deviation</u>
<u>Affective Guilt:</u>				
ashamed	1.00	0.00	1.444	1.014
contrite	1.429	0.535	1.333	0.500
repentant	1.00	0.00	1.444	0.726
blameworthy	1.286	0.756	1.333	0.500
guilty	1.00	0.00	1.333	0.707
remorseful	1.00	0.00	1.111	0.333
conscience stricken	1.143	0.378	1.444	0.726
<u>Affective Arousal:</u>				
titillated	1.286	0.488	1.889	0.782
sensuous	1.571	1.134	1.444	0.726
passionate	1.143	0.378	1.222	0.667
aroused	1.571	0.535	2.667	1.118
tantalized	1.286	0.488	2.333	1.225
hot	1.857	1.215	1.889	1.269
excited	1.857	0.999	2.444	1.014
<u>GSR:</u>				
sex	5.071	0.407		
penis	5.429	1.034		
vagina	5.129	0.281		
naked	5.200	0.300		
river			4.411	1.645
set			4.533	1.741
carpet			4.489	1.722
stove			4.567	1.754

chair	5.171	0.535	4.800	1.746
ocean	5.114	0.745	4.511	1.590
light	4.829	0.350	4.578	1.648
street	4.886	0.261	4.589	1.739
flower	4.857	0.199	4.544	1.685
table	4.886	0.219	4.622	1.710
mean GSR	5.209	0.359	4.564	1.683
MFCGI	6.714	4.030	6.889	1.833

Appendix G

Psychometric Correlates of the Mosher
Forced Choice Guilt Inventory

Sex Guilt Subscale

<u>Study</u>	<u>Sample</u>	<u>Correlation</u>	<u>Scale</u>
Mosher (1966)	95 males	.79* MIST	Sex Guilt Subscale (Mosher, 1966)
		.86* MTFGI	Sex Guilt Subscale (Mosher, 1966)
		.33* MIST	Hostility Guilt Subscale (Mosher, 1966)
		.56* MTFGI	Hostility Guilt Subscale (Mosher, 1966)
		.61* MFCGI	Hostility Guilt Subscale (Mosher, 1966)
		.48* MIST	Morality-Conscience Subscale (Mosher, 1966)
		.73* MTFGI	Morality-Conscience Subscale (Mosher, 1966)
		.70* MFCGI	Morality-Conscience Subscale (Mosher, 1966)
		-.29*	Taylor Manifest Anxiety Scale (Taylor, 1953)
.05	Christie-Budntzky Short Forced-Choice Anxiety Scale (Christie & Budntzky, 1957)		

<u>Study</u>	<u>Sample</u>	<u>Correlation</u>	<u>Scale</u>
		.25*	Edwards Social Desirability Scale (Edwards, 1957)
		.17	Christie-Budner Short Forced-Choice Social Desirability Scale
Galbraith, Hahn, & Leiberman (1968)	71 males	-.56**	Edwards Personal Preference Schedules Heterosexuality Scale (Edwards, 1953)
		.37**	Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1964)
		-.41**	Word Association Test (Galbraith & Mosher, 1968)
Mosher (1968)	62 females	.64**MIST	Sex Guilt Subscale (Mosher, 1966)
		.86**MTFGI	Sex Guilt Subscale (Mosher, 1968)
		.22 MIST	Hostility Guilt Subscale (Mosher, 1966)
		.32* MTFGI	Hostility Guilt Subscale (Mosher, 1968)
		.39**MFCGI	Hostility Guilt Subscale (Mosher, 1968)
		.31* MIST	Morality-Conscience Subscale (Mosher, 1966)
		.57**MTFGI	Morality-Conscience Subscale (Mosher, 1968)
		.55**MFCGI	Morality-Conscience Subscale (Mosher, 1968)
		-.07	Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1964)

<u>Study</u>	<u>Sample</u>	<u>Correlation</u>	<u>Scale</u>
		.12	Edwards Social Desirability Scale (Edwards, 1957)
Oliver & Mosher (1968) ^a	25 male reformatory homosexual insertors	-.47*	MMPI <u>F</u> Scale
		-.52**	MMPI <u>Ma</u> Scale
Galbraith (1969)	137 males		Thorne Sex Inventory (Thorne, 1966)
		-.75**	Sex Drive and Interest Subscale
		.17	Frustration-Madadjustment Subscale
		-.06	Neurotic Conflict over Sex Subscale
		.70**	Repression of Sexuality Subscale
		-.15	Loss of Sex Control Subscale
		.19	Homosexuality Subscale
		.19	Sex Role Confidence Subscale
		-.60**	Promiscuity and Sociopathy Subscale
Persons (1970)	338 males	.59 MFCGI	Hostility Guilt Subscale (Mosher, 1966)
		.65 MFCGI	Morality-Conscience Subscale (Mosher, 1966)
	524 male reformatory inmates	.69 MFCGI	Hostility Guilt Subscale (Mosher, 1966)
		.67**MFCGI	Morality-Conscience Subscale (Mosher, 1966)

<u>Study</u>	<u>Sample</u>	<u>Correlation</u>	<u>Scale</u>
Mosher & Cross (1971)	60 males	-.60**	Sexual Experience Inventory (Brady & Levitt, 1965)
	46 females	-.61**	Sexual Experience Inventory (Brady & Levitt, 1965)
	30 females	-.48**	Sexual Experience Inventory (Brady & Levitt, 1965)
Schill & Chapin (1972)	27 males	-.29	Word Association Test (Galbraith & Mosher, 1968)
Schill (1972)	111 males	.10	Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1964)
Langston (1973)	76 males	-.43***	Bentler Heterosexual Behavior Assessment Scale (Bentler, 1968)
	116 females	-.56***	Bentler Heterosexual Behavior Assessment Scale (Bentler, 1968)
Mosher (1973)	194 males	-.37*	Sexual Experience Inventory (Brady & Levitt, 1965)
	183 females	-.45*	Sexual Experience Inventory (Brady & Levitt, 1965)
Abramson & Mosher (1975)	96 males	-.36***	Sexual Experience Inventory (Brady & Levitt, 1965)
		.47***	Negative Attitudes Toward Masturbation (Abramson & Mosher, 1975)
	102 females	-.49***	Sexual Experience Inventory (Brady & Levitt, 1965)
		.61***	Negative Attitudes Toward Masturbation (Abramson & Mosher, 1975)

<u>Study</u>	<u>Sample</u>	<u>Correlation</u>	<u>Scale</u>
D'Augelli & Cross (1975)	119 females	-.41**	Sexual Experience Inventory (Brady & Levitt, 1965)
Janda & Magri (1975)	74 females	.03	Perceived Guilt Index (Otterbacher & Munz, 1973)
Kerr & Galbraith (1975) ^b	69 females	.08	Edwards Social Desirability Scale (Edwards, 1970)
Schill, Evans & McGovern (1976)	45 males		Parental Attitude Research Instrument (Schaeffer & Bell, 1958)
		.33*	Exclusion of the Mother
		.31*	Approval of Activity
		.42*	Breaking the Will
		.55*	Strictness
		.29*	Suppression of Sex
		.42*	Fostering Dependency
	45 females	.36*	Martyrdom
		.39*	Deprecation of the Mother
		.35*	Excluding outside influences
		.37*	Breaking the will
		.32*	Strictness
		.35*	Suppression of sex
Carlson & Coleman (1977)	73 males	-.39	Sexual Experience Inventory (Brady & Levitt, 1965)
	123 females	-.48	Sexual Experience Inventory (Brady & Levitt, 1965)

<u>Study</u>	<u>Sample</u>	<u>Correlation</u>	<u>Scale</u>
Janda, Magri & Barnhart (1977)	96 females	-.09	Perceived Guilt Index (Otterbacher & Munz, 1973)
Abramson, Mosher, Abramson & Wocitowski (1978) ^c	108 males		Edwards Personal Preference Schedule (Edwards, 1953)
		-.29**	Heterosexuality Scale
		-.22*	Endurance Scale
		.25**	Affiliation Scale
	41 females	-.44**	Heterosexuality Scale
		-.39**	Autonomy Scale
		.31*	Endurance Scale
O'Grady & Janda (1978)	101 males	.38**MFCGI	Hostility Guilt Subscale (Mosher, 1966)
		.61**MFCGI	Morality-Conscience Sub- scale (Mosher, 1966)
		.27**	Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1964)
		.01	Locus of Control Scale (Nowicki & Duke, 1974)
		-.09	State-Trait Anxiety Inventory (Spielberger, Gonsuch & Lushene, 1970)
		.21*	Authoritarian Scale (Adorno, Frenkel-Brunswick, Levinson & Sanford, 1950)
		-.10	Repression-Sensitization Scale (Byrne, Barm & Nelson, 1963)

<u>Study</u>	<u>Sample</u>	<u>Correlation</u>	<u>Scale</u>
	135 females	.19* MFCGI	Hostility Guilt Subscale (Mosher, 1966)
		.51**MFCGI	Morality-Conscience Subscale (Mosher, 1966)
		.25**	Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1964)
		-.04	Locus of Control Scale (Nowicki & Duke, 1974)
		-.01	State-Trait Anxiety Inventory (Speilberger, Gorsuch, & Lushene, 1970)
		.39**	Authoritarian Scale (Adonno, Frenkel-Brunswick, Levinson & Sanford, 1950)
		-.06	Repression-Sensitization Scale (Bryne, Barry & Nelson, 1963)

Note: MIST - Mosher Incomplete Sentences Test; MFCGI - Mosher Forced-Choice Guilt Inventory; MTFGI - Mosher True-False Guilt Inventory. All subjects are college undergraduates, unless otherwise noted.

- a. The correlations involving the remaining 10 clinical and 3 validity scales were nonsignificant. In addition, all correlations for samples of 25 heterosexual and 25 homosexual insertee inmates were nonsignificant.
- b. This study used a modified form of the Mosher Forced-Choice Guilt Inventory.
- c. The correlations involving the remaining 15 manifest need scales of the Edwards Personal Preference Schedule were nonsignificant.

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

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ABSTRACT

The present investigation was designed to explore the effects of sexual guilt on the physiological and affective responses of female college students to the subliminal presentation of sexual words. In order to assess the effects of the subliminal presentation of sexual stimuli as influenced by sexual guilt, 74 undergraduate females were given the Mosher Forced-Choice Guilt Inventory. On the basis of their scores, 18 subjects were assigned to the high sexual guilt group and 18 subjects were assigned to the low sexual guilt group. These groups consisted of the top 27% and the bottom 27% of the initial 74 subjects. The 18 subjects in each group were then randomly assigned to either the subliminal sexual stimuli (treatment) condition or the subliminal neutral (control) stimuli condition. Each of the two experimental conditions entailed the subliminal presentation of 10 words. In the treatment condition, 6 words were neutral in content and 4 were sexual in content. In the control condition, all 10 words were neutral in content. GSRs were monitored during the presentation of the subliminal stimuli and immediately after the subliminal stimulation, self-report measures of affective arousal and affective guilt were obtained. The data obtained by this 2 x 2 factorial study was analyzed by analysis of variance. No significant differences were found between the treatment and control groups, but low sexual guilt subjects reported significantly higher levels of affective arousal than did high sexual guilt subjects. The results suggest that the subliminal manipulation was not effective.