Date Rape: Assessment of Facial EMG Arousal and Cue Recognition During Audiotaped Vignettes

Scott Walter Maieritsch

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DATE RAPE: ASSESSMENT OF FACIAL EMG AROUSAL
AND CUE RECOGNITION DURING
AUDIOTAPED VIGNETTES

by

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Scott Walter Maieritsch
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CHAPTER I

INTRODUCTION

Date Rape

The issue of rape has long attracted considerable attention in the popular press. It has only been within the past three decades, however, that rape has captured the attention of the scientific community as a focus of study. Recent research has challenged the long held beliefs and stereotypes which have characterized the typical rapist as a stranger who violently attacks his victim in public places such as dark alleys and parking lots. There is mounting evidence that women are far more likely to be sexually assaulted by men whom they know, including friends, dates, and lovers (Russell, 1982; Koss, 1992; Finkelson & Oswalt, 1995). Such sexual assaults are termed date rape or acquaintance rape.

The legal definition of rape may vary to some degree as a function of state jurisdiction; however, the salient dimensions that define rape remain relatively constant. The three major components of the legal definition of rape include (1) carnal knowledge of another individual, defined as sexual penetration; (2) lack of consent by the individual to this sexual activity; and (3) use of force or the threat of force to attain carnal knowledge (Jackson & Petretic-Jackson, 1996). Although an act of date rape may meet the requirements for the legal definition of rape, several factors significantly impact the victim perceiving and reporting an instance of date rape as a
crime. Such factors include having had prior sexual contact with the perpetrator, use of alcohol or drugs prior to the assault, willingly electing to be alone with the perpetrator, or engaging in some form of sexual activity prior to the sexual assault. These factors lead a victim to engage in self-blame and minimize or deny the assault, preventing her from viewing herself as a "true" rape victim.

Incidence and Prevalence

Historically, statistics compiled to examine the prevalence rates of rape have relied solely upon official reports of rape. The main federal source of rape incidence is the Uniform Crime Reports (UCR), which is published by the Federal Bureau of Investigation (e.g., FBI, 1996). The FBI reports that 95,769 offenses meeting the definition for rape occurred in 1995 (FBI, 1996). However, The UCR compiles its statistics based solely on the number of crimes reported to police. Logically, since all instances of rape are not reported to police, it is likely that these figures underestimate the scope of rape. The possible magnitude of such underestimation is explored in a study conducted by Russell (1982) which randomly sampled women in the San Francisco area for experiences meeting the UCR definition for rape. His results indicated that in the twelve months prior to his survey the incidence rate of rape for the women sampled would translate into a figure seven times higher than the federal estimates for the same area in the same year. This flaw in the federal statistics has been recognized by the compilers of the UCR and led them to caution that "forcible rape is...recognized as one of the most underreported of all index crimes" (FBI, 1982, p. 14).
Additionally, qualitative differences exist between the federal statistics for rape and the results obtained by Russell (1982). Russell's data revealed that in his sample only 11% of the rapes and attempted rapes had been perpetrated by strangers, whereas federal statistics for the geographic area and time period indicate that two-thirds of all rapes were committed by strangers. Given such discrepancies, it is important not only to question the rate at which rape is reported, but also the manner in which it is thought to occur.

The issue of date rape is particularly problematic on college campuses where date rape is the most common form of rape. In a nationwide sample of college women, Koss, Gidycz, and Wisniewski (1987) found that 84% of women who experienced a rape or attempted rape knew the identity of their perpetrator and in 57% of the rapes the perpetrator was a date. Additional surveys of college students revealed that 25% of college males admitted to having engaged in aggressive sexual behavior (Koss, 1988) and that as many as 15% of college women have been forced into sexual intercourse by a date (Koss, 1988; Muehlenhard & Linton, 1987).

Rape Myths

Rape myths are stereotyped or false beliefs about rape, rape victims, or rape perpetrators. Such beliefs serve to negate classifying various instances of coercive sexual activity as rape and help to create a climate that blames the victim. Examples of rape myths include beliefs such as "any healthy woman can resist rape if she really wants to"; "a woman who goes to the home or apartment of a man implies that she is willing to have sex"; "rape victims typically are promiscuous or have a bad
reputation” (Burt, 1980, p. 217). Though a sexual assault may meet the legal definition for rape, individuals from the general public are often unwilling to classify the assault as rape. Burt (1998) asserts that the common perception of rape does not match the legal definition because rape myths influence the common perception.

Research suggests that rape myths permeate American society. For example, Burt (1980) assessed approximately 600 adults regarding their acceptance of rape myths. More than half of the individuals sampled endorsed the belief that rapes are reported as rape only because the woman was trying to get back at the man she was angry with or trying to cover up an illegitimate pregnancy. Weiss and Borges (1973) suggest that the prevalence of such beliefs in our society is particularly problematic because they facilitate sexually aggressive behavior. In effect, rape myths allow sexually aggressive males to avoid defining the threat or use of force to obtain sexual intercourse as rape. Rather, using force is seen as a “normal” and acceptable way to obtain sexual intercourse with a woman.

Sexual Miscommunication

A number of researchers (i.e., Abbey, 1991; Berkowitz, 1992) have examined the role of sexual miscommunication in the perpetuation of date rape. Research suggests that societal expectations about dating relationships form sexual scripts which may create an interaction more prone to sexual assault. Stereotypical sex roles, such as the man typically is expected to be the initiator of sexual activity and the woman the resistor, may contribute to the widespread myth that “No” does not actually mean “No”.
Additionally, discussion of sex is typically an avoided topic of conversation within the American culture. As a result, many individuals feel uncomfortable discussing their sexual intentions and desires, particularly within the context of a new romantic relationship. Instead, individuals often attempt to infer sexual intent in indirect methods such as interpreting nonverbal cues (Abbey, 1991). Such methods alone are bound to produce frequent errors. Research conducted by Abbey (1987) indicates that men tend interpret a woman’s behavior in a platonic and friendly interaction as containing indications of sexual interest. Abbey and his associates (Abbey & Melby, 1986; Abbey, Cozzarelli, McLaughlin, & Harnish, 1987) have sought to identify the types of cues which men are likely to misperceive. Their research has demonstrated that nonverbal cues such as touching, eye contact, close interpersonal distance, and “seductive” clothing were interpreted as signs of sexual interest more often by men than women. Abbey et al. (1987) assert that because society does not encourage open and honest communication about sex, it is difficult to resolve such misperceptions which likely serve to exacerbate sexual encounters which result in date rape.

Victim Related Issues

From the victim’s perspective, date rape typically occurs in the context of an ongoing and intimate relationship. In a national study of sexual victimization conducted with college students, Koss (1988) examined the context of sexual assault for the women surveyed. Results from the study indicate that of the women that reported having been a victim of rape, 57% were assaulted by dates. Additionally, a
substantial number of the victims reported having had sexual intercourse with the offender prior to the assault and 45% of the victims reported using alcohol at the time of the assault. Results also indicate the level of violence used in the assault differs between rape and date rape victims. Specifically, assaults by strangers are perceived by the victim to be more violent than assaults by a perpetrator that is known to the victim. Reports of stranger rapes were more likely to involve hitting, slapping, threats of bodily harm, and the display or use of a weapon (Koss, Dinero, Seibel, and Cox, 1988; Ullman & Seigel, 1993).

Situational variables surrounding date rape are important because they appear to significantly impact the victim's perception of the assault. Date rape victims are less likely than stranger rape victims to conceptualize a sexual assault as rape. Koss et al. (1988) found that of the women who reported experiencing sexual assault, only 23% of date rape victims conceptualized the assault as rape. Gidycz and Layman (1996) suggest that numerous factors may contribute to such a tendency in date rape victims. In comparison to stranger rape, date rapes are typically less violent, often occur within the context of a trusting and intimate relationship, and often occur in relationships where a precedent of prior consensual sexual activity exists. Such factors likely violate the stereotypical notions that both the victim and society believe a "real" rape entails. Additionally, society tends to blame date rape victims for the assault more readily than victims of stranger rape (Shotland & Goodstein, 1992). Because claims of rape may be met with a host of negative outcomes including blame, disbelief, and aversive publicity (Roth, Wayland, & Woolsey, 1990), it may be that some victims deny the experience to avoid stigmatization or hostile reactions.
from others. This may occur to such an extent that victims not only avoid reporting the crime to police, but research evidence indicates that many victims never even tell their closest friends and family about the rape (Koss, 1985).

Perpetrator Related Issues

In a study by Koss (1988), of the men sampled who acknowledged having sexually assaulted women that they knew, 61% reported that these experiences occurred on a date. This figure is similar to those found among date rape victims. Additionally, many of the perpetrators had had prior sexual involvement with their victims and 73% reported the use of alcohol and/or drugs at the time of the assault.

Studies examining the relationship between attitudes about rape and sexually aggressive behavior indicate that sexually aggressive men endorse rape myths and condone violence toward women to a greater extent than nonsexually aggressive men (Koss, Leonard, Beezley, & Oros, 1985; Muehlenhard & Linton, 1987). Koss et al. (1985) found that the more sexually aggressive the perpetrator had been in committing the assault, “the more likely he was to attribute adversarial qualities to interpersonal relationships, to accept sex-role stereotypes, to believe myths about rape, to feel that rape prevention is the woman’s responsibility, and to view as normal an intermingling of aggression and sexuality” (p. 989). In addition, research conducted by Kanin (1985) in which he interviewed 71 self-disclosed date rapists revealed that date rapists also tend to be more sexually experienced and sexually active than nonrapists and that date rapists tend to employ more exploitative and sexually aggressive techniques to engage in sexual intercourse with a date. Date
rapists reported numerous sexually predatory methods which commonly included attempts to intoxicate their companions, threatening to end the relationship, falsely professing love, and threats to abandon their date (i.e., making them walk home).

Date rape perpetrators commonly do not conceptualize such sexually aggressive or assaultive experiences as rape. In a nationwide study of sexual victimization, Koss (1988) reported that only 16% of men who reported that they had perpetrated an assault that met the legal definition for rape perceived the experience to be rape. Additionally, 47% of the perpetrators in this study reported that they expected that they would engage in a similar sexual encounter at some future time. Gidycz and Layman (1996) assert that situational variables, as well as attitudes and beliefs that accept violence toward women, most likely contribute to the occurrence of such sexual assaults and the failure of many perpetrator's to conceptualize their sexual assault as rape.

Marx and Gross (1995) examined the ability of men to recognize the onset of sexual assault in an audio taped vignette depicting date rape. The focus of the study was twofold (1) to determine if subjects' perception of their own sexual experiences affected their ability to identify date rape cues, and (2) to assess the impact of providing varied sexual histories of the couple depicted in the vignette on the ability of subjects to identify the onset of sexual assault. They found that subjects who indicated having perceived insincere resistance to sexual advances from a partner, took significantly longer to indicate the onset of sexual assault than subjects who did not report such a history. Additionally, subjects who were informed that the woman in the audio taped vignette initially resisted sexual contact before consenting to sex on
the previous date also took significantly longer to identify the onset of sexual assault than subjects who were not given this information. This study demonstrated that the ability to recognize rape cues can be affected by situational variables as well as prior learning. However, given that the authors did not assess participants’ sexual histories, it is impossible to know if perpetrators of sexual assault existed in the subject pool. Future research in this area could increase our understanding of rape behavior by determining if differences in cue recognition exist between individuals who have perpetrated rape and those who have not. Additionally, given that date rape perpetrators often employ various coercive and sexually aggressive techniques to gain compliance, future studies might examine the effect of varied levels of force and coercive tactics depicted in a vignette on cue recognition. Finally, future studies should include female participants to determine if the same factors affect the ability of women to detect rape cues.

Assessment of Rape Behavior

Methods typically used to assess perpetrators of sexual violence include clinical or structured interviews, questionnaires and checklists, psychometric tests, and physiological measures. Each of these techniques has advantages and disadvantages. Clinical and structured interviews allow the interviewer to build rapport with the interviewee and to customize the interview to obtain specific information. Disadvantages of the interview techniques are the cost and the potential for deception. Interviews are often costly because they require one-to-one contact and are typically conducted by a trained professional. Additionally, perpetrators of sexual
assault often may be deceitful, making rapport difficult if not impossible to establish. Lastly, an individual may provide the interviewer with inaccurate information either to minimize culpability or because he or she is unaware of particular thoughts and feelings.

Questionnaires and checklists have some advantages over interview methods for gathering clinically relevant information. Questionnaires and checklists do not require one-to-one interaction to gather information that makes them less expensive than interviews to conduct and a more efficient means of gathering data. Additionally, these methods allow the individual to provide information in a more confidential manner and most have good statistical properties associated with their use. The disadvantages of questionnaires and checklist are that they rely on self-report and these methods cannot be customized for a specific individual or event which may result in important information remaining unknown. Also, these measures often assess attitudes or beliefs, not behavior, which limits their use.

Personality inventories such as the MMPI-2 (Butcher, Dahlstrom, Graham, Tellegen, & Kaemmer, 1989) or the MCMI-III (Millon, Million, & Davis, 1994) are also used to assist in the assessment of perpetrators of sexual assault. These tests have the advantage of good psychometric properties and are an efficient means of gathering data. However, since perpetrators are a heterogeneous group, there is no one particular profile that can identify an individual as a rapist. Likewise, these tests also rely to some degree on the accuracy of the individuals’ self-report. Even though less face valid than other methods, a socially desirable pattern of responding can invalidate the data collected rendering it useless to some degree.
Given that alleged perpetrators may benefit from responding in a socially desirable manner and that individuals can easily distort or withhold information during any of the aforementioned forms of data collection, ancillary methods of assessment such as psychophysiological techniques of arousal are also employed.

Psychophysiological Measures

Penile plethysmography is one such technique that measures the erectile response to sexual stimuli. It is well validated in the scientific literature as a useful tool to assess sexual arousal with a variety of populations. A complete review of penile plethysmography is beyond the scope of this paper; however, its use with rape perpetrators will be outlined. Numerous phallometric studies have demonstrated an ability to discriminate between rapists and nonrapists using penile plethysmography (i.e., Abel, Barlow, Blanchard, & Guild, 1977; Abel, Blanchard, Becker, & Djenderedjian, 1978; Barbaree, Marshall, & Lanthier, 1979). Other studies, however, have failed to find any substantive differences in arousal between rapists and nonrapists in their responses to sexually violent stimuli (Baxter, Barbaree, & Marshall, 1986; Murphy, Krisak, Stalgaitis, & Anderson, 1984). The conflicting results obtained in these studies are no doubt due in part to different methodologies used by researchers to collect data; however, issues of internal and external validity are also raised. Due to the intrusive nature of the procedure, volunteer bias exists in penile plethysmography research (Farkas, Sine, & Evans, 1978; Malamuth & Check, 1983). It has also been demonstrated that some individuals can voluntarily alter (either enhance or suppress) their responses (Earls & Marshall, 1983; Farkas, 1978)
and that the anxiety of the testing situation can involuntarily enhance the erectile response (Barlow, 1986). Another limitation is the generalizability of sexual behavior in the laboratory to sexual behavior in the real world. Additionally, research and clinical work using penile plethysmography requires expensive equipment to collect data and extensive training to conduct the assessments. Given the intrusiveness of the procedure and the other potential limitations, other psychophysiological techniques are needed.

Other physiological measures have been examined for reliable arousal and affective valence detection. Galvanic skin response (GSR), or skin conductance (SC) as it is commonly called, is modulated by sweat gland activity and measures the ability of the skin to conduct an external electrical current. It has been extensively researched with initial studies dating back to the late 1800s. Skin conductance has been found to be sensitive to transitory emotional states and mental events (Peek, 1995) and has been demonstrated to increase monotonically with intensifying stimulation (Bernstein, 1969). However, it is a complex response which is influenced by a wide range of overt and covert activities as well as both external and internal stimulation. In studies that have employed a range of affective stimuli, increases in conductance varied directly with self-reported arousal, independent of whether the experience is reported as pleasant or unpleasant (Bradley, Cuthbert, & Lang, 1990; Cook Hawk, Davis, & Stevenson, 1991; Greenwald, Cook, & Lang, 1989). Thus, skin conductance may be a reliable measure of arousal but is ineffective as measure of affective valence.
Research examining heart rate, which is modulated by both sympathetic and parasympathetic nervous system functioning, has yielded inconclusive results in assessing emotional valence. Studies that utilize recall of both pleasant and unpleasant memories revealed that both events prompt heart rate acceleration (Cuthbert, Bradley, York, & Lang, 1990; Vrana, Cuthbert, & Lang, 1989). This suggests that arousal might serve as the primary determinant for heart rate change. However, when photographs are used to elicit emotion, unpleasant scenes occasion relatively more heart rate deceleration than pleasant scenes which suggests that valance may also play a role in determining cardiac response during perception (Bradley et al., 1990; Greenwald et al., 1989). These findings taken in conjunction with one another suggest a complex association between heart rate and affective reports.

**Facial Electromyography**

An alternative technique for assessing interest, emotion, and arousal that is currently in the developmental stage is facial electromyography (EMG). Facial EMG is a technique that is able to monitor facial muscle contractions by measuring the electrical energy that is given off by contracting muscle fibers. An EMG device, therefore, is able to produce readings in microvolts, a unit of electrical pressure, and is capable of accurately representing even visually imperceptible muscle contractions (Peek, 1995).

Initial interest in the physiological response to a startle stimulus was prompted by the work of Landis and Hunt (1939). In these early experiments, a pistol shot was
used to activate the startle reflex, and the ensuing body movements were recorded via high-speed motion pictures. Analysis of this footage revealed that the first, fastest, and most stable element in the startle response sequence is the sudden closure of the eyelids which is occasioned by the rapid contraction of the orbicularis oculi muscle. Subsequent research has confirmed this observation and has also revealed that lid flexion (eyeblink) alone may occur to stimuli of insufficient intensity to engage the whole reflex. Additionally, the startle response can be evoked repeatedly within a relatively brief period of time such that 40-50 probe trials are possible within a half-hour experimental session (Lang, Bradley, & Cuthbert, 1990).

Due to these stable response properties, the eyeblink has become an increasingly important tool in experiments that seek to assess interest, emotional valance, and arousal to various stimuli. Research has demonstrated that while the startle response itself is reflexive and, therefore, stable, the magnitude of the response can vary in intensity due to environmental factors present at the time the reflex is invoked. Recent evidence suggests that the magnitude of an organism’s reflexive startle response varies systematically with emotional state (Lang et al., 1990).

Two main theories have been proposed to account for the ability of environmental stimuli to modulate the intensity of the startle reflex. Graham and his colleagues (e.g., Anthony & Graham, 1985; Graham, 1975; Hackley & Graham, 1984) propose that the reflexive startle response is modulated by an individual’s attentional set. Given that an individual has allocated resources (attention) to a particular modality, the magnitude of the reflex response varies depending on whether the modality of the startle stimulus is the same as, or different from, the stimulus
modality to which attentional resources are currently being directed. Thus, if an
individual were attending to an auditory stimulus, the startle response to an acoustic
probe would be greater than if the individual had been attending to a visual stimulus.

Lang et al. (1990) proposes an alternative explanation for the inhibition of the
startle response to an acoustic startle probe in the context of certain stimuli. They
suggest that pleasant events prompt positive emotional responses, where as the startle
probe is perceived as mildly aversive. They propose that this mismatch in affective
response might better account for the observed reflex inhibition during the processing
of pleasant stimuli, relative to responses that occur in the context of dull or bland
events. Lang, Bradley, and Cuthbert (1990) assert that if it is true that pleasant events
promote inhibition of the startle response, then negative events should promote startle
facilitation. Consistent with this hypothesis, Vrana, Spence, and Lang (1988) found a
linear relationship between slide valence and the magnitude of reflexive startle
response. Results indicated that not only were startle responses to an acoustic probe
smaller during pleasant visual stimuli (i.e., attractive nudes, etc.) as compared to
neutral stimuli (i.e., household objects), but response to unpleasant stimuli (i.e.,
snakes, spiders, etc.) were consistently larger. Lang, Bradley, and Cuthbert (1990)
largely replicated this study. Their study included the addition of both visual
(flashgun) and auditory startle stimuli. Results were consistent with the former study
in that the startle reflex was largest when evoked in an unpleasant visual foreground
and smallest in a pleasant visual foreground. Importantly, however, the same pattern
of reflex modulation was observed regardless if the startle stimuli were a visual probe
or an acoustic probe. In summary, it has been shown that physiological responses to
startle stimuli vary systematically with the affective valence of foreground stimuli, and these results are not consistent with the attentional theory that centers on the allocation of resources alone.

To date, numerous studies utilizing facial EMG have successfully differentiated positive and negative emotional reactions to a variety of different foreground stimuli. Examples include audio taped narratives (Sullivan & Brender, 1986), typewritten imagery situations (Schwartz, Brown, & Ahern, 1980), color slides (Simons & Zelson, 1985; Bradley, Cuthbert, & Lang, 1990), pleasant and unpleasant odors (Ehrlichman, Brown, Zhu, & Warrenburg, 1995), video taped film fragments (Jansen & Frijda, 1994), and self-referent sentences (Witvliet & Vrana, 1995). The results of these studies consistently demonstrate that two distinct patterns of facial muscle activity are associated with positive and negative affective states.

The modality of the startle probe has varied across studies as well. Specifically, both auditory and visual startle probes have been utilized. Studies which have employed an auditory startle stimulus have invariably used a brief, loud burst of white noise (i.e., Witvliet & Vrana, 1995; Jansen & Frijda, 1994). The stimulus that has been consistently used to elicit a startle response visually has been a bright flash of light, typically a flashgun or strobe (i.e., Bradley et al., 1990; Anthony & Graham, 1985).

Additionally, research has been conducted to examine the effects of various combinations of foreground stimuli and startle probe modality. The four combinations of visual and auditory foreground stimulus and startle probes have been examined (Bradley et al., 1990; Anthony & Graham, 1985; Jansen & Frijda, 1994). Both
matched and mismatched modality presentations have been effective at discriminating positive and negative emotional states. However, the presentations utilizing matched modality designs have demonstrated to be more effective at discriminating between positive and negative affect (Bradley et al., 1990).

Three distinct facial muscles have been the focus of study in facial EMG research. Specifically, the zygomatic major, orbicularis oculi, and corrugator supercilii facial muscles have been investigated for their utility in determining the emotional valance of various stimuli. Electrode placement for facial EMG data collection has been consistent and typically based on the recommendations and diagrams of Fridlund and Cacioppo (1986).

The zygomatic major is the facial muscle associated with smiling as it is responsible for pulling the lip corners upwards toward the cheekbone (Ekman & Friesen, 1982). Studies have consistently demonstrated greater zygomatic muscle tension occurs during positive as opposed to negative-affect stimuli presentations (Witvliet & Vrana, 1995; Lang, Greenwald, Bradley, & Hamm, 1993; Schwartz, Brown, Ahern, 1980).

Conversely, greater orbicularis oculi muscle activity has been observed during negative-affect stimuli versus positive-affect stimuli (Vrana et al., 1988; Vrana & Lang, 1990; Erlichman et al., 1995). Muscle tension in this region has been shown to be heightened by expressions of pain (Englis, Vaughn, & Lanzetta, 1982) and functions to raise the cheek and gather skin inwards from around the eye socket (Ekman & Friesen, 1982).
Similarly, greater corrugator supercillii muscle tension has been observed during unpleasant as opposed to pleasant stimuli presentations (Lang et al., 1993; Witvliet & Vrana, 1995; Vanman, Paul, Ito, & Miller, 1997). This facial muscle is located above the eyes and functions to furrow the brow, drawing the eyebrows together towards the midline of the forehead (Vanman et al., 1997).

Left muscle superiority has been noted in studies that have employed bilateral placement of electrodes for facial EMG measurement (Sullivan & Brender, 1986). The lateralization of facial muscle functioning has been hypothesized to indicate greater right hemisphere involvement in the mediation of emotion (Sackheim, Gur, & Saucy, 1978). Others contend that this interpretation is inconsistent with current theories of hemispheric functioning (Rinn, 1984; Fridlund & Izard, 1983). Nonetheless, the asymmetrical response patterns of the facial muscles is well documented and subsequent studies have consistently favored placement of electrodes on the left side of the face alone (Bradley et al., 1990; Vanman et al., 1997; Erlichman, et al., 1995).

Early studies investigating facial EMG without the use of startle stimuli typically enlisted female subject exclusively (i.e., Cacioppo, Petty, Losch, & Kim, 1986). This decision was guided by findings which suggested that in psychophysiological studies of emotion that larger magnitude and more reliable results tend to occur in females as opposed to males (Schwartz, et al., 1980). Studies employing facial EMG with startle stimuli, however, typically have found gender effects to be absent, indicating highly similar eyeblink responses for both men and women (Jansen & Frijda, 1994; Vrana et al., 1988; Vrana & Lang, 1990).
Given that this procedure has been found to be effective for use with both men and women and that it is able to detect interest in and emotional valance to various stimuli, then a logical extension would be to determine if facial EMG can differentiate among groups based on sexual interest to stimuli depicting deviant behaviors.

Statement of Purpose

The current study was designed (a) to assess the ability of perpetrators, victims, and controls to recognize date rape cues of varying levels of force (persuasion, coercion/verbal threats, and physical force) in audio taped scenarios of sexual encounters, and (b) to assess the effects of startle response induced facial EMG activity as an effective means of differentiating individuals who have sexual interest in forced sexual encounters from those who do not. It was hypothesized that perpetrators and victims of date rape would not recognize more subtle date rape cues (persuasion and coercion/verbal threats) as rapidly as controls indicating that these individuals may not perceive certain sexually assaultive behaviors as rape. A second hypothesis is that as compared to the control group, date rape victims and perpetrators will both endorse significantly more rape myths on the RMAS. A third hypothesis is that the groups (perpetrators, victims, and non-victim controls) would not differ in facial EMG activity to audio taped depictions of consensual sexual activity. However, when listening to depictions of rape behavior, it was predicted that the groups would begin to effect different facial EMG patterns. Therefore, a fourth hypothesis is that the perpetrator group, as compared to the control and victim groups, would show smaller
startle responses to date rape stimuli, indicating a comparatively higher level of sexual interest.
CHAPTER II

METHOD

Participants

Seventy participants completed both phases of the study. The study included both male and female undergraduate university students, whose ages ranged from 18-35 years. Based on the information collected on the prescreening measures, participants were assigned to one of four groups: male control, female control, female victim, and male perpetrator. The first 20 individuals who successfully completed both phases of the study and qualified for inclusion in each of the four groups were planned for inclusion in the study. Various attempts to recruit the 20 proposed individuals for the perpetrator group proved unsuccessful. Final analyses were performed on the six individuals who were recruited that did qualify for inclusion in the perpetrator group.

Setting

The administration of the initial prescreening measures (Phase I) occurred primarily in a variety of classrooms located on the WMU campus. Additional screening sessions were held in the Clinical Studies Research Laboratory, Room 2502, Wood Hall. Prescreening measures were administered to students enrolled in
undergraduate courses at Western Michigan University. Permission to administer the questionnaires was obtained from the course instructors prior to administration.

The psychophysiological assessment portion of the study (Phase II) was conducted in the Clinical Studies Research Laboratory, Room 2502, Wood Hall.

Materials and Apparatus

Paper and Pencil Response Measures

The Sexual Experiences Survey (SES) was originally developed by Koss and Oros (1982) and was designed to identify rape victims and offenders among a normal population. A modified version of the Sexual Experiences Survey was developed in 1987 by Koss et al. This self-report instrument has been used to assess participants’ personal experiences regarding various forms of both sexual aggression and victimization. An expanded version of the modified SES written by this author was included in this study. The newly modified version of the SES utilizes a gender neutral format and an expanded number of questions to allow for both sexually aggressive behavior and victimization experiences to be assessed simultaneously.

The Rape Myth Acceptance Scale (RMAS) was developed by Burt (1980) to assess an individual’s adherence to cultural myths and stereotypes pertaining to rape, rape victims, and rape perpetrators. The scale is comprised of 19 items and utilizes a Likert scale format. Responses range from "strongly agree" to "strongly disagree" for the first 13 items and from "always" to "never" for the remaining six items. All questions are scored on a seven-point scale. Research on the scale has revealed that
men who are sexually aggressive towards women endorse a significantly higher number of distorted beliefs than do non-sexually aggressive adults selected randomly from the community and university students (Burt, 1980; Muehlenhard & Linton, 1987).

The Marlowe-Crowne Social Desirability Scale was developed by Crowne and Marlowe (1960) to assess for socially desirable response tendencies. The scale is comprised of 33 items and utilizes a true-false response format. A short form of this scale was developed by Reynolds (1982) using factor analysis and contains 13 of the original true-false items. The short form of the Marlowe-Crowne Social Desirability Scale was selected for inclusion in the study because it has been demonstrated to maintain the psychometric characteristics of the original scale (Reynolds, 1982).

A basic demographic questionnaire was selected for use in this study to examine for potential group differences among participants including gender, age, race, education, and religiosity (see Appendix A).

**Physiological Response Measures**

Facial EMG data were collected via disposable electrode sensors connected to a ProComp+ encoder. Data were recorded using BioGraph V1.01 software and stored on an IBM-compatible computer hard drive. Both the ProComp+ encoder and the BioGraph software package are manufactured by Thought Technology, Inc., Montreal, Quebec, Canada. The sensors were attached to the participant’s skin above the zygomatic major and orbicularis oculi muscle groups. The sensors measured
changes in muscle tension in response to startle stimuli presented during the audio
taped instructions and vignettes.

At 20-second intervals during each audiotape, an extremely brief burst of white noise (50-ms bursts of 120-dBA white noise with fast rise/fall times) was sounded to activate the participant's startle response. The physiological response to the startle stimulus provides information regarding the participant's emotional experience during the presentation and his or her perception of the valence of the stimuli.

**Momentary Switch**

A signal detection device (a momentary switch) was connected to the keyboard port in the CPU. Such an arrangement allowed the BioGraph software to generate an event marker integrated in real time within the data file. The signal detection device was used by the participant to "mark" the protocol at the point during each audiotape presentation at which he or she first determined that the individual initiating sexual contact in the vignette should refrain from making any further sexual advances.

**Stimulus Materials**

Participants listened to five audiotapes during Phase II of this study. The first audiotape consisted of a brief set of instructions. Additionally, this audiotape introduced the startle stimulus noise burst to the participants and served as a baseline measure for the facial EMG recordings. Next, participants listened to one of four 5-7
minute audiotaped vignettes. Three of the vignettes illustrated an occurrence of date rape, each depicting a different level of force. The fourth audiotape served as a control and its vignette depicted a scene involving consensual sexual activity. The date rape vignettes were recorded so that roughly the first half of each audiotape consisted of social interaction and consensual sexual behavior. At roughly the halfway mark of each vignette, the woman depicted in the scenario began to refuse or resist the man’s sexual advances. He then resorted to one of three forms of force (persuasion, coercion, or physical force) to gain her compliance. Each of the date rape vignettes depicted only one level of force. The order of the audio taped vignettes was randomized across participants to avoid order effects. Transcripts of the instruction tape and each of the four vignettes are attached (see Appendix B).

Procedure

The study was conducted in two phases. Phase I consisted of large group testing during which participants were asked to complete a number of brief paper and pencil measures. Participants were informed that the purpose of the study was to examine the “relationship between attitudes toward rape and sexual behavior” and that they may be asked to participate in a second phase of the study in the future (see Appendix C). Prior to participation in the study, participants were assured that any information they provided would remain strictly confidential. The participant’s name and phone number appeared only on the informed consent page, which contained a code number that corresponded to the one found on each page of the questionnaire packet. The participants were informed that the consent forms were to be detached
from the actual questionnaire data and stored separately in a locked file cabinet. Finally, participants were reminded that participation in the study was completely voluntary and that they were able to withdraw from the study at any time without penalty.

Once informed consent was obtained (see Appendix D), participants completed a modified version of the Sexual Experiences Survey (Koss & Oros, 1982; Koss, et. al., 1987), the Rape Myth Acceptance Scale (Burt, 1980), the short form of the Marlowe-Crowne Social Desirability Scale (Reynolds, 1982), and the brief demographic questionnaire.

Based on their responses to the modified Sexual Experiences Survey (SES), participants were selected if their responses met the criteria for inclusion as female victims, male perpetrators, or non-victims/non-perpetrators (male and female controls). Individuals from each of the four resulting groups were contacted and asked for their willingness to continue participation. Those individuals willing to participate in Phase II of the study were scheduled to meet with either the student or principal investigator in the principal investigator’s research laboratory.

Upon arrival, participants were reminded that all information collected for the study would remain strictly confidential. Informed consent for Phase II was obtained (see Appendix E) and participants were reminded that participation in the study was completely voluntary and that they could withdraw from the study at any time without penalty.

Participants were seated in an experimental chamber. The participant’s facial skin was cleansed with an alcohol wipe and electrodes were attached to the skin
above the appropriate muscle groups. Next, the participant was given a set of headphones and asked to place them on his or her head. Finally, the participant was handed the momentary switch and told that they would receive detailed audiotaped instructions describing this portion of the experiment and the use of the signal detection device. The experimenter then exited the experimental chamber and began the instruction tape. After the instructional audiotape has finished, the experimenter reentered the experimental chamber to answer any remaining questions the participant may have had. The experimenter then exited again and began the first of the four audio taped vignettes. The four audiotaped vignettes were presented in random order. A table of random numbers was used to generate the order of audiotape presentation for each participant. While listening to each audiotape, the participant used the signal detection device to indicate the point during the vignette at which he or she felt the man depicted in the vignette should stop making further sexual advances. Throughout the audiotapes, at 20-sec intervals, a short-burst of white noise was sounded to activate the eye blink response for EMG measurement purposes. This process was repeated for each of the four vignette audiotapes. Upon completion of the final audiotape, participants were thanked for their participation and dismissed.

Data Analysis

One-way Analyses of Variance (ANOVAs) were conducted to determine if groups differed based on their scores on either the Rape Myth Acceptance Scale (RMAS) or the Marlowe-Crowne Social Desirability Scale (MCSDS). Cue recognition data were analyzed using a series of One-way Analyses of Variance
(ANOVA). One-way ANOVAs were conducted to determine if groups differed in the length of time taken to recognize the onset of date rape behavior (the amount of time allowed to elapsed before the momentary switch was pressed) for each of the three tapes containing inappropriate sexual behavior. Facial EMG data were also analyzed using a series of One-way ANOVAs. Such analyses were conducted to determine if group differences in facial muscle tension could be detected when participants were presented with startle stimuli while listening to each of the 4 audiotaped vignettes. Finally, Pearson product moment correlation coefficients were computed between the peak facial EMG responses and the amount of time allowed to elapse before the momentary switch was pressed for each audiotaped vignette. These analyses were conducted to examine the relationship between the time at which participants indicated a vignette had become sexually inappropriate and their physiological response as measured by facial EMG.
CHAPTER III
RESULTS

A total of 322 participants completed the questionnaires during Phase I of the study. Of those qualifying for Phase II, 70 individuals completed the laboratory portion of the study. The laboratory data for four of the subjects was deemed invalid and thus excluded from final data analysis. Three of the invalid data profiles resulted from sensor pads that became detached at some point during data collection. The fourth invalid profile resulted from electrical interference generated by the operation of a wireless intercom system. The electrical signal produced by the system was detected by the sensor pads and rendered the data for the participant unusable. Thus 66 participants were included for final data analysis. Six participants comprised the male perpetrator group and twenty participants comprised each of the remaining three groups.

Demographic Characteristics

The demographic characteristics for the overall group, male controls, female controls, female victims, and male perpetrators are summarized in Table 1 along with the values associated with the results of the tests for analysis of variance (ANOVAs) among the groups. One-way ANOVAs were performed on these variables to determine if there were any significant differences among the four groups based on the participants' age or years of education.
Table 1

Demographic Characteristics of the Participants

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male Controls</td>
<td>21.60</td>
<td>3.15</td>
<td>3.387</td>
<td>.024*</td>
</tr>
<tr>
<td>Female Controls</td>
<td>20.95</td>
<td>1.39</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Victims</td>
<td>22.15</td>
<td>3.83</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perpetrators</td>
<td>25.67</td>
<td>5.35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>21.94</td>
<td>3.41</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Education (in years)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male Controls</td>
<td>15.05</td>
<td>1.15</td>
<td>.962</td>
<td>.416</td>
</tr>
<tr>
<td>Female Controls</td>
<td>15.30</td>
<td>1.08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Victims</td>
<td>15.55</td>
<td>.94</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perpetrators</td>
<td>15.67</td>
<td>1.03</td>
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<tr>
<td>Overall</td>
<td>15.33</td>
<td>1.06</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*A significant at the .05 level

A one-way ANOVA revealed a statistically significant difference among groups (F(3,62) = 3.387, p = .024) for age. Post hoc analyses utilizing the Tukey HSD test with significance set at the .05 level was used to examine this finding. Results indicated that the perpetrator group (M = 25.67, SD = 5.35) was significantly older than both the male control (M = 21.60, SD = 3.15) and the female control (M = 20.96, SD = 1.39) groups. Given the small sample size for the perpetrator group, such a finding is not entirely unexpected.

A one-way ANOVA was conducted to examine for differences among groups on years of education. These results yielded no significant differences (F(3,62) = .962, p = .416) among groups.

Additional descriptive information was collected for all participants including
ethnicity, marital status, and religiosity. These data are displayed in percentage form for all groups in Table 2.

Rape Myth Acceptance Scale

In order to determine if groups differed based on their acceptance of rape myths, a one-way ANOVA was conducted on total scores for the Rape Myth Acceptance Scale. The results were not significant ($F(3,62) = 2.218, p = .095$), indicating the groups were statistically similar with respect to their acceptance or rejection of rape myths. The results of these analyses are displayed in Table 3.

Marlowe-Crowne Social Desirability Scale

A one-way ANOVA was performed to examine for differences among groups for scores on the short form of the Marlowe-Crowne Social Desirability Scale. This analysis revealed no significant differences among groups ($F(3,62) = .640, p = .592$) indicating that groups were similar in their tendencies to respond in a socially desirable manner. The results of these analyses are displayed in Table 3.

Cue Recognition

A signal detection device (a momentary switch) was used by each participant to “mark” the protocol at the point during each audiotape presentation at which he or she first determined that the individual initiating sexual contact in the vignette should refrain from making any further sexual advances. A panel of 4 graduate students analyzed each of the audiotaped vignettes in an effort to identify each of the distinct
Table 2
Descriptive Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total Sample (n=66)</th>
<th>Male Controls (n=20)</th>
<th>Female Controls (n=20)</th>
<th>Victims (n=20)</th>
<th>Perpetrators (n=6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race (%)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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<td>Caucasian</td>
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<td>90.0</td>
<td>85.0</td>
<td>90.0</td>
<td>83.3</td>
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<tr>
<td>Asian Am</td>
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<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Am Indian</td>
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<td>0.0</td>
<td>5.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>African Am</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Hispanic</td>
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<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
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<td>Pacific Islander</td>
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<td>0.0</td>
<td>0.0</td>
</tr>
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<td>Multiracial</td>
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<td>0.0</td>
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<td>Other</td>
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<td>0.0</td>
<td>10.0</td>
<td>16.7</td>
</tr>
<tr>
<td>Education (%)</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>13 years</td>
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<td>10.0</td>
<td>10.0</td>
<td>5.0</td>
<td>0.0</td>
</tr>
<tr>
<td>14 years</td>
<td>16.7</td>
<td>25.0</td>
<td>15.0</td>
<td>10.0</td>
<td>16.7</td>
</tr>
<tr>
<td>15 years</td>
<td>15.2</td>
<td>20.0</td>
<td>10.0</td>
<td>15.0</td>
<td>16.7</td>
</tr>
<tr>
<td>16 years</td>
<td>56.1</td>
<td>40.0</td>
<td>65.0</td>
<td>65.0</td>
<td>50.0</td>
</tr>
<tr>
<td>17 years</td>
<td>3.0</td>
<td>0.0</td>
<td>0.0</td>
<td>5.0</td>
<td>16.7</td>
</tr>
<tr>
<td>&gt;17 years</td>
<td>1.5</td>
<td>5.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Relationship Status (%)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>84.8</td>
<td>85.0</td>
<td>85.0</td>
<td>85.0</td>
<td>83.3</td>
</tr>
<tr>
<td>Married</td>
<td>10.6</td>
<td>15.0</td>
<td>5.0</td>
<td>10.0</td>
<td>16.7</td>
</tr>
<tr>
<td>Divorced</td>
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<td>0.0</td>
<td>0.0</td>
<td>5.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Living with Boy/Girlfriend</td>
<td>3.0</td>
<td>0.0</td>
<td>10.0</td>
<td>0.0</td>
<td>0.0</td>
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<tr>
<td>Religion (%)</td>
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<td></td>
<td></td>
</tr>
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<td>Catholic</td>
<td>28.8</td>
<td>35.0</td>
<td>35.0</td>
<td>25.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Lutheran</td>
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<td>5.0</td>
<td>15.0</td>
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<td>Presbyterian</td>
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<td>5.0</td>
<td>0.0</td>
<td>16.7</td>
</tr>
<tr>
<td>Methodist</td>
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<td>0.0</td>
<td>15.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Baptist</td>
<td>4.5</td>
<td>0.0</td>
<td>10.0</td>
<td>0.0</td>
<td>16.7</td>
</tr>
<tr>
<td>Christian Ref.</td>
<td>3.0</td>
<td>5.0</td>
<td>0.0</td>
<td>5.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Jewish</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Other</td>
<td>43.9</td>
<td>50.0</td>
<td>40.0</td>
<td>40.0</td>
<td>50.0</td>
</tr>
<tr>
<td>Missing Data</td>
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<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>16.7</td>
</tr>
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</table>
Table 3
RMAS and MCSDS Scores Among Groups

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RMAS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male Controls</td>
<td>33.75</td>
<td>9.55</td>
<td>2.218</td>
<td>.095</td>
</tr>
<tr>
<td>Female Controls</td>
<td>25.00</td>
<td>7.83</td>
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<td></td>
</tr>
<tr>
<td>Victims</td>
<td>26.75</td>
<td>11.18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perpetrators</td>
<td>35.33</td>
<td>12.85</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MCSDS</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male Controls</td>
<td>19.95</td>
<td>2.91</td>
<td>.640</td>
<td>.592</td>
</tr>
<tr>
<td>Female Controls</td>
<td>19.35</td>
<td>3.28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Victims</td>
<td>18.75</td>
<td>2.65</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perpetrators</td>
<td>20.17</td>
<td>4.07</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

refusal behaviors demonstrated by the victim depicted within each scenario. Time blocks were generated for each audiotape such that each block contained one distinct refusal event or behavioral action. The raw time data for each participant was converted into time-block data for each audiotaped scenario.

A series of one-way ANOVAs were performed on the resulting time-block data for each audiotaped scenario. The results of these analyses revealed no significant differences among groups. The means, standard deviations, and the corresponding Analyses of Variance for each of the audiotaped scenarios depicting inappropriate sexual behavior are summarized in Table 4.
Table 4
Behavioral Actions Allowed Among Groups

<table>
<thead>
<tr>
<th>Tape Content</th>
<th>M</th>
<th>SD</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Persuasion</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Male Controls</td>
<td>2.35</td>
<td>1.09</td>
<td>1.072</td>
<td>.368</td>
</tr>
<tr>
<td>Female Controls</td>
<td>1.80</td>
<td>.95</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Victims</td>
<td>2.25</td>
<td>1.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perpetrators</td>
<td>2.17</td>
<td>.98</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Coercion</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male Controls</td>
<td>2.50</td>
<td>1.10</td>
<td>1.189</td>
<td>.321</td>
</tr>
<tr>
<td>Female Controls</td>
<td>3.15</td>
<td>1.42</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Victims</td>
<td>2.80</td>
<td>.696</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perpetrators</td>
<td>2.82</td>
<td>.753</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Physical Force</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male Controls</td>
<td>1.95</td>
<td>.887</td>
<td>1.285</td>
<td>.287</td>
</tr>
<tr>
<td>Female Controls</td>
<td>1.70</td>
<td>.865</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Victims</td>
<td>1.45</td>
<td>.605</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perpetrators</td>
<td>1.73</td>
<td>.887</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Facial EMG

The data were culled in a method consistent with similar studies that examined facial EMG data utilizing a startle response. Each of the peak startle response points were extracted from the protocol for both the zygomatic major and orbicularis oculi muscle groups. A series of one-way ANOVAs were performed on the resulting means for the peak point data for each audiotaped scenario. The results of these analyses revealed no significant differences among groups on either muscle group. These findings indicate that groups did not significantly differ from one
another based on facial muscle tension in response to the various audiotaped vignettes. The means and standard deviations for each group, in addition to the results of the corresponding Analyses of Variance, are summarized in Table 5.

Alternate methods of data reduction were explored for culling the facial EMG data. These post hoc methods of data extraction included calculating change scores for each muscle group (subtracting the prestartle level of muscle tension from the peak EMG startle response) and calculating the mean EMG response for the entire session of continuous facial EMG data. The results generated by both of these methods proved to be highly correlated with the results found using the mean peak facial EMG responses. Subsequently, these methods did not yield significant differences among groups. For this reason, only the mean peak facial EMG data are reported.

Cue Recognition x Facial EMG

A Pearson product moment correlation coefficient was calculated to examine the relationship between the number of behavioral actions participants allowed to occur and peak facial EMG response data for each audiotape containing inappropriate sexual behavior. These analyses were conducted separately for the male control, female control, female victim, and male perpetrator groups. The results of these analyses are displayed in Table 6. No significant correlation was identified for any of the four groups when examining the data generated by vignettes containing persuasive and coercive content.
Table 5
Peak Facial EMG Responses Among Groups

<table>
<thead>
<tr>
<th>Tape Content</th>
<th>Orbicularis Oculi (in µV)</th>
<th>Zygomatic Major (in µV)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>F</td>
</tr>
<tr>
<td><strong>Consensual</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male Controls</td>
<td>23.67</td>
<td>13.21</td>
<td>.462</td>
</tr>
<tr>
<td>Female Controls</td>
<td>22.48</td>
<td>10.34</td>
<td></td>
</tr>
<tr>
<td>Victims</td>
<td>19.79</td>
<td>12.12</td>
<td></td>
</tr>
<tr>
<td>Perpetrators</td>
<td>18.29</td>
<td>11.89</td>
<td></td>
</tr>
<tr>
<td><strong>Persuasion</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male Controls</td>
<td>22.34</td>
<td>12.05</td>
<td>1.373</td>
</tr>
<tr>
<td>Female Controls</td>
<td>25.46</td>
<td>10.92</td>
<td></td>
</tr>
<tr>
<td>Victims</td>
<td>18.48</td>
<td>15.04</td>
<td></td>
</tr>
<tr>
<td>Perpetrators</td>
<td>16.73</td>
<td>8.93</td>
<td></td>
</tr>
<tr>
<td><strong>Coercion</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male Controls</td>
<td>23.04</td>
<td>16.94</td>
<td>.475</td>
</tr>
<tr>
<td>Female Controls</td>
<td>26.45</td>
<td>10.52</td>
<td></td>
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<tr>
<td>Victims</td>
<td>21.96</td>
<td>19.44</td>
<td></td>
</tr>
<tr>
<td>Perpetrators</td>
<td>18.95</td>
<td>9.65</td>
<td></td>
</tr>
<tr>
<td><strong>Physical Force</strong></td>
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<td></td>
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<tr>
<td>Male Controls</td>
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<td>16.89</td>
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<tr>
<td>Perpetrators</td>
<td>15.12</td>
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Table 6
Correlation Between Behavioral Actions and Peak Facial EMG Responses

<table>
<thead>
<tr>
<th>Tape Content</th>
<th>Orbic. Oculi</th>
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<th>Zygo. Major</th>
<th>p</th>
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<tr>
<td><strong>Persuasion (Beh. Actions)</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Male Controls</td>
<td>-.021</td>
<td>.929</td>
<td>-.235</td>
<td>.319</td>
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<tr>
<td>Female Controls</td>
<td>-.179</td>
<td>.451</td>
<td>-.093</td>
<td>.695</td>
</tr>
<tr>
<td>Victims</td>
<td>.146</td>
<td>.538</td>
<td>-.032</td>
<td>.892</td>
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<tr>
<td>Perpetrators</td>
<td>-.191</td>
<td>.716</td>
<td>.222</td>
<td>.672</td>
</tr>
<tr>
<td><strong>Coercion (Beh. Actions)</strong></td>
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<td>Male Controls</td>
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<td>.749</td>
<td>-.254</td>
<td>.280</td>
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<td>Female Controls</td>
<td>-.144</td>
<td>.544</td>
<td>-.039</td>
<td>.871</td>
</tr>
<tr>
<td>Victims</td>
<td>.002</td>
<td>.993</td>
<td>-.118</td>
<td>.621</td>
</tr>
<tr>
<td>Perpetrators</td>
<td>.108</td>
<td>.839</td>
<td>.383</td>
<td>.454</td>
</tr>
<tr>
<td><strong>Physical Force (Beh. Actions)</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male Controls</td>
<td>-.310</td>
<td>.183</td>
<td>-.395</td>
<td>.085</td>
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<tr>
<td>Female Controls</td>
<td>-.288</td>
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<td>.060</td>
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<tr>
<td>Victims</td>
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<td>.874</td>
<td>.543</td>
<td>.013*</td>
</tr>
<tr>
<td>Perpetrators</td>
<td>-.921</td>
<td>.009**</td>
<td>-.608</td>
<td>.201</td>
</tr>
</tbody>
</table>

*Correlation significant at the .05 level (2-tailed)
**Correlation significant at the .01 level (2-tailed)

However, significant correlations between the number of behavioral actions allowed and peak facial EMG data were identified for certain groups on the audiotape depicting physical force. A significant negative correlation was found for the perpetrator group between the number of behavioral actions allowed and the mean peak data collected on the orbicularis oculi muscle group ($r = -.921$, $p = .009$). This indicates that a significant negative linear relationship exists whereby lower muscle tension on the orbicularis oculi is associated with slower responding to the behavioral...
actions depicted in the vignette. Additionally, a significant positive correlation was found for the victim group between the number of behavioral actions allowed and the mean peak data collected on the zygomatic major muscle group ($r = .543, p = .013$). This indicates that a significant positive linear relationship exists whereby greater muscle tension on the zygomatic major is associated with slower responding to the behavioral actions depicted in the vignette. It is also important to note that, though not statistically significant, the three other groups yielded strong negative correlations between the same two variables on the physical force vignette.
CHAPTER IV

DISCUSSION

Outcomes of This Research

The purpose of this study was to further our understanding of the differences among perpetrators of date rape, victims of date rape, and control participants. Both a cue recognition task and facial EMG data recording methods were employed simultaneously to examine the differences among groups, as well as any interaction these two variables might have with one another.

Rape Myths

The Rape Myth Acceptance Scale (RMAS) was administered to identify individuals who endorse a high number of stereotyped or distorted beliefs about rape. No significant differences were found among groups on this measure. This finding is inconsistent with the previous research conducted with this scale with regard to male perpetrators of rape. Prior research has revealed that men who sexually aggress against adult women tend to endorse a significantly greater number of distorted beliefs than do non-sexually aggressive community controls and university students (Burt, 1980; Muehlenhard & Linton, 1987). Given the small sample size of the perpetrator group (n=6), however, the results of the current study must be interpreted cautiously. Though not statistically significant, the perpetrator group did produce the
highest mean score on the RMAS of the four groups. It is unknown what effect, if any, a larger sample of perpetrators would have produced.

It was also hypothesized that the victims would score significantly higher on the RMAS than the female controls. This hypothesis was not supported by the current study given that no significant differences were found among groups. Prior research using the RMAS has focused almost exclusively on the characteristics of rape perpetrators and has predominantly utilized male participants. No studies exist which have explored the relationship between female rape victims and female nonvictims with regard to the endorsement of rape myths. It is possible that rape victims and nonvictims do not significantly differ from one another with regard to the endorsement of rape myths.

**Marlowe-Crowne**

The Marlowe-Crowne Social Desirability scale was administered to assess for socially desirable response tendencies. No significant differences were found among groups on this measure. Had we identified that groups differed with regard to the MCSDS, we would have employed statistical techniques to reduce the influence of this variable while conducting additional analyses. Since the groups did not significantly differ on this measure, the use of such statistical techniques was deemed unnecessary.
Cue Recognition

Sexual miscommunication has been identified in the literature as a potential factor involved in the date rape. Therefore, it was hypothesized that perpetrators and victims would not recognize the more subtle rape cues and/or refusal behaviors as quickly as male and female control participants. Thus the perpetrators and victims were expected to allow the audiotaped vignettes to play significantly longer before pressing a momentary switch, particularly during the persuasion and coercion scenarios. This hypothesis was not supported by the current research. No significant differences were found among groups on any of the three audiotaped scenarios that depicted date rape.

These results are inconsistent with those found by Bernat, Calhoun, and Adams (1999). Bernat and his colleagues ran male participants though a similar reaction time/cue recognition procedure during which penile tumescence was also recorded. The study demonstrated that the sexually aggressive (SA) males allowed a videotape depiction of date rape to play significantly longer than did the non sexually aggressive (NA) male participants before pressing a momentary switch. Interestingly, the researchers reported that supplementary analyses revealed that a cognitive disposition reflecting relatively high or low calloused sexual beliefs (as measured by the Calloused Sexual Beliefs scale) influenced the latency of cue recognition for sexually aggressive men. The members of SA group with highly calloused sexual beliefs exhibited the longest latencies, whereas less calloused SA men exhibited latencies that were similar to their NA peers.
This recently published study may provide important information regarding the lack of significant differences found among groups in the current study. It appears that calloused sexual beliefs may play a significant role in the recognition of sexual refusal cues. Thus, group status alone may not be sufficient to reveal a significant relationship for reaction time latency. Future research must be conducted to determine if a similar correlation exists for women between calloused sexual beliefs and response latency to sexual stimuli containing refusal cues.

Facial EMG

Prior research has demonstrated that the startle induced facial EMG procedure is capable of distinguishing between individuals exposed to fearful vs. sexual stimuli (Jansen & Frijda, 1994) as well as detecting group differences between racially prejudiced and nonprejudiced individuals (Vanman et al., 1997). Thus, the current study proposed that startle induced facial EMG response measurement may be an effective technique for discriminating among groups based on facial EMG responses to audiotaped depictions of rape. It was hypothesized that the groups (perpetrators, victims, male controls and female controls) would not differ in facial EMG activity to audio taped depictions of consensual sexual activity. This hypothesis was supported by the results of the one-way ANOVAs conducted on the data collected for both the orbicularis oculi and the zygomatic major muscle groups while listening to the consensual vignette.

The hypothesis that the perpetrator group would show significantly smaller startle responses to date rape stimuli, as compared to all other groups, was not
supported by the current study. Groups did not significantly differ across any of the three experimental tapes on either the orbicularis oculi or the zygomatic major muscle groups. Again, given the small sample size for the perpetrator group, these results must be interpreted with caution. However, one possible factor which may have resulted in the inability for facial EMG to detect differences among groups may be that the differences under investigation are likely to be far smaller than those examined in the prior research. Each of the prior studies sought to detect gross differences in emotional valence (i.e. positively vs. negatively valenced emotional stimuli, fearful vs. nonfearful stimuli, etc.). It is possible that the rape stimuli presented in the vignettes may elicit negative mean facial EMG responses for all groups, with the perpetrator group only yielding the least negative EMG responses, particularly with regard to the orbicularis oculi muscle. The results depicted in Table 5 for all three rape vignettes lend some support to this potential interpretation. Thus given the high amount of individual differences on such a measure, the facial EMG technique may not be sensitive enough to distinguish among groups when examining the degree of negative emotional valence.

**Cue Recognition x Facial EMG**

Pearson product moment correlations were calculated to examine if any significant linear relationships exist between the number of behavioral actions that were allowed to occur and the corresponding peak facial EMG response data for each of the rape vignettes. No significant correlations were identified for any of the four groups when examining the data generated by scenarios containing persuasive and
coercive content. However, significant correlations between the number of behavioral actions allowed and peak facial EMG data were identified for the perpetrator and victim groups on the audiotape depicting physical force.

A significant negative correlation was found for the perpetrator group between the number of behavioral actions allowed and the mean peak data collected on the orbicularis oculi muscle group \(r = -0.921, p = 0.009\). This finding indicates that low levels of orbicularis oculi muscle tension are associated with longer response latencies for the perpetrator group. This is important because it suggests that the level of negative emotional valence elicited by rape stimuli may play a role in the response latencies demonstrated by perpetrators of rape.

Additionally, a significant positive correlation was found for the victim group between the number of behavioral actions allowed and the mean peak data collected on the zygomatic major muscle group \(r = 0.543, p = 0.013\). This finding indicates that higher levels of zygomatic major muscle tension are associated with longer response latencies for the victim group. This finding is particularly noteworthy because each of the three other groups yielded negative correlations between the same two variables on the physical force vignette. One possible explanation for this finding is that victims of rape respond physiologically in the same manner as participants in the other groups, but misinterpret or "doubt" their own physiological cues. Thus, victims may recognize the cues present in the vignette but delay in responding to them. This interpretation is obviously quite tentative and future studies will be needed to explore whether such a relationship does indeed exist. However, if such a relationship is
verified, the implications for possible education and prevention programs are noteworthy.

Limitations of This Research

The most notable limitation to this study is the small number of participants that qualified for inclusion the perpetrator group. Given the small sample size for this group (n=6), all statistical analyses that were used to identify differences among groups must therefore be interpreted with far greater caution. This significantly limits the statements that can be made regarding the characteristics of the perpetrator group as well as the generalizability of the results to perpetrators of sexual aggression in general.

A related issue is the fact that of the 138 male participants that completed the questionnaires during Phase I, only 7 qualified for the perpetrator group (of which 6 elected to participate in Phase II). Thus only 5% of male participants in Phase I reported having perpetrated an encounter that met the definition of rape. This figure is considerably lower than the 16% of participants that Koss (1988) reported having endorsed perpetrating such an assault using the original SES questionnaire. It is unclear why such a discrepancy exists. One possible explanation is that the students recruited for the study do not represent a random sampling of the student body at large. Given that the revised SES relies solely on self-report, another possible explanation is participants were reluctant to disclose information regarding past sexually aggressive behaviors.
Another possible limitation of the study is that audiotaped depictions of consensual and nonconsensual scenarios were utilized for this study. It is possible that audiotaped stimuli alone do not adequately elicit the intense emotional arousal that such situations would elicit in the "real world." Such artificial stimuli may not elicit responses that resemble the intensity of facial muscle responses that individuals might demonstrate when experiencing those situations in vivo. Stimuli utilizing another medium, such as videotaped vignettes, may elicit greater facial muscle responses that may allow the startle EMG technique to detect differences among groups.

Lastly, the cue recognition/reaction time task may not adequately reflect the behavioral contingencies that are likely to be present during actual sexual encounters, particularly for the perpetrator group. For example, if a perpetrator were actually initiating sexual advances with a woman, heeding a request to discontinue further sexual advances would prevent the desired outcome, i.e. a sexual encounter. The analog situation dictated by the cue recognition task is quite different. A perpetrator may press the momentary switch indicating that further sexual advances should be discontinued, however, he is still allowed to listen to the audiotaped vignette in its entirety. Thus few consequences exist for pressing the button during the analog reaction time task, likely making the task too far removed from many of the contingencies that are likely to be salient during an actual nonconsensual sexual encounter.
Directions for Future Research

Recommendations for future research would include the assessment of calloused sexual beliefs in studies involving cue recognition and facial EMG responses to sexually aggressive stimuli. Given that Bernat, Calhoun, and Adams (1999) found that calloused sexual beliefs were significantly correlated with the latency of cue recognition for sexually aggressive men, it is possible that such beliefs may also be related to the magnitude of facial muscle responses to such stimuli.

Future studies should investigate the use of different media for stimulus presentations. For example, the use of videotaped film segments or rape vignettes may elicit greater emotional responses from participants than do audiotaped stimuli alone. Additionally, such a study might specifically compare the differences in facial EMG responses associated with videotaped stimuli versus audiotaped stimuli alone.

Another possible direction for future research would be to examine the effect of different methodologies for the cue recognition task. Response time may vary when the task is structured such that the sexually aggressive vignette stops immediately when the momentary switch is pressed. Such a task may be more analogous to an ambiguous dating scenario and may yield greater differences among groups on a measure of reaction time/cue recognition.

Finally, the current study highlights the need for future research to continue to explore any differences that may exist between victims and nonvictims of rape. Given that the correlation between the magnitude of facial EMG responses and reaction time was found to be correlated in opposite directions for victims and nonvictims in the
current study, additional research regarding this relationship is needed. Exploration of such factors may be instrumental in developing appropriate methods of education and prevention programs geared towards reducing the incidence and prevalence of rape.
Appendix A

Demographic Questionnaire
Demographic Data

Gender: _____ Male _____ Female

Age: _____ (in years)

Marital Status: _____ Single _____ Married _____ Separated _____ Divorced _____ Living with boyfriend/girlfriend


_____ Multiracial (please specify) ____________

_____ Other (please specify) ____________

Education: _____ Freshman _____ Sophomore _____ Junior _____ Senior _____ Some graduate school _____ Graduate degree

Religion: _____ Catholic _____ Episcopal _____ Lutheran _____ Methodist _____ American Indian _____ Baptist _____ Alaskan Native _____ Christian Reformed

_____ Pacific Islander _____ Divorced

_____ Multiracial (please specify) ___________________

_____ Other (please specify) ___________________

Were you raised in a rural or urban area?

_____ Rural

_____ Urban

Subject ID _______
Appendix B

Transcripts of Audiotaped Vignettes
Baseline Audiotape/ Instructions

Before we get started, we would just like to thank you once again for your participation in this research study. Please sit back, relax, and try to make yourself as comfortable as possible.

Next, locate the red button on the joystick that the experimenter has handed you. <Pause slightly> Please rest a finger or thumb on the button at this time. <Pause> I will explain the use of this joystick in just a minute, but the only button we will be using is the red button.

Now, please close your eyes, and try to keep your head reasonably still throughout the rest of this audiotape. We ask that you keep your eyes closed while listening to each of the audiotapes, but feel free to open your eyes after a tape has ended. We will prompt you before the next tape begins.

During this phase of the study, you will listen to five different audiotaped scenarios. While listening to each of the tapes, you will occasionally hear a brief, loud burst of noise. This is intentional, but it may be a bit unsettling the first time you hear it. For that reason, we would like to play the 'noise' for you a few times during this instruction tape so that you become accustomed to it. This is what the noise sounds like. <Pause for 2 seconds> Don't be alarmed if the noise startled you. However, now that you have a better idea of what to expect, it should not be as much of a surprise. Here is the noise one more time. <Pause for 2 seconds>
From this point on the noise bursts will occur periodically while I am speaking, just as they will during the audiotaped stories. You won’t know when they will occur, but they should not be overly distracting once you become accustomed to them. Please do your best to focus on my words and ignore the occasional noise bursts.

As you know, this study seeks to examine attitudes towards various sexual behaviors. For this reason, each of the audiotaped scenarios will describe a sexually explicit interaction between a man and a woman. Please try to imagine each of the scenes as vividly as you can. Some of the audiotapes will describe scenes that switch from consensual sexual activity to nonconsensual or forced sexual behavior. Your task during this study is to immediately press the red button on the joystick if you feel that the person initiating sexual activity should stop making any further sexual advances. As a test of the joystick, please press the red button now. <Pause for 2 seconds>

Again, not all of the tapes will contain inappropriate sexual behavior, so please only press the button if you feel the person initiating sexual activity should stop making any further sexual advances. All of the cassette tapes will be played from start to finish regardless if the button is pressed or not. However, we do ask that you do listen to each tape in its entirety.

We realize that listening to some of these audiotapes may cause stress. However, we would like to remind you that if at any time you feel distressed and would like to discontinue, please just remove the headphones and alert the experimenter. There is no penalty for stopping and you can stop at any time.
Thank you once again for your participation in this study. After this tape has finished, the experimenter will give you an opportunity to ask questions or clarify these instructions. Please feel free to ask any questions you have at this time.
"What do you want to do tonight, Sue?", Jack asked, as he was flipping through the entertainment section of the paper. "There are a couple of movies playing that you said you wanted to see." "I don't feel like going to the theater tonight and being in the dark with a bunch of strangers," Sue replied. "Hey, I've got an idea! Let's head out to the drive-in!", she suggested. "Are you serious? I haven't been to a drive-in since I was trying to get laid in high school!", Jack replied. "Did it work?", Sue asked. "What do you think?", Jack countered. "I think you'll have much better luck tonight, if you play your cards right," Sue teased.

Sue told Jack she would pack a cooler, and she asked him to get a blanket to take with them. They packed up Jack's car and headed out. They pulled up to the gate, paid the cashier, and headed for the back of the lot. "Ah, just like the old days!", Jack bragged. "Yeah right," countered Sue. "What exactly happened on those dates in high school?" "You want me to show you?", Jack teased as he leaned over and kissed Sue lightly on the lips. "First, I'd pick a really secluded spot," Jack explained, as he pulled the car toward the back of the lot, well away from the other cars. He turned the engine off and rolled down his window. "I sure hope this one works," he said, as he grabbed the speaker box off the stand. He fiddled with the buttons for a minute or two and then the sound came through loud and clear. "Just in time for previews!", exclaimed Sue. She reached for the cooler and got them each a beer. "And now, back to your old high school stories," Sue suggested.

"Well, I'll tell you what, and I've never told anyone this--the car I had in high school, I actually broke the visor on the passenger side. Since it wouldn't stay up, my
Sue laughed out loud and moved closer. “Good one Casanova,” Sue said sarcastically. “What do ya want? I was only 16!,” Jack retorted. Jack reached over and put his hand on Sue’s knee. He began tracing circles on her thigh, moving up her leg. Sue turned toward Jack and kissed him deeply. They embraced one another and kissed for several minutes. Sue pulled away gasping and said, “Geez, who taught you to kiss like that?” “No one,” Jack replied, “I guess I was just a quick learner.” Sue handed Jack his beer and they settled into the seat and began to watch the movie. Jack held Sue’s hand and caressed the inside of her wrist. Sue moved her hand up and down Jack’s leg as they snuggled and watched the movie. After several minutes, they kissed again. Sue ran her fingers through his hair and licked his ear lobe. Jack massaged Sue’s nipples through her shirt. She let out a sigh. Jack unbuttoned her blouse as she moved her hand further up his leg. Jack untucked Sue’s blouse from her shorts and put his hand inside. He could feel her nipples begin to harden under his touch. Sue continued to rub his thigh and slowly moved her hand to his crotch. She moved her hand back and forth, increasing pressure with each stroke. Jack reached behind Sue and attempted to unfasten her bra. He made several unsuccessful attempts. Sue laughed and said, “Now I know why you were a virgin until college!” She reached behind her back and undid the clasp herself. Jack pushed her bra up and cupped her warm breasts in his hands. He leaned forward and kissed them lightly. “Oh, that’s nice,” Sue whispered. Sue undid the button on Jack’s shorts and unzipped them. She put her hand inside his shorts and rubbed his penis through his underwear. She could feel him become more and more aroused.
Jack pulled Sue closer and slid his hand inside her shorts. Sue moved his hand away and said playfully, “Hey, what kind of girl to you think I am?” “My kind of girl!,” Jack replied, as he unbuttoned her shorts. He gently slid his hand inside her underwear. “Maybe we should move this party to the backseat,” Sue suggested. “Like I said, you’re my kind of girl!,” Jack exclaimed. Sue pulled her shorts together and hopped across the front seat to the back. Jack was right behind her. “Why don’t you just wiggle on out of those shorts, sweet thing?,” Jack asked. “You first,” Sue replied. Jack took his shorts off in record time. Sue followed suit. Jack pushed Sue down onto the back seat and got on top of her. He eased himself between her legs to spread them apart and began to move his hips back and forth. She moved her hips in synch with his. They continued to kiss deeply. Jack kissed Sue’s neck and slowly moved down to her breasts. Jack continued down Sue’s body and pulled her underwear off. She lifted her hips to accommodate him. He pulled his underwear off as well. Then he lowered himself onto her again and gently moved his hips back and forth, this time more urgently. Sue raised her hips to meet his and took Jack’s penis in her hand. She carefully guided him into her. Jack moved back and forth until he was fully inside her. They moved with one another, kissing and caressing one another’s bodies. Their movements gradually became more insistent and more intense. “You feel so good,” Sue purred. “You are incredible” Jack whispered. They continued to express their pleasure to one another. Jack’s thrusts became more forceful as Sue’s breathing signaled her approach to climax. With a gasp, they both achieved orgasm at the same time. They lay there quietly for several minutes, wrapped in each others arms, trying to catch their breath. “High school was NEVER like that,” Jack exclaimed. Sue
laughed and said, “You just didn’t ask out the right girls.” “Well, I’m glad I finally met the right girl,” Jack said, as he kissed her softly on the cheek. When Jack gathered the strength to sit up, he cleared the steam off the window and peered out into the parking lot. “The coast is clear, hon,” Jack said, as he hopped into the front seat, shorts and underwear in hand. Sue pulled on her panties and shorts before joining him. They snuggled closely and Sue laid her head on Jack’s chest. “I really enjoyed the movie,” Sue whispered. “Me too,” Jack said, as he ran his fingers through her hair. “Me, too.”
Shelly was so excited! She was actually going to her first formal college dance. She and Brian had only been dating steadily for about a month. She was just a freshman so she was surprised and thrilled that he had asked her to his fraternity’s Winter formal. She was nervous with anticipation as Brian picked her up at her dorm; she couldn’t wait to see how the events of the night would unfold. She wanted Brian to really like her so tonight was very important. She wanted to make a good impression on his friends.

On the way to the dance, Brian stopped off at the liquor store. “Would you like anything special?” Brian asked. Being not much of a drinker, Shelly thought for a moment and replied, “No, I’ll share whatever you’re having.” Brian returned a short time later with a 12-pack of beer.

When they arrived at the party, the fraternity house was elaborately decorated. Brian opened two bottles of beer and handed one to Shelly. Brian motioned for her to clink bottles with him and said, “Here’s to us.” They smiled at each other and took sips from their drinks. After the first beer Shelly felt better, but she was still a little nervous. She didn’t know anyone at the party so she had another beer to help settle her nerves. After Brian introduced Shelly to a few of his fraternity brothers, he turned to her and said, “Would you like to come upstairs and see my room?” Shelly quickly
agreed; she was anxious to see where Brian lived, and she wanted to have some time
alone with him.

Brian's room was extremely small, but comfortable. “I know it's not much,”
Brian stated, “but at least I don't have to share it with anyone”. “It may be a little
small, but I like it,” Shelly replied, as she sat down on his bed. He asked her if she
would like to sit and talk for awhile before heading back down to the party. Shelly
smiled and said, “yes.” In fact, she was glad he suggested it because it would give
them a chance to spend some time alone.

Brian pulled two beers from the small refrigerator in his room and handed one
to Shelly. Shelly knew that she was already well past her limit, but took it so as not to
offend him. Brian put his arm around her as he sat next to her on the bed. They each
took long sips and then set their drinks down on the desk.

Shelly was sure he was about to make his first move, so she glanced up at him
and waited in anticipation. Brian leaned in close to her and kissed her lightly on the
mouth. She felt a tingle go through her body at the touch of his lips. Brian pulled her
close. He began to kiss her more insistently, and his hands began to move slowly over
Shelly's breasts and hips. The combination of the beer and Brian's soft caresses made
Shelly feel warm all over and she did not resist his advances. Soon his hands moved
down to her thighs and Shelly became a bit concerned about how fast Brian was
taking things. She thought to herself, “I know we both really like each other but I can't
let things get out of hand." Brian began to caress her thighs. He was so gentle; she really enjoyed the feel of his touch. Brian placed his hand on Shelly’s knee and moved his hand up her leg. Shelly was jolted back to reality and realized how far things had gone when she felt Brian touch her vagina. Shelly moved his hand away and tried to speak but Brian covered her mouth with his, and kissed her deeply. Brian began to caress her shoulders and told her how hot she looked and that he had been waiting all night to be alone with her. Shelly’s thoughts began to race. She knew the beer was really beginning to affect her, but she was feeling pretty aroused, too. Brian was so much more mature than the guys she dated in high school, and he was a much better kisser, too. Brian continued telling her how hot she was as he unzipped her dress. He told her he never felt this way for anyone else ever before. He sounded so sincere and seemed so self-assured that Shelly didn’t want to risk making him angry. She feared he might never call her again! Brian stood up, extended his hand, and asked her to dance. Shelly joined him and they wrapped their arms around each other as they swayed to the music. They kissed passionately. Brian pulled her dress forward, off her shoulders. Shelly thought, “Well, I can let him take off my dress, but nothing else.” Brian’s hands were so skillful that she barely felt her dress slide over her hips and onto the floor. Brian continued to kiss her as he began to remove his clothes as well. They laid back on the bed and kissed and petted for a long time. When Brian held her close, she could feel his erect penis rubbing up against her. She felt so
desirable knowing she had such an affect on him. Brian whispered that he wanted her from the first time he saw her.

Brian slowly removed her panties and began to caress the lips of her vagina. Shelly felt a surge of adrenaline as the tip of his finger penetrated her warm moist vagina. Shelly pushed down his boxers and began stroking his penis. In one motion, Brain rolled on to his back and pulled Shelly on top of him. They began to rub against one another while kissing passionately. Shelly was glad that she was on top. As good as things felt, she knew that they shouldn’t go all the way. She and Brian had never slept together and she didn’t want tonight to be their first time. “At least if I’m on top I’ll have some control,” Shelly thought. Soon Brian attempted to penetrate her. Shelly slid forward and told him “No.” She explained that she cared about him but didn’t want to go “All the way” tonight. Brian looked hurt and said, “I only want to sleep with you because I love you.” Shelly was shocked to hear those words from him but replied, “Well, if you love me you can wait. Cant you?” Brian began to caress her breasts with his hands as he gently pumped his hips. Shelly could feel the tip of his penis rubbing against the lips of her vagina. Brian said, “If you love me too then there’s no reason to wait.” As Shelly was trying to make sense of everything that was going on, she felt the tip of Brian’s penis penetrate her vagina. He raised his hips off the bed and penetrated her fully. Shelly was surprised at how quickly it all happened. She couldn’t believe he was actually inside her. This wasn’t the way things were
supposed to go, but she felt like it was too late to stop him now. Brian began thrusting in and out of her; he ejaculated quickly, without warning.

As she dressed, Shelly became increasingly upset. It all happened so fast; it felt like a dream. And then she realized they didn’t even use a condom! Brian said little to her as they headed back down to the party. All Shelly could think about was going home. She didn’t want to face all of those people at the party feeling so ashamed and confused.
Coercive Vignette

Heather and Todd were lab partners in chemistry class. They had gotten to be friends over the course of the semester and Heather had developed a huge crush on Todd. Heather knew that Todd had broken up with his girlfriend a few weeks ago but was still surprised, and flattered, when he asked her out on a date. They decided to have dinner at this little romantic Italian restaurant downtown. Todd told her to wear something comfortable because he had a surprise planned for her after dinner.

Todd was nervous as he knocked on her apartment door. As the door opened, he saw Heather standing there in a pretty floral sundress. Heather said, “Hi.” and invited him in. After a few minutes of small talk, they jumped in Todd’s jeep and headed downtown to the restaurant.

As they entered the restaurant, the scent of garlic and olive oil washed over them. The host promptly greeted them at the door and Heather was delighted by his Italian accent and the quaint, candle-lit surroundings. They were seated at an intimate table for two that was set in an out of the way corner of the restaurant. Todd ordered a bottle of dry red wine. As they talked, Heather was amazed by how much they had in common and how easy it was for her to open up to him. Both felt quite relaxed by the time dinner arrived. After they finished eating, Todd ordered a second bottle of wine and a dessert for the two of them to share. As they were waiting for the dessert to arrive, Todd slid his chair closer to Heather’s and took her hand. Heather felt a wave of excitement at his touch and flashed Todd a quick, knowing smile. When dessert arrived, they playfully fed one another bites until nothing but an empty plate remained.
After dinner, Todd asked Heather if she was ready for a little adventure. Heather was intrigued to find out what Todd had planned. It was a beautiful night so Todd removed the soft-top from the jeep before they drove off.

Todd pulled off the highway onto a narrow, dirt road which wound its way back to a small lake. Todd cut the engine, but left the radio on, playing softly. As they got out of the jeep, Todd retrieved a small picnic basket and blanket. Heather was flattered by the surprise and helped him spread the blanket on the ground. As they sat down, Heather said what a perfect evening it had been so far. The stars were shining, there was a big full moon and a warm summer breeze. Todd pulled a bottle of wine and two glasses out of the basket and asked Heather if she would care to join him. She said she would. With glasses in hand, Todd pulled Heather to her feet and began to slow dance with her. He stumbled from time to time and they both laughed until Todd spilled his glass of wine on the front of her dress. "Oh my gosh, look what I did!" Todd cried. "I hope it's not ruined. Why don't you take it off and I'll go try to wash the stain out." Heather, feeling self-conscious at first said, "But I barely know you!", and refused to remove her dress. Todd apologized and reassured her that her dress would be ruined if the stain wasn't rinsed immediately. After some hesitation, Heather removed her dress for Todd to rinse. Todd rinsed the dress in the lake and laid it upon some rocks to dry. He rejoined Heather and held her tightly as he apologized for spilling the wine. He wrapped his arms around her and began to caress her face. He ran his hand through her hair and pulled her close, kissing her passionately. Heather returned his caresses.

Todd was very turned on and began to move his hands slowly up and down her back.
Heather was feeling a little buzzed from the wine and was enjoying Todd's advances. Todd removed her bra and began to caress her breasts. Heather unbuttoned Todd's shirt and pulled it off of his body. They were swaying back and forth as the music played, enjoying long deep kisses. Todd moved his hands down Heather's body and slid his hand under her panties. Heather pushed his hand away and told Todd to slow down, that he was moving too fast. Todd pulled her to him and reassuringly whispered in her ear not to worry that he wouldn't go any further than she wanted. He began to lightly stroke her back as they swayed back and forth to the music. They continued to kiss and Heather began to relax. Todd unfastened his pants and they fell to the ground. He moved closer to her and began to rub his body against hers. She could feel his growing erection pressing up against her. Todd pulled her to the blanket, and they lay side by side kissing and caressing one another. Todd slid his hands under her panties, and again she told him to stop. Todd told her how much he wanted her and how beautiful she was. He continued to whisper to her to relax, that he wouldn't do anything she didn't want to do as he slid her panties off. As his advances became more insistent she tried to pull away from him. He held her tightly. Todd started to take off his underwear and Heather, becoming increasingly alarmed, tried again to pull away from him. She told Todd to stop and to let her up. He loosened his hold and she pulled away from him. "What's wrong?" Todd asked, "I thought we were just having fun." Heather told Todd that she was not ready to go all the way. Todd told her, "No problem." He patted the blanket for her to move closer, which she did. He pulled her to him and once again they began to kiss. Todd rolled on top of Heather again and began to move his hips against her. Heather told Todd to
stop and struggled to get out from underneath him. Todd kept rubbing his penis against her as he told her how badly he wanted her, that he had been thinking about this all day. Heather told him that she never sleeps with someone on a first date. Todd became upset and said, “You know, out here all alone, I could just take you if I wanted to.” Hearing those words, Heather felt frightened and very alone. She didn’t know Todd very well and had no idea what he was capable of. She stopped struggling as she realized that he might hurt her if he didn’t get what he wanted. Her lack of resistance made it easy for Todd to guide his penis into her vagina. Heather closed her eyes and started to cry. Todd didn’t acknowledge her cries and began thrusting violently as Heather just lay there. After ejaculating, Todd rolled off of her; Heather jumped up and ran toward where her dress lay, grabbing her bra and panties on the way. She sat down at the edge of the lake and continued crying. Todd got dressed and walked down to the water’s edge to where Heather was sitting. He put his hand on her shoulder and she pulled away, glaring at him. “What’s wrong with you?,” Todd asked. Heather just cried harder. “Come on, we gotta get going,” Todd said, as he headed back toward the jeep. Slowly, Heather finished dressing and walked up the path to the jeep. Heather reluctantly climbed into the idling vehicle. She barely got settled when Todd threw the jeep into gear and roared off.
Physical Force Vignette

Lisa is an 19-year-old sophomore at Western Michigan University. She and a group of their friends from the dorms went to a local bar after a football game. After a few drinks, Lisa got up the nerve to approach Matt, a popular junior in one of her classes. They began talking and after a few minutes, Matt asked her if she would like to dance. “I’d love to,” she replied. They danced and talked for the next several hours. Although Lisa wasn’t much of a drinker, the warm bar and non-stop dancing made her welcome the drinks that Matt bought for her.

At the end of the night, Matt asked Lisa for her number. She was thrilled that he appeared to be so interested in her and thought she would be the envy of all her friends if she began dating him.

As it turned out, Matt called Lisa the next afternoon. They talked on the phone for a while and agreed to meet later at the same bar they had been at the night before.

Lisa arrived alone at the bar, fashionably late. She found Matt playing pool at a table in the back of the bar with several of his buddies. Lisa approached the group and Matt greeted her enthusiastically. Lisa was thrilled to have so much attention paid to her by an upperclassman, especially in front of his friends. After an evening of playing pool and drinking, Matt offered to take her home when the bar closed. Matt told her there was one thing he needed to do before he dropped her off. He said he had to stop by a friends house to pick up a paper that was due the next day. He explained that his friend was supposed to leave it out for him so that all he had to do was run in and pick it up.
When they arrived at the apartment complex, he suggested she come up with him so that she would not have to sit alone in the car. She hesitated, and he teasingly asked if she was afraid he might take advantage of her. Lisa laughed and quickly agreed to join him.

Matt opened the door using the key his friend had lent him. After they entered the apartment, he looked around the living room and complained that the paper was no where to be found. “I guess we should just take a look around for it,” Matt said. Matt first entered the kitchen and got a beer from the refrigerator. As he returned to the living room, he offered her some. Lisa politely refused, and he gave her a dirty look. Matt asked her to help him look around the apartment for the paper. Lisa agreed to help and offered to recheck the living room. Lisa noticed that Matt quickly checked each of the bedrooms, one by one. After a few minutes, Matt returned to the living room and set his empty can on the coffee table. “I don’t know, I couldn’t find it anywhere,” Matt exclaimed. “Did you have any luck?” Lisa said she hadn’t, as she finished looking through a pile of papers and magazines. Once she finished sorting through them, Matt came over and sat next to her. He leaned over and kissed her. Lisa returned the kiss, but as Matt began to fondle her breasts through her blouse, she politely pushed him away. “I think we better slow down,” Lisa stated. Matt looked confused and said, "I thought you liked me. What's the problem?" Trying to sound confident and assertive, Lisa said, “Nothing, but since we can’t find the paper, we should probably just leave.” Matt laughed and told her "Relax, I won't go too far. Besides, my friend isn’t due home anytime soon." He then began kissing her
again. Lisa didn’t respond and tried to turn away from him. Lisa asked Matt to stop and tried to pull away. Matt let go of Lisa, and swore as he sat back on the couch. Lisa could see how upset Matt looked, but she was relieved that he stopped. Lisa relaxed for a moment, only to realize that Matt was leaning in towards her again. In an instant, Matt threw himself into her and knocked her backwards. Before Lisa could react, Matt had climbed on top of her, pinning her down on the couch. The weight of Matt’s body made it difficult to move but Lisa struggled and tried to push him off of her. Matt quickly grabbed both of her wrists, pinned them to the couch above her head, and held them there with one hand. His knees were clamped tightly around her waist, and he used his free hand to undo his pants. He quickly unzipped them and pulled them down. Lisa was scared and began to scream at Matt to stop. Matt used his free hand and clamped it down hard over her mouth. “If you scream again, you’ll be sorry,” Matt growled. He slowly removed his hand from her mouth, waiting to see if she would scream again. Lisa was so terrified that he might really hurt her that she remained silent. Matt then began to force himself between her legs. He forced his hand underneath her skirt and grabbed hold of her panties. In one quick motion, Matt tore them off her. He shoved his hand between her legs and used his fingers to part the lips of her vagina. He then slid his hips forward and forced his penis inside her. As Matt penetrated her, Lisa felt a searing pain pass through her body. The pain only got worse when he began to forcefully thrust himself in and out of her. Lisa began crying and struggled to get out from underneath him. Matt smiled, enjoying the added movement and said, “See, I knew you would get into
it once we started.” After what felt like an eternity, Matt ejaculated and only then released his hold of her. As Matt pulled out, Lisa sobbed and was scared to think what might happen next. Matt exclaimed, “I don’t know why some girls fight it at first when they know they are going to enjoy it.”

Matt rolled off of her and stood up. As he began to fix his clothes, Matt said, “I guess nice girls just can’t say ‘Yes’.” Lisa curled up into a ball and lay motionless on the couch for a while, sobbing quietly to herself. Matt told her to get dressed because they needed to head home.

As he drove her back to her dormitory, he talked casually to her as if nothing had happened. He seemed oblivious to the fact that she sat facing her car door, saying nothing. In front of her dorm, he leaned over and kissed her. Matt told her what a great time he had with her and told her that he’d call her soon.
Appendix C

Oral Recruitment Script
ORAL RECRUITMENT SCRIPT:
TO BE USED FOR PHASE ONE SUBJECT RECRUITMENT

"Hello, my name is _________ and I am here to ask for your help in completing a study that I am conducting regarding the relationship between attitudes towards rape and sexual behavior. In order to better understand this relationship, I need the help of students like yourselves who are willing to volunteer a little of their time. Participation in this study today will require that you spend approximately 15-20 minutes filling out a few different questionnaires. For most of you, that will be all that is asked of you. However, some of you may be contacted within the next two weeks and asked whether you would be willing to participate in a second phase of this study. Filling out the questionnaires today does not obligate you to continue to participate in this study should I ask you to do so. I want you all to feel comfortable being as open and honest as possible while filling out the questionnaires. Therefore, all of the information that I collect here today will be kept strictly confidential. To insure this, I ask that you place your name and telephone number on the consent page only, which is attached to the outside of the envelope. I will then ask you to fill out, detach, and hand in the consent form before you begin to fill out the questionnaires. The consent forms and questionnaires will be stored separately in a locked file cabinet. Only the student investigator or Dr. Lester Wright will be able to match your name with your responses and only so that we can contact some of you again. Remember, participation in this study is completely voluntary and you can stop at any time without penalty. If you are interested in participating, please take and fill out one of the questionnaire packets when they are handed out."

"Thank you for your time."
Appendix D

I understand that I have been invited to participate in a research project entitled, "Interest, Emotion, and Facial EMG Patterns". I understand that the purpose of this study is to examine the relationship between attitudes towards rape and sexual behavior and to assess the effects of sexually arousing stimuli on physiological indices. I further understand that this research will also serve as Scott Maieritsch's thesis project.

My consent to participate in this project indicates that I will fill out questionnaires which pertain to my sexual behavior, knowledge, and attitudes. After the questionnaires have been completed, I will be asked to listen to five different 4-minute audiotapes depicting various sexually explicit interactions which may be considered intense in nature. While listening to the audiotapes, I will have the activity of my facial muscles recorded via small electrodes. To allow such measurement to take place, an alcohol wipe will be used to clean the skin and the electrodes will be attached to the skin above and below my left eye. During each audiotape presentation, I will occasionally hear a brief burst of noise. The purpose of this noise burst is to activate my startle response. I understand that this entire session should take approximately 40 minutes to complete.

As in all research, there may be unforeseen risks to the participant. If an accidental injury occurs, appropriate emergency measures will be taken; however, no compensation or treatment will be made available to me except otherwise specified in this consent form. I understand that a potential risk of my participation is that I may experience some discomfort while listening to the audiotapes depicting sexual behavior or while completing questionnaires regarding my sexual behavior, knowledge, and attitudes. I also understand that if I choose to do so, I can withdraw from the study at any time and for any reason without penalty or prejudice. I understand that both Mr. Maieritsch and Dr. Wright are prepared to provide crisis counseling should I experience undue discomfort and that they are prepared to make an appropriate referral if I need further counseling on this topic. However, I will be responsible for the cost of therapy should I choose to pursue it.

I understand that all information collected from me will be kept strictly confidential. I understand that confidentiality will be maintained through the use of code numbers and that no questionnaire that I fill out will ever have my name or other identifying information on it. My signature will only appear on this consent page, which will be kept separate from all data collected today and stored in a locked file in Dr. Wright's lab. I further understand that only the primary and student investigators will be able to match my responses to my name. All forms containing data will be retained for three years in a locked file in the primary investigator's lab.

If I have any questions or concerns about this study, I may contact either Dr. Lester Wright at 616-387-8345 or Scott Maieritsch at 616-373-8307. I may also contact the Chair of Human Subjects Institutional Review Board at 616-387-8293 or the Vice President for Research at 616-387-8298 with any concerns I may have. By signing below, I am giving my consent to participate in this study.

Signature

Date
I understand that I have been invited to participate in a research project entitled, "Interest, Emotion, and Facial EMG Patterns". I understand that the purpose of this study is to examine the relationship between attitudes towards rape and sexual behavior. I further understand that this research will also serve as Scott Maieritsch's thesis project.

My consent to participate in this project indicates that I will fill out questionnaires that pertain to my sexual behavior, knowledge, and attitudes. I understand that these questionnaires will take approximately 20 minutes to complete. Additionally, I understand that I may be contacted in the future to participate in a future phase of this study.

As in all research, there may be unforeseen risks to the participant. If an accidental injury occurs, appropriate emergency measures will be taken; however, no compensation or treatment will be made available to me except otherwise specified in this consent form. I understand that a potential risk of my participation is that I may experience some discomfort in being asked questions regarding my sexual behavior, knowledge, and attitudes. I also understand that I can withdraw from the study at any time and for any reason without penalty or prejudice. I understand that both Mr. Maieritsch and Dr. Wright are prepared to provide crisis counseling should I experience undue discomfort and that they are prepared to make an appropriate referral if I need further counseling on this topic. However, I will be responsible for the cost of therapy should I choose to pursue it.

I understand that all information collected from me will be kept strictly confidential. I understand that confidentiality will be maintained through the use of code numbers and that no questionnaire that I fill out will ever have my name or other identifying information on it. Both my name and code number will only appear on this consent page, which will be separated from the questionnaire data and kept in a locked file in Dr. Wright's lab. I further understand that only the principal and student investigator will be able to match my responses to my name. All forms containing data will be retained for three years in a locked file in the primary investigator's lab.

If I have any questions or concerns about this study, I may contact either Dr. Lester Wright at 616-387-8345 or Scott Maieritsch at 616-387-8307. I may also contact the Chair of Human Subjects Institutional Review Board at 616-387-8293 or the Vice President for Research at 616-387-8298 with any concerns I may have. By signing below I am giving my consent to participate in this study.

Name ___________________________ Phone Number ___________________________
Signature ___________________________ Date ___________________________
Appendix E

Informed Consent 3/19/1999
I understand that I have been invited to participate in a research project entitled, "Interest, Emotions and Patterns." I understand that the purpose of this study is to examine the relationship between attitudes towards rape and sexual behavior and to assess the effects of sexually arousing stimuli on physiological indices. I further understand that this research will also serve as Scott Maieritsch's thesis project.

My consent to participate in this project indicates that I will fill out questionnaires which pertain to my sexual behavior, knowledge and attitudes. After the questionnaires have been completed, I will be asked to listen to an instruction tape and five different 4-minute audiotapes depicting various sexually explicit interactions which may be considered intense in nature. While listening to the audiotapes I will have the activity of my facial muscles recorded via small electrodes. To allow such measurement to take place, an alcohol wipe will be used to clean the skin and the electrodes will be attached to the skin above and below my left eye. During each audiotape presentation I will occasionally hear a brief burst of noise. The purpose of this noise burst is to activate my startle response. I understand that this entire session should take approximately 40 minutes to complete and I will be paid ten dollars for my participation.

As in all research, there may be unforeseen risks to the participant. If an accidental injury occurs, appropriate emergency measures will be taken; however, no compensation or treatment will be made available to me except otherwise specified in this consent form. I understand that a potential risk of my participation is that I may experience some discomfort while listening to the audiotapes depicting sexual behavior or while completing questionnaires regarding my sexual behavior, knowledge, and attitudes. I also understand that if I choose to do so, I can withdraw from the study at any time and for any reason without penalty or prejudice and will still be paid for my participation. I understand that both Mr. Maieritsch and Dr. Wright are prepared to provide crisis counseling should I experience undue discomfort and that they are prepared to make an appropriate referral if I need further counseling on this topic. However, I will be responsible for the cost of therapy should I choose to pursue it.

I understand that all information collected from me will be kept strictly confidential. I understand that confidentiality will be maintained through the use of code numbers and that no questionnaire that I fill out will ever have my name or other identifying information on it. My signature will only appear on this consent page, which will be kept separate from all data collected today and stored in a locked file in Dr. Wright's lab. I further understand that only the primary and student investigators will be able to match my responses to my name. All forms containing data will be retained for three years in a locked file in the primary investigator's lab.

If I have any questions or concerns about this study, I may contact either Dr. Lester Wright at 616-387-4472 or Scott Maieritsch at 616-387-4081. I may also contact the Chair of Human Subjects Institutional Review Board at 616-387-8293 or the Vice President for Research at 616-387-8298 with any concerns I may have.

This consent document has been approved for use for one year by the Human Subjects Institutional Review Board as indicated by the stamped date and signature of the board chair in the upper right corner. Subjects should not sign this document if the corner does not have a stamped date and signature.

My signature below indicates that I have read and/or had explained to me the purpose and requirements of the study and that I agree to participate.

Signature

Consent obtained by: ____________________________
initials of researcher

Date

Date
I understand that I have been invited to participate in a research project entitled, “Interest, Emotion, and Facial EMG Patterns”. I understand that the purpose of this study is to examine the relationship between attitudes towards rape and sexual behavior. I further understand that this research will also serve as Scott Maieritsch's thesis project.

My consent to participate in this project indicates that I will fill out questionnaires that pertain to my sexual behavior, knowledge, and attitudes. I understand that these questionnaires will take approximately 20 minutes to complete. Additionally, I understand that I may be contacted in the future to participate in a future phase of this study.

As in all research, there may be unforeseen risks to the participant. If an accidental injury occurs, appropriate emergency measures will be taken; however, no compensation or treatment will be made available to me except otherwise specified in this consent form. I understand that a potential risk of my participation is that I may experience some discomfort in being asked questions regarding my sexual behavior, knowledge, and attitudes. I also understand that I can withdraw from the study at any time and for any reason without penalty or prejudice. I understand that both Mr. Maieritsch and Dr. Wright are prepared to provide crisis counseling should I experience undue discomfort and that they are prepared to make an appropriate referral if I need further counseling on this topic. However, I will be responsible for the cost of therapy should I choose to pursue it.

I understand that all information collected from me will be kept strictly confidential. I understand that confidentiality will be maintained through the use of code numbers and that no questionnaire that I fill out will ever have my name or other identifying information on it. Both my name and code number will only appear on this consent page, which will be separated from the questionnaire data and kept in a locked file in Dr. Wright’s lab. I further understand that only the principal and student investigator will be able to match my responses to my name. All forms containing data will be retained for three years in a locked file in the primary investigator’s lab.

If I have any questions or concerns about this study, I may contact either Dr. Lester Wright at 616-387-4472 or Scott Maieritsch at 616-387-4081. I may also contact the Chair of Human Subjects Institutional Review Board at 616-387-8293 or the Vice President for Research at 616-387-8298 with any concerns I may have.

This consent document has been approved for use for one year by the Human Subjects Institutional Review Board as indicated by the stamped date and signature of the board chair in the upper right corner. Subjects should not sign this document if the corner does not have a stamped date and signature.

My signature below indicates that I have read and/or had explained to me the purpose and requirements of the study and that I agree to participate.

Name ____________________________ Phone Number ____________________________

Signature ____________________________ Date ____________________________

Consent obtained by: initials of researcher ____________________________ Date ____________________________
Appendix F

WMU HSIRB Approval Forms
Date: 5 March 1998

To: Lester Wright, Principal Investigator
Scott Maieritsch, Student Investigator

From: Richard Wright, Chair

Re: HSIRB Project Number 97-12-10

This letter will serve as confirmation that your research project entitled "Interest, Emotion, and Facial EMG Patterns" has been approved under the full category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note that you may only conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: 5 March 1999
Date: 28 July 1998

To: Lester Wright, Principal Investigator
    Scott Maieritsch, Student Investigator

From: Richard Wright, Chair (CA [Richard Wright])

Re: Changes to HSIRB Project Number 97-12-10

This letter will serve as confirmation that the changes to your research project “Interest, Emotion, and Facial EMG Patterns” requested in your memo dated 20 July 1998 have been approved by the Human Subjects Institutional Review Board.

The conditions and the duration of this approval are specified in the Policies of Western Michigan University.

Please note that you may only conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: 5 March 1999
Western Michigan University's policy states that "the HSIRB's review of research on a continuing basis will be conducted at appropriate intervals but not less than once per year." In compliance with that policy, the HSIRB requests the following information:

**PROJECT TITLE:** Interest, Emotion, and Facial EMG Patterns  
**HSIRB Project Number:** 99-12-10 - 7-7-12-10 - 3/2/99  
**Date of Review Request:** 02/24/99  
**Date of Last Approval:** 03/05/98

**PRINCIPAL INVESTIGATOR OR ADVISOR**  
**Name:** Lester Wright, Ph.D.  
**Department:** PSCYH  
**Electronic Mail Address:** lester.wright@wmich.edu

**CO-PRINCIPAL OR STUDENT INVESTIGATOR**  
**Name:** Scott Maieritsch, B.A.  
**Department:** PSYCH  
**Electronic Mail Address:** x96maieritsc@wmich.edu

1. **The research, as approved by the HSIRB, is completed.**  
   - Yes (Continue with items 5-7 below.)  
   - No (Continue with items 2-5 below.)

2. **Have there been changes in Principal or Co-Principal Investigators?**  
   - Yes  
   - No
   (If yes, provide details on an attached sheet.)

3. **Is the approved protocol still accurate and being followed with respect to:**  
   a. Procedures  
   b. Subjects  
   c. Design  
   d. Data collection  
   - Yes  
   - No
   (If no to any item below, provide the details on an attached sheet.)

4. **Has any instrumentation been modified or added to the protocol?**  
   - Yes  
   - No
   (If yes, attach new instrumentation or indicate the modifications made.)

5. **Have there been any adverse events which need to be reported to the HSIRB?**  
   - Yes  
   - No
   (If yes, provide details on an attached sheet.)

6. **Current total number of subjects enrolled:** 00127  
   **Current number of subjects in the control group:** 00023

7. **Provide copies of the consent documents signed by the last two subjects enrolled in the project. Cover the signature in such a way that the name is not clear but there is evidence of signature. If subjects are not required to sign the consent document, provide a copy of the most current consent document being used.**  
   (Remember to include a clean original of the consent documents to receive a renewed approval stamp.)

---

**Principal Investigator/Faculty Advisor Signature**  
**Date:** 2/25/99

**Co-Principal or Student Investigator Signature**  
**Date:** 2/25/99

**Approved by the HSIRB:**  
**HSIRB Chair Signature**  
**Date:** 3/19/99

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Revised 5/98  
WMU HSIRB  
All other copies obsolete
Date: 29 June 1999

To: Lester Wright, Principal Investigator
Scott Maieritsch, Student Investigator for thesis

From: Sylvia Culp, Chair

Re: Changes to HSIRB Project Number 97-12-10

This letter will serve as confirmation that the changes to your research project “Interest, Emotion, and Facial EMG Patterns” requested in your memo dated 15 June 1999 have been approved by the Human Subjects Institutional Review Board.

The conditions and the duration of this approval are specified in the Policies of Western Michigan University.

Please note that you may only conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: 19 March 2000


