WALK THIS WAY: NONVERBAL BEHAVIOR AND PERCEIVED VULNERABILITY TO SEXUAL VICTIMIZATION

by

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(Under the Direction of Joan Jackson)

ABSTRACT

Sexual aggression is a serious problem in our society generally and on our college campuses specifically. This dissertation examined perceived vulnerability as a risk factor for sexual victimization in college women and tested the impact of gait movement on perceptions of vulnerability. A sample of college women (N = 157) were recorded from behind while walking in a public area, and these participants completed self-report measures of sexual victimization, assertiveness, and posttraumatic stress disorder symptoms. Trained members of the research team coded participant's gait (i.e., stride length, weight shifts, body movement, foot movement, and type of walk). A second sample of college men (N = 258) provided ratings of perceived vulnerability to sexual assault and completed self-report measures of psychopathy and sexual assault perpetration. Women who had reportedly experienced a past sexual assault were rated as more vulnerable and coded as walking in an uncoordinated manner (i.e., stride that was too long or too short for their height, unilateral movement, nonlateral weight shifts, gestural movements, lifting feet too high). Men who reported a history of sexual assault perpetration and men who scored higher on psychopathy were more accurate in their ratings of vulnerability.

INDEX WORDS: Sexual assault, Rape, Psychopathy, Victimization, Perpetration, Nonverbal behavior, Gait, Movement

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A Dissertation Submitted to the Graduate Faculty of the University of Georgia in Partial Fulfillment of the Requirement for the Degree

DOCTOR OF PHILOSOPHY

ATHENS, GA

2013

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August 2014

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# CHAPTER 1

## OVERVIEW

Sexual violence is a significant problem in the United States. Between 10-18% of American women report a lifetime history of rape victimization (Basile, Chen, Black, & Saltzman, 2007; Kilpatrick, Resnick, Ruggiero, Conoscenti, & McCauley, 2007) and when sexual victimization is defined as any unwanted sexual contact, approximately 50% of women report a history of sexual assault (Fisher, Cullen, & Turner, 2000; Koss, Gidycz, Wisniewski, 1987). Experiencing a sexual victimization is associated with negative psychological outcomes, including fear, depression, posttraumatic stress disorder, decreased self-esteem and interpersonal problems (Kearns & Calhoun, 2010; Kessler, Sonnega, Bromet. Hughes, & Nelson, 1995; Resnick, Kilpatrick, Dansky, Saunders & Best, 1993).

Perhaps one of the most devastating consequences of experiencing violence is increased risk of future victimization, termed revictimization. In fact, substantial continuity exists between victimization at different points along the life course and different forms of victimization (Abramsky et al., 2011; Cloitre, Tardiff, Marzuk, & Leon, 1996; Gidycz, Coble, Latham, & Layman, 1993; Humphrey & White, 2000; Kilpatrick, Acierno, Resnick, Saunders, & Best, 1997; Tjaden & Thoennes, 2000). Women's exposure to violence is, therefore, not randomly distributed across the population. Rather, a substantial percentage of women will never experience a serious assault, but those who do tend to be chronically victimized (Menard, Mihalic, & Huizinga, 2001).

In recent decades, increased empirical attention has focused on understanding risk factors for sexual victimization and the cycle of revictimization. Why do some women experience a

sexual victimization and why are some women repeatedly victimized? To answer these questions, it is necessary to understand the factors that increase risk for both victimization and revictimization. Although perpetrators are responsible for all acts of violence, research suggests that certain factors increase women's likelihood of being victimized. First, engagement in behaviors that increase contact with perpetrators is believed to place women at increased risk for victimization (Schwartz & Pitts, 1995; Testa, Hoffman, & Livingston, 2010). Second, women who are able to identify and effectively respond to cues that predict future sexual aggression may be less likely to be victimized (Marx et al., 1998; Marx, Calhoun, Wilson, & Meyerson, 2001; Meadows, Jaycox, Stafford, Hembree, & Foa, 1995; Wilson, Calhoun, Bernat, 1999; Yeater et al., 2010). Finally, some women may be targeted because they are perceived as vulnerable (i.e., "easy" targets) by would-be perpetrators (Cloitre, Scarvalone, & Difede, 1997; Cloitre & Rosenberg, 2006; Messman-Moore & Long, 2003). This suggestion is consistent with the rational choice approach to crime, which proposes that criminals will choose victims who appear vulnerable in an effort to reduce the possible costs associated with criminal behavior (Becker, 1968; Cornish, 1993; Klepper & Nagin, 1989; Paternoster, 1987). To date, most research in this area has focused on the first two mechanisms so much less is known about the role of perceived vulnerability as a risk factor for sexual assault.

The dominant models that have been proposed to explain revictimization focus on the role of the traumatic sequelae of earlier victimization in producing risk for later victimization by impacting women's threat detection, behavioral responding, exposure to potential perpetrators, and perceived vulnerability (Chu, 1992; Cloitre, 1998; Finkelhor & Browne, 1985; Messman-Moore & Long, 2003). For example, experiencing a past victimization may increase women's exposure to potential perpetrators because victims report having a greater number of sex partners

than do nonvictims (Messman-Moore & Long, 2003). Victims may also be at increased risk for revictimization because traumatic sequelae of previous victimizations (e.g., depression, PTSD symptoms, low self-esteem, low assertiveness) decrease their awareness or ability to respond to risky situations (Chu, 1992; Cloitre, 1998; Messman-Moore & Long, 2003). Traumatic sequelae may also confer risk for revictimization by increasing perceived vulnerability (Cloitre et al., 1997; 2006; Messman-Moore & Long, 2003). For example, traumatic sequelae from a previous victimization may cause a woman to appear distracted, unsure of herself, or disorientated, causing her to be perceived as more vulnerable and, thus, targeted by potential perpetrators (Cloitre et al., 1997; 2006; Messman-Moore & Long, 2003). Consistent with research on initial victimizations, very little is known about the role of perceived vulnerability in the cycle of revictimization. This dissertation empirically tested the association between perceived vulnerability and sexual victimization as well as the traumatic sequelae model of revictimization. By incorporating intriguing research from the nonverbal communication literature, it examined a nonverbal mechanism by which sexual victimization may be associated with perceived vulnerability and, therefore, increased risk for revictimization. The results have implications for risk-reduction interventions that aim to prevent initial victimizations and interrupt the cycle of revictimization.

Preliminary research in the area of nonverbal communication suggests that perceived vulnerability to interpersonal violence is related to a specific gait profile (Grayson & Stein, 1981) that can be identified reliably by observers. The gait profile was developed by asking male inmates to watch videos of individuals walking and to characterize their vulnerability to assault (Grayson & Stein, 1981). Inmates showed strong consensus about which walkers they would choose to victimize. Walkers who were perceived to be vulnerable tended to move in an

uncoordinated manner, with a stride that was too short or too long for their height. Nonvictims, in contrast, displayed a more coordinated walk, a normal stride length, and foot movement and shifts of body weight showing synchrony. Grayson and Stein's (1981) profile has been replicated using diverse samples, and judgments of vulnerability seem to be correlated with self-reported victimization, meaning that individuals who are judged to be vulnerable are more likely to report a history of victimization (Sakaguchi & Hasegawa, 2007; Wheeler, Book & Costello, 2009). Therefore, the nonverbal behaviors described in Grayson and Stein's (1981) profile seem to be associated with perceived vulnerability as well as a history of victimization.

These results are consistent with the kinematic specification of dynamics principle (Runeson & Frykholm, 1983), which proposes that nonverbal behavior is determined by the mover's psychological as well as physical characteristics. Therefore, an observer can obtain information about an individual's internal state from their movement and judgments of perceived vulnerability may reflect information about the walker's internal state as well as external characteristics. In fact, studies replicating Grayson and Stein's (1981) profile have found that a variety of internal characteristics (i.e., walker's personality, imaging walking in dangerous environment) impact judgments of perceived vulnerability (Johnston, Hudson, Richardson, Gunns, & Gamer, 2004; Sakaguchi & Hasegawa, 2006). If these internal characteristics impact nonverbal behavior and, thus, perceived vulnerability, then traumatic sequelae may also increase perceived vulnerability and, by extension, risk of revictimization. Studies of emotional body language support this prediction by suggesting that nonverbal behavior communicates information about emotional state as well as other physical and psychological characteristics (Hadjikhani & de Gelder, 2003; Meeren, van Heijnsbergen, & de Gelder, 2005; Wallbott & Scherer, 1986). By extending the current research to examine the impact of traumatic sequelae

on the nonverbal characteristics of Grayson and Stein's (1981) profile and perceived vulnerability to sexual assault, this study is the first to empirically test Cloitre et al. (1997; 2006) and Messman-Moore and Long's (2003) perceived vulnerability model of revictimization.

Finally, studies linking nonverbal behavior to perceived vulnerability have yet to examine the impact of perpetration history on judgments of perceived vulnerability. Since perceived vulnerability has been suggested to be an important component in victim selection decisions (Cloitre et al., 1997; 2006; Messman-Moore & Long, 2003), it is important to more fully understand how perpetrators make these judgments. Existing research with incarcerated serial sex offenders has identified vulnerability as an important factor in victim selection decisions (Beauregard, Rossmo, & Proulx, 2007; Stevens, 1998). The vast majority of rapes go unreported and unprosecuted (Fisher, Daigle, Cullen, & Turner, 2003) and incarcerated samples, therefore, comprise only a small subset of sexually aggressive individuals. The current study expands our understanding of the role of perceived vulnerability by using a sample of non-incarcerated sexual assault perpetrators. Specifically, Wheeler et al. (2009) found that psychopathy was related to more accurate judgments of perceived vulnerability (i.e., assigned higher levels of perceived vulnerability to walkers who reported a previous victimization). If perpetrators can also accurately identify women who have a history of sexual victimization and perceive these women as more vulnerable, then this may help explain why some women are repeatedly victimized. Therefore, the current dissertation will test the impact of perpetration status among non-incarcerated raters on the accuracy of perceived vulnerability judgments.

The paucity of research examining the impact of perceived vulnerability generally, and this nonverbal profile specifically, likely reflects a lack of awareness of nonverbal communication literature combined with a desire to avoid victim blaming. While concerns about

victim blaming are always legitimate and perpetrators are solely responsible for their actions, it is important to identify risk factors, such as perceived vulnerability, that may increase women's likelihood of being victimized or revictimized. By expanding our understanding of risk factors we can develop more effective risk reduction programs and potentially intervene to disrupt the cycle of revictimization. The current dissertation aimed to greatly expand our understanding of perceived vulnerability and the role of nonverbal behavior in sexual victimization and hopefully spur future and continued study in this area.

# CHAPTER 2

## TERMINOLOGY AND PREVALENCE OF SEXUAL VIOLENCE

The World Health Organization has defined sexual violence as "any sexual act, attempt to obtain a sexual act, unwanted sexual comments or advances, or acts to traffic, or otherwise directed, against a person's sexuality using coercion" (p. 149; Krug, Dahlberg, Mercy, Zwi, & Lozan, 2002). *Coercion* encompasses a broad spectrum of actions ranging from physical to psychological intimidation to nonconsensual sexual contact that occurs as a result of intoxication (Krug et al., 2002). The definition suggests that sexual violence exists along a continuum of severity. The term *sexual assault* encompasses victimization along the full spectrum of severity, including fondling, kissing, and vaginal, oral, and anal penetration obtained through force, threat of force, or verbal coercion. Typically the term *rape* is reserved to describe nonconsenting oral, anal, or vaginal penetration obtained by force, threat of force, or when the victim is incapable of giving consent (Bureau of Justice Statistics, 1995; Koss, 1992). The more restrictive definition is largely consistent with the types of sexually violent acts that meet legal definitions of rape (Federal Criminal Code, Title 18, Chapter 109A, Sections 2241-2233). Among the lay public, conceptualizations of sexual violence tend to be restricted to the culturally disvalued types of sexual violence that are criminalized (i.e., rape) while other types of sexual violence are considered more acceptable and are not only tolerated but also sometimes condoned (Post, Biroscak, & Barboza, 2011).

Two recent studies that utilized national probability sampling techniques found that 10-18% of American women report a lifetime history of rape victimization (Basile, Chen, Black, & Saltzman, 2007; Kilpatrick, Resnick, Ruggiero, Conoscenti, & McCauley, 2007). However,

when sexual victimization is defined as any unwanted sexual contact, approximately 50% of women report a history of sexual assault (Fisher, Cullen, & Turner, 2000; Koss, Gidycz, Wisniewski, 1987). A great deal of research in the area of sexual victimization has been conducted with female college students. In the first national study of sexual assault on college campuses, Koss, Gidycz, and Wisniewski (1987) reported that 55% of college women endorsed sexual assault victimization since the age of 14, 12% attempted rape victimization, and 16% completed rape victimization. Despite growing national attention to the problem of sexual violence, the rate at which college women report sexual victimization has not decreased since this watershed study was published nearly 30 years ago. According to a recent national survey conducted by the National Institutes of Justice, approximately 20-25% of women reported experiencing an attempted or completed rape over the course of their college career (Fisher et al., 2000). College women report higher rates of sexual victimization than their age-matched non-college peers (Fisher et al., 2000; Rickert, Vaughan, & Wiemann, 2002). Rates of sexual victimization are variable across the college years, with the greatest risk present during freshman year (Flack et al., 2008; Humphrey & White, 2000).

Perhaps one of the most devastating consequences of experiencing violence is increased risk of experiencing a future victimization, termed *revictimization*. In fact, substantial continuity exists between victimization at different points along the life course and different forms of victimization (Abramsky et al., 2011; Cloitre, Tardiff, Marzuk, & Leon, 1996; Gidycz, Coble, Latham, & Layman, 1993; Humphrey & White, 2000; Kilpatrick, Acierno, Resnick, Saunders, & Best, 1997; Tjaden & Thoennes, 2000). Women's exposure to violence is, therefore, not randomly distributed across the population. Rather, a substantial percentage of women will never

experience a serious assault, but those who do tend to be chronically victimized (Menard et al., 2001).

Regarding sexual victimization specifically, sexual assault in adulthood has also been strongly linked to abuse experiences in childhood (Arata, 2000; Desai, Arias, Thomson, & Basile, 2002; Doll, Koenig, & Purcell, 2004; Irwin, 1999). Childhood sexual abuse (CSA) has been found to increase risk for sexual revictimization in adulthood (Classen, Palesh, & Aggarwal, 2005; Rich, Combs-Lane, Resnick, & Kilpatrick, 2004). In general, CSA victims are between 2 and 11 times more likely to be raped in adulthood, with risk increasing significantly with severity of CSA. CSA also confers risk for other forms of adult interpersonal victimization including physical assault and psychological abuse (Messman-Moore & Long, 2000; Noll, 2005). Roodman and Clum (2001) meta-analyzed 19 studies of the impact of childhood abuse on adult revictimization and found a medium-sized effect (d = .59). Severity of childhood abuse moderated the effect, with broader definitions of abuse (i.e., those encompassing non-contact abuse) being related to smaller effects (d = .38) relative to narrow definitions (d = .64).

A history of previous adult sexual victimization has been found to be a powerful predictor of future sexual revictimization. For example, Gidycz et al. (1993) measured the impact of sexual victimization on risk for future revictimization among a sample of college undergraduate women. Participants who reported a sexual assault during the first 3 months of the study were 3 times more likely to be assaulted during the next 3 months, and women who reported being victimized between the 3 and 6 month follow-up assessments were 20 times more likely to be victimized during the 9 month follow-up period compared to women who were not victimized during these time periods. Several additional prospective studies have confirmed that a history of adult sexual victimization confers substantial risk of future revictimization among

college, community, and treatment-seeking samples (Humphrey & White, 2000; Kilpatrick et al., 1997; Miller, Canales, Amacker, Backstrom, & Gidycz, 2011).

# CHAPTER 3

# THEORETICAL MODELS OF SEXUAL VICTIMIZATION AND REVICTIMIZATION

While victim-blaming concerns are legitimate, the identification of factors that increase women's risk of experiencing sexual victimization is an important goal of research in this area and underlies the development of effective risk-reduction programs. A great deal is now known about factors that increase risk of sexual victimization, including engagement in behaviors that increase exposure to potential perpetrators, deficits in threat detection, deficits in effective behavioral responding, and perceived vulnerability to exploitation. These factors also seem to confer risk of future revictimization and may be exacerbated by the traumatic sequelae of past victimizations, such that each new victimization increases the risk of continued revictimization.

## Traumagenic Dynamics Model

Finkelhor and Browne (1985) proposed the concept of *traumagenic dynamics*, defined as adverse consequences of CSA (i.e., traumatic sexualization, betrayal, powerlessness, and stigmatization) that contribute to the problems commonly experienced by victims, including revictimization. Specifically, traumatic sexualization refers to a process by which a child's sexualization is shaped in a developmentally inappropriate and interpersonally dysfunctional manner by sexual abuse. Traumatic sexualization impacts adult sexuality in one of two ways. CSA victims either develop a fearful and/or avoidant approach to adult sexual activity or they experience heightened interest. The authors suggested that the experience of heightened interest predisposed women to having a greater number of sex partners in adulthood. Betrayal and powerlessness were proposed to contribute to many negative outcomes described by adult

survivors, including difficulty trusting others, anger, anxiety, depression, and hopelessness. Finally, stigmatization occurs when the child incorporates a stigmatized view of herself as guilty, bad, damaged, impure, and different. The authors suggested that stigmatization is related to suicide attempts, self-harm behavior, low self-esteem, and substance abuse. Therefore, Finkelhor and Browne (1985) suggested that these traumagenic dynamics increase risk for future victimization via associated psychological and behavioral sequelae, including greater number of sexual partners, increased psychological distress, and increased substance use.

## Behaviors that Increase Contact with Potential Perpetrators

Experiencing a sexual victimization is an inherently interpersonal phenomenon that cannot occur unless victims come into contact with a potential perpetrator. Therefore, it is not surprising that many theorists have identified behaviors that increase women's contact with potential perpetrators as conferring risk for sexual victimization. Building on the model proposed by Finkelhor and Browne (1985), Messman-Moore and Long (2003) also suggested two mechanisms through which traumatic sequelae may operate to increase risk for revictimization by increasing a woman's future exposure to potential perpetrators. Specifically, the authors proposed that victimization can result in increases in women's number of sex partners and alcohol use, which results in greater exposure to potential perpetrators. Number of sex partners is positively correlated with self-reported history of sexual victimization (Abbey, Ross, McDuffie, & McAuslan 1996; Testa, Hoffman, & Livingston, 2010). Consistent with Finkelhor and Browne's (1985) traumatic sexualization concept, more frequent sexual contact is believed to be one method of coping with past sexual trauma. A high number of sex partners may also increase

risk of future victimization by increasing the likelihood that a woman will be exposed to a perpetrator.

Messman-Moore and Long (2003) also proposed that victimization might increase exposure to potential perpetrators (and therefore increase risk for future victimization) by impacting alcohol use. Specifically, some victims may use alcohol to cope with psychological distress that can result from sexual assault (Miranda et al., 2002), and, therefore, victimization may predict increased alcohol use. Several prospective studies have found that experiencing a sexual assault predicts increased alcohol consumption (Humphrey & White, 2000; McCauley et al., 2009); however, others have not (Gidycz, Loh, Rich, Lynn, & Pashdag, 2007; Parks, Hsieh, Bradizza, & Romosz, 2008; Mouilso, Fischer, & Calhoun, 2012). Although data are inconsistent regarding changes in alcohol use following sexual victimization, studies overwhelmingly demonstrate that women who use alcohol are more likely to report a history of sexual assault (Bensley, Eenwyk, & Simmons, 2000; Champion, Foley, DuRant, Hensberry, Altman, & Wolfson, 2004; Kilpatrick, Edmunds, & Seymour, 1992; McMullin & White, 2006; Wilsnack, Vogeltanz, Klassen, & Harris, 1997). Additionally, studies with college students consistently find that the majority of both victims and perpetrators reported they were drinking at the time of the sexual assault (Abbey, 2002; Frintner & Rubinson, 1993; Grey, Lesser, Rebach, Hooks, & Bounds, 1988; Koss, Dinero, Seibel, & Cox, 1988; Miller & Marshall, 1987). Greater alcohol consumption also predicts sexual assault (Greene & Navarro, 1998; Mouilso et al., 2012; Testa, VanZile-Tamsen, & Livingston, 2007). Therefore, although results are mixed regarding the impact of sexual assault on alcohol use, alcohol use increases risk for sexual assault.

Consistent with Messman-Moore and Long's (2003) model, frequent alcohol use seems to increase risk for victimization, in part by exposing women to potential perpetrators. For

example, Schwartz and Pitts (1995) proposed a feminist version of routine activities theory (Cohen & Felson, 1979), which suggests that a lifestyle that includes frequent drinking confers risk for victimization via multiple pathways that are distinct from the risk conferred by drinking behavior itself (i.e., due to impaired behavioral responding and risk recognition). Women who consume alcohol are also more likely to be viewed as low-risk targets and approached by potential perpetrators. Women who have been drinking are also perceived as more sexually disinhibited and available than sober women (George, Cue, Lopez, Crowe, & Norris, 1995), and this expectation may put women at risk for unwanted sexual advances and misperception of refusal cues when they have consumed alcohol (Norris, 1994). In fact, men are less likely to believe that forced or coerced sex with an intoxicated woman is rape (Norris & Cubbins, 1992). In addition, drinking typically occurs in environments away from the supervision of suitable guardians (i.e., bars, parties), which increases the likelihood of exposure to perpetrators (Messman-Moore & Long, 2003). In summary, experiencing a victimization may increase women's engagement in behaviors that expose them to new perpetrators (i.e., increased number of sex partners, frequent alcohol use) and, therefore, increase their risk of revictimization.

## Deficits in Risk Recognition

In addition to the role of exposure to potential perpetrators, theorists have argued that deficits in women's ability to recognize risky situations may increase the likelihood of sexual victimization. In addition, Messman-Moore and Long (2003) also suggested that victims are at increased risk for revictimization because traumatic sequelae (e.g., depression, PTSD symptoms, low self-esteem, low assertiveness) of past victimization decrease their awareness of future risky situations. The majority of studies investigating women's ability to detect risk cues in

interpersonal situations have used analogue designs (i.e., presented written or audiotaped scenarios that describe interpersonal interactions with varying levels of risk and asked participants to report perceived risk). Several studies have found that women's inability to recognize risk in vignettes is related to sexual victimization (Marx et al., 1998; Marx, Calhoun, Wilson, & Meyerson, 2001; Meadows et al., 1995; Wilson, Calhoun, Bernat, 1999; Yeater et al., 2010). For example, Marx et al. (1998) used an audiotaped depiction of a sexual encounter that began as consensual and ended in forcible rape. Participants were asked to stop the tape when they believed the man had "gone too far," with longer latency coded as less effective risk recognition. Low risk recognition predicted sexual revictimization reported at the two month follow-up. However, several studies have failed to find a link between risk recognition as measured using such vignettes and sexual victimization status (Breitenbecher, 1999; Cue, George, & Norris, 1996; Messman-Moore & Brown, 2006; VanZile-Tamsen, Testa, & Livingston, 2005). Following an extensive qualitative review of this literature, Breitenbecher (1999) concluded that risk recognition was not a strong predictor of victimization or revictimization.

## Deficits in Effective Behavioral Responding

One explanation for the equivocal results regarding risk recognition is that recognition of risk itself is not sufficient to reduce a women's likelihood of being victimized; she must also respond effectively once risk has been identified to thwart a would-be-attacker. Research has identified patterns of behavioral responding that are differentially effective at reducing risk of sexual victimization. Women who utilize nonforceful resistance tactics (e.g., freezing, nonassertive verbal tactics) are more likely to be victimized than women who utilize assertive resistance tactics (e.g., screaming or fighting back physically, Ullman & Knight, 1993; Zoucha-

Jensen & Coyne, 1993). Women who reported at least one previous victimization were more likely to use nonforceful resistance techniques during new assault experiences (Gidycz, VanWynsberghe, & Edwards, 2006; Turchik et al., 2007). Using an analogue methodology, Meadows, Jaycox, Orsillo, and Foa (1997) found no differences between previously victimized and nonvictimized female undergraduates on risk recognition; however, victims reported that they would stay in risky scenarios significantly longer than nonvictims. The effect was particularly strong when scenarios involved an acquaintance or someone known to the participant rather than a stranger. Therefore, effective behavioral responding seems to be an important link between recognition of danger and avoidance of sexual assault (Meadows, Jaycox, Webb, & Foa, 1996; Messman- Moore & Brown, 2006). A woman may be aware that an interpersonal situation is becoming increasingly risky but lack the skills to respond effectively.

Use of assertiveness skills may moderate the relationship between threat perception and effective behavioral responding such that women with intact threat perception who react nonassertively may still experience a victimization (Kearns & Calhoun, 2010). In fact, several studies have identified a relationship between lower levels of assertiveness and victimization history (Amick & Calhoun, 1987; Myers, Templer, & Brown, 1984; Selkin, 1978, but see Himelein, 1995; Koss, 1985 for exceptions). Kearns and Calhoun (2010) suggested that victims demonstrate situation specific assertiveness deficits that are active in situations involving the possibility of sexual behavior. Consistent with this suggestion, Greene and Navarro (1998) found that higher levels of assertiveness with the opposite sex predicted lower rates of sexual victimization during an 8-month follow-up. Similarly, Livingston, Testa, and VanZile-Tamsen (2007) reported that assertiveness related to refusing sexual advances had a reciprocal relationship with sexual victimization, such that history of sexual victimization predicted lower

sexual refusal assertiveness, which in turn predicted subsequent revictimization. Kearns and Calhoun (2010) compared global versus situation-specific assertiveness in a sample of 1,150 female undergraduates. Global assertiveness did not differentiate victims from nonvictims, whereas sexual refusal assertiveness significantly differed between women with and without a history of sexual victimization. Therefore, lower levels of assertiveness, especially in sexual situations, seem to be related to less effective behavioral responding in risky situations and increased likelihood of experiencing a sexual assault.

Messman-Moore and Long (2003) suggested that several other types of traumatic sequelae may interfere with victims' ability to identify and effectively respond to risk cues (e.g., self-esteem, depression); however, most research has focused on Posttraumatic Stress Disorder (PTSD) symptoms. Sexual victimization is strongly linked to the development of PTSD. According to the National Comorbidity Study, which was conducted with a nationally representative community sample of Americans, rape was the trauma most likely to be associated with PTSD among both men and women (Kessler, Sonnega, Bromet. Hughes, & Nelson, 1995). In the immediate aftermath of a sexual assault, the vast majority of women (90%) meet the symptomatic (though not the duration) criteria for PTSD and 50% continue to meet criterion 3 months post-assault (Rothbaum et al., 1992). Experiencing a sexual victimization has also been linked to an increased risk of lifetime PTSD diagnosis in both college and community samples of women (Resnick et al., 1993; Zinzow et al., 2010). Research also suggests that, for a minority of women, PTSD following a sexual victimization can persist for a significant period of time. For example, Kilpatrick, Saunders, Veronen, Best and Von (1987) found that PTSD was present 17 years after experiencing a sexual assault in about 16% of cases.

The link between sexual victimization and the dissociative symptoms of PTSD has received particular attention. Dissociation is defined as a "disruption of the usually integrated functions of consciousness, memory, identity, and perception of the environment (American Psychiatric Association [APA], 2000, p. 822). Dissociative symptoms encompass amnesia, emotional detachment, feelings of depersonalization, derealization, estrangement, out of body experiences, and dream-like recall of events. Research suggests that high levels of dissociation are frequently found among sexual assault and child sexual abuse victims relative to nonvictims (Kluft, 1990; Briere, 1992; Chu, 1992; Cloitre, 1998; Dancu et al., 1996). For example, Dancu et al. (1996) compared levels of dissociation (measured by the Dissociative Experiences Survey) between three groups of women: 74 who reported a recent sexual assault, 84 who reported a recent nonsexual assault, and 46 who reported no assault during the year prior of the study. Those who reported a recent sexual assault had higher levels of dissociation than either nonvictims or nonsexual assault victims. Across both victim groups, levels of dissociation declined significantly over the 3-month course of the study. However at the final assessment, approximately 25% of victims continued to report moderate to high levels of dissociative symptoms. Dissociation also seems to be more common among revictimized than among singly victimized women (Becker-Lausen et al., 1995; Cloitre et al., 1997; Wilson, Calhoun, & Bernat, 1999).

Theorists have proposed several mechanisms by which PTSD symptoms may impair risk recognition and effective behavioral responding to risky situations and, thus, increase the risk of revictimization. First, aspects of risky situations might trigger re-experiencing of earlier traumas, which could interfere with awareness of the ongoing situation and ability to respond effectively (Sandberg, Matorin, & Lynn, 1999). Hyperarousal symptoms may also result in insensitivity to

ongoing threat. Chronic vigilance to danger cues may result in being unable to differentiate low versus high levels of threat in a given situation (Lutz-Zois et al., 2011; Orcutt, Erickson, & Wolfe, 2002). Thus, chronic hyperarousal does not provide the level of specificity necessary to make decisions about how to respond to a given person or situation. Hyperarousal may actually desensitize the woman to real threat and decrease the likelihood that she will respond to risk cues (Messman- Moore & Long, 2003). For example, a victim who frequently feels afraid may learn to ignore her fear response, which may result in increasing difficulty distinguishing between true alarms and learned alarms (Barlow, 2002). She would, therefore, be less likely to accurately detect risk cues leading up to a sexual victimization.

The avoidance and numbing symptoms of PTSD, particularly dissociation, may be important because they lead to the suppression of emotional cues of imminent danger (Chu, 1992; Cloitre, 1998). These symptoms are directly related to reduced reactivity and distress, including anticipatory anxiety associated with danger cues, thereby reducing the ability to detect and/or respond to risk (Chu, 1992; Krause, Kaltman, Goodman, & Dutton, 2006; Messman-Moore & Long, 2003). A victim who denies, minimizes, or has failed to integrate past victimization experiences does not have the benefit of using these experiences to guide future behavior (Sandberg et al., 1999). Similarly, individuals who experienced dissociation during the original traumatic event are less likely to have an accurate and full recall of what took place (Chu, 1992; van der Kolk, 1989) and cannot use this information in future situations. Dissociation also clouds perception and interferes with how information is processed (Chu, 1992; van der Kolk, 1989), which means that dissociation during risky situations may increase risk for revictimization by making women unaware of their environment or insensitive to threat cues (Fortier et al., 2009). In summary, a great deal of theory and research has focused on the

role of exposure to potential perpetrators, recognition of risk, and effective behavioral responding in the process of sexual victimization. Regarding revictimization specifically, dominant theories focus on the role of traumatic sequelae, particularly PTSD symptoms, in increasing contact with potential perpetrators, impairing threat detection, and impairing effective behavioral responding and, thus, increasing the risk of future revictimization.

## Perceived Vulnerability

The final factor proposed to increase women's risk of victimization and revictimization involves potential perpetrators' perceptions of women's vulnerability. It has been suggested that potential perpetrators target women who are perceived as more vulnerable (i.e., "easy," low risk victims) and traumatic sequelae resulting from a past victimization may increase this perceived vulnerability and, thus, increase the likelihood of revictimization (Cloitre, Scarvalone, & Difede, 1997; Cloitre & Rosenberg, 2006; Messman-Moore & Long, 2003). For example, a woman experiencing PTSD flashbacks may appear disoriented or distracted and be selected as a low risk target by a would-be perpetrator. Similarly, women who demonstrate non-assertive verbal or non-verbal behavior may be perceived as more vulnerable and be targeted for exploitation.

Compared to the factors described above, relatively little is known about the role of perceived vulnerability in conferring risk of victimization. However, theoretical support for this mechanism is provided by the rational choice approach to crime, which suggests that human action, criminal or not, is based on the desire to benefit oneself (Becker, 1968; Cornish, 1993; Klepper & Nagin, 1989; Paternoster, 1987). By extension, criminals will decide whether or not to commit a crime by weighing the efforts, rewards, and costs involved in alternative courses of action. While some victims seem to be selected due to situational factors (i.e., being in the wrong

place at the wrong time) or random chance (Beauregard, Rossmo, & Proulx, 2007; Stevens, 1998), research suggests that vulnerable groups like children and individuals with disabilities experience disproportionally high rates of sexual victimization (for reviews see Andrews & Veronen, 1993; Finkelhor, 2011). Also consistent with this model, research with incarcerated serial sex offenders has identified behavioral patterns through which they seek to minimize the risks associated with their crimes, including selection of "low risk" victims (Beauregard et al., 2007; Stevens, 1998). For example, Stevens (1998) interviewed 61 incarcerated serial rapists and found that most rapists (69%) mentioned perceived vulnerability as the strongest factor in victim selection. Perceived vulnerability was associated with victim characteristics such as youth, helpfulness, submissiveness, and females who decrease their defense capabilities by placing themselves in risky situations. Similarly, Beauregard et al. (2007) interviewed 69 incarcerated serial sex offenders and concluded that perceived vulnerability was an important factor in victim selection. The offenders in the study described a variety of features associated with higher perceived vulnerability, including youth, being alone or alone with children, appearing naïve, being handicapped, and appearing fragile. Results support the rational choice approach and suggest that perpetrators are motivated to decrease potential costs of criminal behavior by selecting victims who appear vulnerable to exploitation.

Although preliminary results are supportive of the link between perceived vulnerability and risk for sexual victimization, there are several substantial gaps in the current literature. First, because the vast majority of rapes go unreported and unprosecuted (Fisher et al., 2003), incarcerated samples comprise only a small subset of sexually aggressive individuals; however, studies to date have not examined the role of perceived vulnerability using non-incarcerated rapists. Second, qualitative studies with incarcerated rapists (Beauregard et al., 2007; Stevens,

1998); have identified characteristics that seem to confer perceived vulnerability; however, much more needs to be done to explore the victim characteristics that are associated with these judgments. Are the factors that confer perceived vulnerability the same as the risk factors identified by researchers (e.g., lower levels of assertiveness, higher number of sexual partners, higher levels of alcohol use)? Third, research has yet to explore what amount and type of information about a potential victim is necessary for a potential perpetrator to form a conclusion as to perceived vulnerability. Finally, studies to date have not explored the cross-temporal stability, cross-situational stability, and malleability of these judgments. Clearly, perceived vulnerability has received less attention in the sexual assault literature than other risk factors, and a great deal more research is necessary before we fully understand the role of this factor in sexual victimization and revictimization. Therefore, the current dissertation empirically tested the association between perceived vulnerability and sexual assault victimization as well as one potential mechanism by which observers judge vulnerability.

# CHAPTER 4

## NONVERBAL BEHAVIOR AND PERCEIVED VULNERABILITY

Nonverbal behavior, including facial expressions, movement, and gestures, contributes a great deal to our judgments of others (DePaulo & Friedman, 1998**)**. In fact, many of the judgments we make about others are based on cues from nonverbal behavior. Although a great deal of the research on nonverbal communication has focused on facial expressions, evidence from fMRI studies in humans suggests that several regions of the brain respond selectively to the perception of bodies (Bonda, Petrides, Ostry, & Evans, 1996; Downing, Jiang, Shuman, & Kanwisher, 2001; Hadjikhani & de Gelder, 2003; Peelen & Downing, 2005) and humans process information about bodies as rapidly as faces (Gliga & Dehaene-Lambertz, 2005; Meeren, van Heijnsbergen, & de Gelder, 2005; Stekelenburg & de Gelder, 2004). Therefore, aspects of nonverbal behavior other than facial expressions may also be important in the formation of judgments. Gait is one of the first aspects of nonverbal behavior available when observing a stranger in a public place (Sakaguchi & Hasegawa, 2006). Three-month-old infants can discriminate point-light displays of human gait from random patterns, suggesting that we attend to this aspect of nonverbal behavior from a very early age (Bertenthal, Proffitt, & Kramer, 1987). Therefore, a great deal of information is communicated rapidly via nonverbal behavior and gait may be especially well suited to making judgments of others.

## Nonverbal Behavior Profile Associated with Perceived Vulnerability

An intriguing line of research suggests that a gait pattern may increase individuals' perceived vulnerability to interpersonal victimization. Although research linking this pattern to sexual victimization is preliminary, findings suggest a mechanism by which perpetrators make judgments of perceived vulnerability. Therefore, this line of research stands to make important contributions to our understanding of the cycle of victimization and revictimization. Specifically, research in this area offers an empirical test of the hypotheses put forth by Cloitre et al. (1997; 2006) and Messman-Moore and Long (2003) regarding 1) the link between perceived vulnerability and risk of sexual victimization, and 2) the role of traumatic sequelae in mediating the association between a previous victimization and higher perceived vulnerability. Finally, additional research in this area has the potential to address the gaps in the literature described above regarding the behavior of non-incarcerated perpetrators, the reliability of judgments of perceived vulnerability, and the amount and type of information needed to make these judgments. Therefore, the current dissertation will focus on examining the role of this type of nonverbal behavior in judgments of perceived vulnerability to sexual victimization.

Research linking nonverbal behavior to perceptions of vulnerability has focused on a profile developed by Grayson and Stein (1981). The authors developed the nonverbal behavior profile by asking male inmates to watch videos of individuals walking and to characterize their vulnerability to assault. Inmates showed strong consensus about which walkers they would choose to victimize. Walkers who were perceived to be vulnerable tended to move in an uncoordinated manner, with a stride that was too short or too long for their height. Nonvictims, in contrast, displayed a more coordinated walk, a normal stride length, and foot movement and shifts of body weight showing synchrony. Specifically, vulnerable individuals were distinguished

by five motion cues: 1) stride length that was too long or 2) too short for their height, 3) non lateral weight shifts, 4) gestural versus postural movements, and 5) a tendency to lift their feet higher when walking. The profile has been replicated several times and non-incarcerated raters also show a strong consensus about which individuals are perceived as vulnerable (Gunns, Johnston, & Hudson, 2002; Johnston, Hudson, Richardson, Gunns, & Gamer, 2004; Murzynski & Degelman, 1996; Wheeler, Book & Costello, 2009). In addition, the gait dimensions of Grayson and Stein's (1981) profile have been found to account for the majority (i.e., 60-80%) of the variance in judgments of perceived vulnerability (Gunns et al., 2002; Johnston et al., 2004; Murzynski & Degelman, 1996; Wheeler et al., 2009). In summary, five gait characteristics seem to be reliably associated with judgments of perceived vulnerability to interpersonal violence.

## Kinematic Specification of Dynamics Principle

Studies employing point-light methodology (i.e., reducing videos to moving points of light to remove other visual cues) have found that bodies in motion can serve as the basis for accurate judgments of many characteristics other than vulnerability, including the person's identity (Loula, Prasad, Harber, & Shiffrar, 2005), gender (Cutting & Kozlowski, 1977), and intent to deceive (Runeson & Frykholm, 1983). The Kinematic Specification of Dynamics Principle (Runeson & Frykholm, 1983) has been proposed to explain these results. The science of mechanics distinguishes *kinematics*, motion described as such, from *dynamics*, motion explained in terms of what causes and constrains it (Runeson & Frykholm, 1983). The kinematic specification of dynamics principle states that movement (the *kinematics*) specifies the underlying causes (the *dynamics*) of any event or individual. The principle can be written in the

following form: If dynamic factor *a* influences the kinematic shape of movement *M*, then the kinematics of M specify *a* (Runeson & Frykholm, 1983).

Basic kinematic variables are displacement, velocity, and acceleration while basic dynamic variables are mass, force, work, and momentum. However, the full domain of dynamic variables includes all the properties of objects and events that are causally involved in determining the course of movement. In the case of animate motion, the actor's internal state (e.g., intentions, expectations, emotions) also constitutes a dynamic variable. According to the kinematic specification of dynamics principle, an individual's movement is constrained not only by anatomical makeup, but also by internal states such as intentions and emotions (Runeson & Frykholm, 1983). The theory suggests that alteration of these constraints should result in changes in movement and, therefore, changes in how others perceive an individual.

A number of hypotheses derived from the kinematic specification of dynamics principle have been supported with experimental data. For example, because each person has a relatively unique composite of anatomical proportions that constrains how they move (Bernstein, 1967), the kinematic pattern of a person in action should be specific to the individual (e.g., like a fingerprint). Therefore, the kinematic specification of dynamics principle predicts that observers should be able to identify well-known individuals from kinematic information alone. Consistent with this hypothesis, Cutting and Kozlowski (1977) found that recognition is possible from viewing the kinematics of walking friends using point-light displays. Similarly, the principle predicts that a person lifting a box cannot deceive observers about the weight of the box, only convey the deceptive intention, because both the box's weight and the lifter's intention are dynamics that underlie the kinematics of lifting the box. Consistent with this prediction Runeson and Frykholm (1981) found that observers could specify the weight of a box by watching another

person lift and carry it. Observers achieved similar levels of accuracy in judging weight when watching someone else interact with the box and when interacting with it themselves. The lifter's intention to deceive (i.e., to make observers believe the box was heavier or lighter) did not change observer ratings of the box's weight; however, observers accurately identified lifters who had been instructed to be deceptive. These studies provide support for the kinematic specification of dynamics principle and suggest that movement conveys information about an individual's physical as well as psychological characteristics.

## Emotional Body Language

According to the kinematic specification of dynamics principle, physical and psychological characteristics that alter a walker's gait kinematics should be evident to observers and impact judgments of perceived vulnerability. Cloitre et al. (1997; 2006) and Messman-Moore and Long (2003) suggested traumatic sequelae increase the risk of revictimization by increasing perception of vulnerability. Therefore, traumatic sequelae (e.g., PTSD symptoms) should alter gait characteristics and, thus, judgments of perceived vulnerability. Although this theory has yet to be tested empirically, research on emotional body language suggests that observers can accurately identify emotions based on bodily movement. For example, Wallbott and Scherer (1986) used actors portraying four emotions (joy, sadness, anger, surprise) to groups of naive judges via three channels (audio-only, video-only, audiovisual). Average decoding accuracy was equivalent for the audiovisual and the video-only conditions, and was significantly lower for the audio-only condition. Results suggest that nonverbal behavior is central to the decoding of emotions.

Support for the importance of emotional body language distinct from facial expression comes from recent electroencephalography (EEG) and neuroimaging data. Meeren et al. (2005) presented participants with face–body compound stimuli that were either congruent (i.e., same emotion portrayed on face and body) or incongruent (i.e., different emotion portrayed on face than on body). Participants were asked to identify the emotion based on the facial expression and EEG data were collected during the task. Categorization of facial expressions in the presence of an incongruent body emotion significantly reduced accuracy and increased reaction times. EEG results showed that the brain responded within 100 milliseconds to any incongruence between facial expression and emotional body language. Similarly, Hadjikhani and de Gelder (2003) found that fearful emotional body language activated the two main areas associated with processing of fearful faces (i.e., amygdala and right middle fusiform gyrus) even when the facial expression was blurred. Taken together, results suggest that verbal information and facial expressions are not necessary for the decoding of emotions and our brains process emotional body language rapidly via brain regions similar to those used for other types of emotional stimuli. Therefore, gait likely communicates information about the walker's emotional state as well as other physical and psychological characteristics, which may impact judgments of perceived vulnerability.

In summary, several theoretical and empirical traditions provide a context in which to understand the findings of Grayson and Stein (1981) and later replications (Gunns et al., 2002; Johnston et al., 2004; Murzynski & Degelman, 1996; Wheeler et al., 2009). Nonverbal behavior contributes a great deal to our judgments of others (DePaulo & Friedman, 1998). Gait is one aspect of nonverbal behavior that has been found to support accurate judgments of many characteristics (Loula, Prasad, Harber, & Shiffrar, 2005; Cutting & Kozlowski, 1977; Runeson &

Frykholm, 1983). These results can be understood in the context of the kinematic specification of dynamics principle, which proposes that physical and psychological factors that alter a walker's gait are evident to observers and, thus, underlie judgment accuracy (Runeson & Frykholm, 1983). The principle further predicts that walkers' psychological as well as physical characteristics impact their movement and judgments based on their movement. Therefore, kinematic specification of dynamics principle provides a theoretical rationale for Cloitre et al. (1997; 2006) and Messman-Moore and Long's (2003) suggestion that traumatic sequelae may increase perceived vulnerability and, by extension, risk of revictimization. Studies of emotional body language support this prediction by suggesting that gait likely communicates information about the walker's emotional state as well as other physical and psychological characteristics (Hadjikhani & de Gelder, 2003; Meeren et al., 2005; Wallbott & Scherer, 1986). Although a great deal of theoretical support exists for the association between nonverbal behavior and perceived vulnerability, this association has not been well-studied empirically. Therefore, an empirical test of this association has the potential to make an important contribution to the literature. Because perceived vulnerability has been identified as a potential mechanism in victim selection and revictimization, this work also has implications for preventing sexual assault.

## Impact of Walker's Characteristics on Perceived Vulnerability

Since reliability sets the upper limit for validity, it is important to address the issue of reliability before examining the factors that have been found to impact judgments of perceived vulnerability. Unfortunately, existing studies have mostly neglected the question of the reliability of ratings of perceived vulnerability. The only study that reported reliability found adequate inter-rater reliability and rank-order stability of ratings within walkers across situations (Gunns et

al. 2002). Gunns et al. (2002) used point-light displays with three independent samples of female walkers recruited from the community and found substantial consistency of ease-of-attack ratings within walkers across mixed-gender raters (intra-class correlations between .91 and .92). Gunns et al. (2002) also employed a repeated measures design to investigate whether the gait changed as a function of clothing and/or footwear and the impact of such changes on perceived vulnerability. The authors found a high level of similarity in perceived vulnerability ratings across the clothing and footwear conditions (Kendall's coefficient = .60). That is, walkers who were rated as one of the most vulnerable in one condition were also rated as one of the most vulnerable in the other conditions. Therefore, perceived vulnerability ratings seem to demonstrate rank-order stability across situations and across raters, suggesting that these ratings are a function of walkers' characteristics; however, more research is clearly needed.

Research replicating Grayson and Stein's (1981) profile has identified a variety of factors that impact ratings of perceived vulnerability. Consistent with the kinematic specification of dynamics principle, several physical and psychological characteristics have been found to impact judgments of walkers' perceived vulnerability. For example, preliminary results suggest that judgments of vulnerability are correlated with self-reported victimization, meaning that individuals who are judged to be vulnerable are more likely to report a history of victimization (Sakaguchi & Hasegawa, 2007; Wheeler et al., 2009). Wheeler et al. (2009) used a sample of college students who self-reported on history of interpersonal victimization at a level greater than or equal to bullying. Two individuals blind to victimization status coded all videos, and self-identified victims (4 women, 2 men) were judged to display vulnerability cues consistent with Grayson and Stein's (1981) profile. Using a second sample of male undergraduate raters who

were blind to victimization status, self-identified victims were judged to be more vulnerable to mugging (Spearman's rank order correlation (ρ) = .68).

Only one study to date has specifically investigated the association between sexual victimization and perceived vulnerability. Sakaguchi and Hasegawa (2007) obtained self-reported sexual victimization history (i.e., experiencing inappropriate sexual touching, which is a common type of sexual victimization in Japan) from a sample of female students attending a university in Tokyo. Women who reported having experienced a sexual victimization were judged to be more vulnerable by male undergraduate raters (ρ = .52) and displayed more of the gait characteristics described by Grayson and Stein's profile. In summary, self-reported victimization, including sexual victimization, has been found to be associated with higher perceived vulnerability to future victimization. These results support the theory that perceived vulnerability is a risk factor of sexual victimization and suggest that Grayson and Stein's profile may play an important role in the cycle of revictimization.

Several demographic characteristics have also been shown to increase a walker's perceived vulnerability to victimization. Regarding a walker's gender, Grayson and Stein (1981) found that older men, followed by women, were judged to be more vulnerable to physical victimization by their sample of incarcerated male raters. Gunns et al. (2002) used point light methodology and found that Grayson and Stein's (1981) profile explained the majority of the variance in ratings of perceived vulnerability for both male and female walkers. Contrary to the results of Grayson and Stein (1981), Gunns et al. (2002) reported that the walkers' age was not related to judgment of perceived vulnerability. The divergent findings are likely due to the fact that Grayson and Stein (1981) used videos made on a busy New York street while Gunns et al. (2002) recruited a predominantly young sample (range = 18 - 52, $M_{age}$ = 23.5). Therefore, the

null result for walkers' age was likely due to restriction of range. Gunns et al. (2002) also found that height was not related to judgments of perceived vulnerability, but weight was negatively associated with vulnerability rating for both male ($r$ = -.41) and female ($r$ = -.29) walkers (i.e., heavier walkers were rated as less vulnerable). In summary, walkers' gender, weight, and age may impact perceived vulnerability.

For female walkers, several additional physical characteristics have been found to impact judgments of perceived vulnerability. Using covert recordings made in a public area, Sakaguchi and Hasegawa (2006) found that women judged to be more physically attractive and feminine were rated as more vulnerable to sexual victimization. Women wearing skirts rather than pants and women wearing high heels rather than flat shoes were judged to be more vulnerable. To clarify the impact of wardrobe, Gunns et al. (2002) used a repeated measures design such that the same female confederates were recorded wearing different types of clothing and footwear. Recordings were reduced to point light displays so that ratings reflect only the impact of wardrobe on movement cues. Walkers were rated as more vulnerable when wearing the skirt than when wearing either the leggings or pants. Walkers were also rated more vulnerable when barefoot or wearing high heels than when wearing flat shoes. Taken together, physical attractiveness, feminine appearance, and wearing a skirt or high-heeled shoes seems to increase perceived vulnerability for female walkers.

Perceived vulnerability has also been found to vary with walkers' internal state and personality traits. For example, Johnston et al. (2004) reported that changing women's internal state by asking them to imagine walking in a dangerous environment (i.e., at night in an inner city park) resulted in decreased ratings of vulnerability. Sakaguchi and Hasegawa (2006) used point light methodology and found that female walkers low on Extraversion (as measured by

Japanese standardized version of the NEO-Five Factor Inventory, Shimonaka, Nakazato, Gondo, & Takayama, 1999) were judged as more vulnerable by male raters. However, the difference in Extraversion did not replicate with a second sample. Instead walkers who described themselves as higher on Neuroticism were perceived as more vulnerable. Murzynski and Degelman (1996) trained female confederates to model the typical vulnerable and nonvulnerable profiles described by Grayson and Stein (1981). Women modeling the vulnerable profile were judged to be less confident and more vulnerable. Although results are preliminary, internal states and personality traits may impact women's perceived vulnerability to victimization.

In summary, consistent with the kinematic specification of dynamics principle, both physical (e.g., gender, weight, age, clothing, footwear) and psychological (e.g., personality, imagined environemnt) characteristics have been found to impact judgments of vulnerability (Grayson & Stein, 1981; Gunns et al., 2002; Johnston et al., 2004; Murzynski & Degelman, 1996; Sakaguchi & Hasegawa, 2006; Wheeler et al., 2009). Although results to date are limited, existing data suggest that individuals who have experienced an interpersonal victimization are more likely to display the nonverbal characteristics identified by Grayson and Stein (1981) and to be judged to be vulnerable to revictimization (Sakaguchi & Hasegawa, 2006; Wheeler et al., 2009). Unfortunately, all studies to date have used non-standardized one-question measures of victimization (e.g., asking if participants have been mugged). Although preliminary results are supportive, additional methodologically sound research is necessary before strong conclusions can be drawn regarding the association between perceived vulnerability and sexual victimization.

## Impact of Rater's Characteristics on Perceived Vulnerability

Several studies have also assessed the impact of rater characteristics on judgments of vulnerability. Although Grayson and Stein's (1981) profile was originally developed using incarcerated male raters, it has been replicated using female raters and nonincarcerated raters (Gunns et al., 2002; Johnston et al., 2004; Wheeler et al., 2009). For example, Murzynski and Degelman (1996) found no difference between judgments made by predominantly male police officers and a mixed sex group of undergraduate students. Similarly, Gunns et al. (2002) found no effect of rater demographics (i.e., age, height, weight, sex) on judgments of perceived vulnerability in three different samples. Results to date suggest that perceived vulnerability is invariant across diverse groups of raters and raters' physical characteristics do not impact judgments of vulnerability.

## Accuracy of Vulnerability Ratings

Grayson and Stein (1981) and later replications (Gunns et al., 2002; Johnston et al., 2004; Murzynski & Degelman, 1996; Wheeler et al., 2009) presented observers with very brief displays of nonverbal behavior and asked for judgements of perceived vulnerability. Preliminary results suggest that women who are judged to be more vulnerable are more likely to report a history of interpersonal violence victimization (Sakaguchi & Hasegawa, 2006; Wheeler et al., 2009). Asking walkers to self-report on victimization history allows researchers to calculate the accuracy of raters' perceived vulnerability judgments. For example, Wheeler et al. (2009) measured perceived vulnerability on a 1 (*not at all vulnerable to victimization*) to 10 (*completely vulnerable to victimization*) scale. The authors calculated each rater's accuracy in distinguishing victims from nonvictims by categorizing perceived vulnerability judgments into correct or

incorrect responses and tallying them. Therefore, the correct response for a self-identified victim was designated to be a perceived vulnerability judgment between 6 and 10. Using self-reported victimization status as the criterion by which to judge the accuracy of vulnerability ratings is sensible given that a history of past victimizations is one of the strongest predictors of revictimization (Gidycz et al., 1993; Humphrey & White, 2000; Kilpatrick et al., 1997; Tjaden & Thoennes, 2000).

These studies are part of a large and growing literature suggesting that observers are surprisingly accurate in making rapid judgments about a variety of characteristics. Extremely brief observations or "thin slices" have been found to support better-than-chance judgments of traits such as extraversion (Ambady & Rosenthal, 1992), sexual orientation (Ambady, Hallahan, & Conner, 1999), and willingness to engage in casual sexual activity (Stillman & Maner, 2009). For example, brief presentation of still facial images resulted in better than chance accuracy in identifying individuals who demonstrated a tendency towards antisocial behavior (i.e., handicapping a presumed competitor, Carré, McCormick, & Mondloch, 2009) and a conviction for sexually violent behavior (Stillman, Maner, & Baumeister, 2010). Regarding gait specifically, thin slices of video displaying an individual walking were sufficient to support judgments of sexual orientation with better-than-chance accuracy (Johnson, Gill, Reichman, & Tassinary, 2007). Ambady and Rosenthal (1992) conducted a meta-analysis on the accuracy of judgments based on thin slices of behavior that revealed unexpectedly high rates of accuracy (overall $r$ = .39). Judgments based on less than 30 seconds of observation were found to be as accurate as those made from 5-minute observations, suggesting that the thinness of the slice does not affect the accuracy. Since this meta-analysis was published, more than 100 different studies have provided additional support for the conclusion that diverse characteristics can be judged

from thin slices of behavior, regardless of the channel of communication (i.e., verbal, nonverbal, combination).

McArthur and Baron's (1983) ecological approach to social perception offers an explanation for the accuracy of judgments based on thin slices of behavior. The ecological approach specifies that humans have evolved to quickly and easily make judgments that have implications for survival and adaptive action. Thus we can identify the information necessary to make judgments of anger, fear, or propensity for violence when given very little data and process this information rapidly and automatically. On the other hand, characteristics that don't have survival value (e.g., humor) are harder to detect and require more deliberate processing. Haselton and Funder (2006) proposed that, in negotiating social interactions, the ability to accurately identify social opportunities and threats would have substantial adaptive value. Therefore, observers' ability to make judgments of vulnerability to interpersonal exploitation based on minimal nonverbal information is consistent with McArthur and Baron's (1983) ecological approach to social perception.

Existing theory and research suggest that raters will differ in the accuracy of their judgments. For example, factors that increase the salience of the stimuli being judged for an individual rater will increase rating accuracy (Fiske & Taylor, 1991; Patterson, 1995; Zebrowitz & Montepare, 2006). Zebrowitz and Montepare (2006) suggested that individual differences in salience are due to both innate (i.e., present at birth or inherited) and educated (i.e., learned) attunements of the rater. For example, humans are innately attuned to faces and, therefore, even very young infants preferentially attend to faces. Alternatively, educated attunements are shaped though a process of perceptual development that depends on the individual's unique experiences and social goals. Evidence for the impact of experience on attunement includes studies of

emotion decoding. Specifically, raters' familiarity (and thus experience) with an individual who is expressing emotions enhances accuracy of facial expression decoding (Elfenbein & Ambady, 2002). Lesbians and gay men have also been found to be more accurate in judging sexual orientation from brief observations of nonverbal behavior relative to heterosexual individuals (Ambady, Koo, Lee, & Rosenthal, 1996), presumably due to their greater experience making these judgments. Finally, professional actors show more accurate decoding of emotional body language than do individuals in less physically emotive occupations, suggesting that a greater experience conveying feelings and intentions through bodily movements attunes perceivers to pertinent body cues (Rosenthal et al., 1979).

Variations in social goals associated with historical events, situational factors, culture, and individual traits have all been shown to influence our judgments of others (Hilton & Darley, 1991). For example, perceptions of moral integrity show a stronger halo effect for Koreans than for Americans (Wheeler & Kim, 1997), while the reverse is true for perceptions of dominance. This effect is likely due to assertiveness being more central to individualistic social goals of Americans while trustworthiness is more central to the collectivistic social goals of Koreans (Zebrowitz & Montepare, 2006). Similarly, people are more sensitive to how others feel about them when they are in a subordinate role and more sensitive to how someone of the opposite sex feels about them than someone of the same sex (Snodgrass, 1985). Results suggest that social goals (i.e., obtaining a promotion, finding a romantic partner) impact our attunement to stimuli in our environment and, by extension, the accuracy of our judgments of those stimuli.

In summary, raters for whom vulnerability is particularly salient, either due to greater experience with these judgments or related social goals, should be more accurate in their judgments of perceived vulnerability. Consistent with this prediction, when Wheeler et al. (2009)

obtained self-reported victimization status for mixed sex walkers and judgments of perceived vulnerability from male undergraduate raters, accuracy in predicting victim status was significantly positively correlated with raters' scores on a self-report measure of psychopathic personality traits ($r$ = .38). The link between psychopathy and accuracy in identifying victims as vulnerable has been replicated using an incarcerated sample (A. Book, personal communication, August 17, 2011).

To understand this link it is important to note that psychopathic traits are a well-established correlate of sexual as well as general aggression among incarcerated populations (Knight & Guay, 2006) and scores on measures of psychopathy are positively associated with self-reported perpetration of physical and sexual aggression among college men (Abbey, Jacques-Tiura & LeBreton, 2011; DeGue & DiLillo, 2004; Kosson, Kelly & White, 1997; Mouilso & Calhoun, 2012; Mouilso & Calhoun, 2012a; Mouilso & Calhoun, 2013; Petty & Dawson, 1989). Therefore, it is possible that men who score higher on measures of psychopathy are more accurate in identifying victims because they have more experience perpetrating acts of aggression. Wheeler et al. (2009) also suggested that experience with "social predation" explains the link between psychopathy and accuracy of victim identification (p. 636). Specifically, individuals high on trait psychopathy may often have the goal of preying on and manipulating those in their social environments. Because exploitation is a costly strategy (Frank, 1988), individuals would need to develop the ability to quickly and accurately recognize cues of vulnerability in order to select appropriate victims. Therefore, raters with these characteristics may more accurately judge walkers' vulnerability independent of their level of trait psychopathy. Unfortunately, the literature to date has yet to assess the impact of any other rater characteristics (including perpetration of violence) on the accuracy of perceived vulnerability judgments.

# CHAPTER 5

# RESEARCH AIMS

Prominent theorists have suggested that perceived vulnerability may be an important factor in sexual victimization and revictimization (Cloitre et al., 1997; Cloitre et al., 2006; Messman-Moore & Long, 2003); however, this theory has yet to be well studied. The authors proposed that perpetrators target women who are perceived as vulnerable, which increases the likelihood that these women will experience victimization. Additionally, traumatic sequelae of past victimizations may increase a woman's perceived vulnerability and, thus, her risk of revictimization (Cloitre et al., 1997; Cloitre et al., 2006; Messman-Moore & Long, 2003). Preliminary qualitative studies have supported the role of perceived vulnerability in victim selection (Beauregard et al., 2007; Stevens, 1998), and Grayson and Stein (1981) identified a profile of nonverbal behavior that seems to be associated with judgments of perceived vulnerability. Nonverbal behavior may be an important determinant of victim selection and, therefore, a risk factor for sexual victimization. Additionally, nonverbal behavior may contain information about an individual's internal state (including her experience of traumatic sequelae from past victimizations) that may increase perceived vulnerability and, thus, risk for revictimization (Cloitre et al., 1997; Cloitre et al., 2006; Messman-Moore & Long, 2003; Runeson & Frykholm, 1983). Although preliminary support exists for a link between Grayson and Stein's (1981) nonverbal behavior profile and interpersonal violence victimization (Sakaguchi & Hasegawa, 2006; Wheeler et al., 2009), this literature is still in its infancy.

The primary aim of the current dissertation was to advance our understanding of the association between perceived vulnerability and sexual victimization and to examine nonverbal

behavior as a mediator of this association. To advance this literature, it was first necessary to replicate the associations between sexual victimization and Grayson and Stein's (1981) nonverbal behavior profile and judgments of perceived vulnerability using a well-established measure of sexual assault (rather than one-item researcher-generated measures used in previous studies, Sakaguchi & Hasegawa, 2006; Wheeler et al., 2009). Next, I aimed to test the theory that nonverbal behavior mediates the association between victimization and perceived vulnerability. The current dissertation was also the first empirical test of theory that traumatic sequelae confer risk for victimization via perceived vulnerability (Cloitre et al., 1997; Cloitre et al., 2006; Messman-Moore and Long, 2003). I aimed to examine the association between traumatic sequelae and Grayson and Stein's (1981) nonverbal behavior profile in order to establish that this profile is one mechanism by which traumatic sequelae impact perceived vulnerability. Finally, to establish that perceived vulnerability is important for victim selection and revictimization, it was necessary to examine the impact of perpetration status on judgments of perceived vulnerability and to establish that perpetrators could accurately identify women who have a history of previous victimization.

# CHAPTER 6

## METHOD PHASE ONE

Phase 1 utilized a sample of undergraduate women who self-reported on demographic characteristics, sexual assault victimization, current level of PTSD symptoms, and assertiveness. The women were covertly recorded from behind while they walked between experimental rooms. Three trained coders blind to victim status reviewed all recordings and determined the extent to which each walker displayed the gait characteristics described by Grayson and Stein's (1981) profile. The primary aim of this phase was to test the theory that the nonverbal behavior profile identified by Grayson and Stein (1981) was associated with current experience of traumatic sequelae. Testing this association was the first step towards establishing that this profile is one mechanism by which traumatic sequelae impact perceived vulnerability. Additionally, it was important to replicate the associations between sexual victimization and traumatic sequelae as well as the association between sexual victimization and Grayson and Stein's (1981) gait profile using a well-established measure of sexual assault.

The following hypotheses were tested:

### Hypotheses

1. Previous research suggests that experiencing a sexual assault is associated with higher levels of PTSD symptoms and lower levels of assertiveness (Amick & Calhoun, 1987; Myers et al., 1984; Resnick et al., 1993; Selkin, 1978; Zinzow et al., 2010) with revictimization being associated with more negative outcomes (Greene & Navarro, 1998; Livingston, Testa, and VanZile-Tamsen (2007); Messman-Moore & Long, 2003). Therefore, I predicted that women who reported sexual victimization would endorse

higher levels of PTSD symptoms and lower levels of assertiveness relative to nonvictims. Furthermore, I predicted that women who had multiple adult victimizations would report higher levels of PTSD symptoms and lower levels of assertiveness relative to single-incident victims.

2. Following Sakaguchi and Hasegawa (2007), I predicted that victims of adult sexual assault would be coded as displaying more of the gait characteristics described by Grayson and Stein's (1981) profile relative to nonvictims.
3. Consistent with the kinematic specification of dynamics principle (Runeson & Frykholm, 1983) and Cloitre et al. (1997; 2006) and Messman-Moore and Long's (2003) traumatic sequelae theory of revictimization, I predicted that current PTSD symptoms and assertiveness would be positively associated with displaying the gait characteristics described by Grayson and Stein's (1981).

## Sample

This phase used data from a final sample of 158 women[1] from a large Southeastern university. Participants were eligible to take part in the study if they were female, over the age of 18, and a member of the university's Research Participant (RP) pool. The study was posted on the SONA website as a survey assessing women's personalities, attitudes, and experiences. All participants were compensated with credit towards fulfillment of introductory-level psychology course research requirements. Students were also given the option of a written paper to fulfill

[1] Sample sized was based on the results of a priori power analyses that were conducted for all proposed statistical tests using the G*Power 3.1 program (Faul, Erdfelder, Buchner, & Lang, 2009). Results indicated that 138 participants were necessary to achieve power = .95 with $\alpha$ = .05, and medium effect size ($f^2$ = .15) for all statistical tests requiring Phase 1 participants.

the research requirement. The sample was predominantly comprised of young adult women ($M_{age}$ = 19.87, *SD* = 1.33) in their first (59%, *n* = 93) or second (22%, *n* = 34) year of college. The majority (98%, *n* = 155) reported being single/never married. Participants mainly self-identified as White (72%, *n* = 113), while 10% (*n* = 15) self-identified as Asian, 10% (*n* = 16) as Black/African-American, and 8% (*n* = 12) as Hispanic, Latina, Native Hawaiian, Pacific Islander, or "Other." Average reported yearly income for participants' families of origin was $76,000 to $100,000, which is consistent with the university's relatively affluent student body.

## Measures

*Sexual Victimization*. Exposure to sexual violence was assessed with the 70-item Sexual Experiences Survey- Revised (SES-R; Koss et al., 2007). The questionnaire consisted of behavioral descriptions of 7 types of unwanted sexual acts (e.g., fondling, kissing, oral sex, vaginal penetration) and asked respondents to indicate how frequently they had experienced each act. The words *rape* and *sexual assault* were not used. For each unwanted sexual experience the respondent indicated which of five perpetration tactics (e.g., verbal coercion, exploitation of intoxication, physical force) was used. Response options ranged from 0 to 3+ times in the past 12 months and 0 to 3+ times since the age of 14. Sample items included: "A man put his penis into my vagina, or someone inserted fingers or objects without my consent by taking advantage of me when I was too drunk or too out of it to stop what was happening " and "Someone had oral sex with me or made me have oral sex with them without my consent by threatening to physically harm me or someone close to me."

The Sexual Experiences Survey (SES; Koss et al., 1987) is the most widely used measure of sexual violence among college students (Thompson, Koss, Kingree, Goree, & Rice, 2011).

Validity studies have shown that responses to the instrument are highly correlated with responses obtained in face-to-face interviews (Koss et al., 1987; Koss & Gidycz, 1985; Koss & Oros, 1982). Internal consistency reliability generally falls at the low end of the acceptable range; however, Koss et al. (2007) have argued that this index of reliability is inappropriate because the SES is not based on a latent variable model. The primary changes to the revised version included more behavioral specificity, gender neutral language, full crossing of unwanted acts and coercive tactics, and updated wording for assessing consent, alcohol-related incidents, unwanted acts, and coercive tactics (Koss et al., 2007). To date, less is known about the reliability and validity of the SES-R; however, it has been well received (i.e., used in more than 51 studies as of April 2013 according to Psych INFO).

The SES-R was scored dichotomously, as recommended by Koss et al. (2007). Participants were coded as nonvictims if they respond "0 times" to all items. All other participants were coded as victims. In addition, frequency of victimization was calculated by summing the reported frequency of each type of victimization. Coding victimization broadly was consistent with findings of the high frequency and emotionally distressing impact of less severe forms of sexual victimization (Abbey, Beshears, Clinton- Sherrod, & McAuslan, 2004; Livingston, Buddie, Testa, & VanZile-Tamsen, 2004; for a review see Spitzberg, 1999). Cronbach's alpha in the current sample was .94, indicating high internal consistency reliability.

*Posttraumatic Stress Disorder Symptoms.* Symptoms of PTSD were assessed using the 17-item PTSD Checklist (PCL; Weathers, Litz, Herman, Huska, & Keane, 1993). The questionnaire measured the 17 symptoms of PTSD included in the Diagnostic and Statistical Manual of Mental Disorders-IV (DSM-IV). For each item, the respondent was asked to indicate the extent to which the symptom bothered them in the past month with response options ranging

from 1 (*not at all*) to 5 (*extremely*). Sample items included: "Avoiding activities or situations because they reminded you of a stressful experience from the past" and "Feeling very upset when something reminded you of a stressful experience from the past." The PCL has been shown to have excellent internal consistency in veterans, victims of motor vehicle accidents, and sexual assault survivors (*r*s = .94 to .97; Blanchard, Alexander, Buckley, & Forneris, 1996; Weathers et al., 1993). Test-retest reliability over 2 to 3 days was .96 among a sample of Vietnam veterans (Weathers et al., 1993). Convergent validity has been demonstrated with strong correlations with other measures of PTSD *(rs* = .77 to .93) and a measure of combat exposure *(r* =.46; Weathers et al., 1993). Scores on the PCL have also been found to be highly correlated with PTSD diagnosis derived from a structure clinical interview (Blanchard et al., 1996; Weathers et al., 1993). Scoring of the PCL consisted of calculating a total symptom severity score by summing the scores from each of the items. In the current sample, Cronbach's alpha was .94 for the PCL total score, indicating very good internal consistency reliability.

*Assertiveness.* Participants' level of assertiveness was assessed using the 30-item Rathus Assertiveness Schedule (RAS; Rathus, 1973). The scale included statements and asked respondents to indicate how well each statement characterized or described them. Response options ranged from +3 (*very characteristic of me, extremely descriptive*) to -3 (*very uncharacteristic of me, extremely nondescriptive*). Sample items included: "When I am asked to do something, I insist upon knowing why." and "I am open and frank about my feelings." The RAS has demonstrated adequate internal consistency reliability ($\alpha$ = .89; Ireland, 2002). Scores on the RAS have also been found to relate to theoretically relevant constructs in the predicted direction, including bullying behavior among incarcerated men and women (Ireland, 2002) and response to perceived sexual harassment (Adams-Roy & Barling, 1998). Scores on the RAS have

been found to increase following completion of assertiveness training programs (Lee & Crockett, 1994). The questionnaire yielded a total score by summing responses on all items (with several items being reverse-coded). The Cronbach's alpha for the RAS total score was .87 in the current sample, indicating an adequate level of internal consistency.

*Coding of Physical Characteristics*. Three trained members of the research team coded each participant's recording according to the five features of Grayson and Stein's (1981) profile. The coding system was consistent with previous studies in this area (Gunns et al., 2002; Johnston et al., 2004). Stride length relative to height was coded on a 7-point scale with options ranging from 1 (*very short*) to 7 (*very long*). Weight shifts were coded dichotomously as 1 (*primarily lateral, i.e., side-to-side motion)* or 0 (*primarily nonliteral*). Type of walk was coded dichotomously as 1 (*primarily gestural, i.e., motion activating only a part of the body*) or 0 (*primarily postural, i.e., motion activating the whole body*). Foot movement was coded on a 5-point scale with options ranging from 1 (*swung heel-to-toe motion*) to 5 (*lifted the whole foot as a unit*). Finally, type of body motion was coded dichotomously as 1 (*primarily unilateral, i.e., motion of only one side of the body at a time*) or 0 (*primarily contralateral, i.e., motion of the two sides of the body together*).

Because vulnerability is associated with stride length that is discordant with height (i.e., too long or too short), the stride length item was recoded so that low scores represented stride length that is concordant with height (i.e., near 4 on the original 7-point scale) and high scores represent stride length that is discordant with height (i.e., near 1 or 7 on the original 7-point scale). In this way, high scores on all the gait elements represented concordance with Grayson and Stein's (1981) vulnerability profile and low scores represented discordance. Finally, one composite score was calculated for each walker reflecting her overall conformity to Grayson and

Stein's (1981) profile, with codes on the five features weighted equally and higher scores indicating greater conformity. In order to weight each feature equally when creating the composite, stride length was recoded into a dichotomous variable as 1 (*stride length discordant with height*) or 0 (*stride length concordant with height*). Similarly, foot movement was also recoded into a dichotomous variable as 1 (*lifted the whole foot as a unit*) or 0 (*swung heel-to-toe motion*). Therefore, to create the composite, coding of all five elements was dichotomous. The composite was created by averaging across the three coders and then summing across the five gait characteristics (possible range 0 to 5).

In previous research with female walkers weight (Gunns et al., 2002), physical attractiveness, femininity (Sakaguchi & Hasegawa, 2006), wearing skirts rather than pants, and wearing high heels rather than flat shoes (Gunns et al., 2002; Sakaguchi & Hasegawa, 2006) were associated with higher perceived vulnerability, while height was not (Gunns et al., 2002). Therefore, coders also rated each walker on these characteristics. Coders assigned each walker a perceived physical attractiveness score on a 5-point scale with response options ranging from 1 (*very unattractive*) to 5 (*very attractive*). Femininity was rated on a 5-point scale with response options ranging from 1 (*very unfeminine*) to 5 (*very feminine*). Perceived height was estimated on a 6-point scale ranging from 4' to 6'6" with 6" increments between points. Coders provided ratings of perceived weight on a scale ranging from 100 to 300 pounds with 25 pounds increments between points. Type of clothing (i.e., skirt/dress vs. pants/shorts/leggings) and footwear (i.e., high heels vs. flat shoes) were also coded. A score for each walker was calculated as the mean rating for each physical feature across the three coders.

The coding system was consistent with previous studies in this area (Gunns et al., 2002; Johnston et al., 2004); however, these existing studies did not describe the procedures used to

train coders. I contacted the corresponding authors to obtain more information and received one response, which said that all coders had a background in psychology rather than kinesiology and were previously unfamiliar with this type of coding (L. Johnston, personal communication April 16, 2012). However, "after a session where we watched sample videos together and discussed the coding we were able to reach very high consensus levels in our independent coding" (L. Johnston, personal communication April 16, 2012). Therefore, training consisted of four 1-hour long meetings. During these meetings, coders watched sample clips until a consensus definition was reached for each characteristic. Next, coders independently rated new clips on the five gait characteristics and discrepancies were resolved by discussion. Training concluded when adequate inter-rater reliability was reached.

Only two studies to date have reported reliability data for gait coding. Wheeler et al. (2009) used two independent coders and reported that inter-rater agreement for all coded gait features was reasonably high (Cohen's kappa (κ) ranged from .77 to 1.00). Gunns et al. (2002) used three independent coders and reported internal consistency across three samples (αs range = .63 – 1.00), with stride length being the only characteristic that consistently fell below the standard level of acceptable reliability (i.e., .70, Nunnally, 1978). The current dissertation used the kappa statistic (Cohen, 1960), which assessed inter-rater agreement correcting for chance, as the index of inter-rater reliability. In the current sample, the average κ across the three coders was .69 for stride length, .71 for weight shifts, .69 for type of walk, .71 for foot movement, and .71 for body movement. Therefore, adequate inter-rater reliability was demonstrated in the current sample for all five gait characteristics. For clothing and footwear, the average κ across the three coders was 1.00, which demonstrated full agreement among coders. The three coders also demonstrated high average inter-rater reliability for attractiveness and femininity (average

κs of .85 and .86, respectively). Finally, the coding of height and weight also demonstrated high average inter-rater reliability with κs of .83 and .80, respectively.

## Procedure

The procedure was approved by the university's Institutional Review Board (IRB). Upon presenting to the experimental room, informed consent was obtained with the participant's signature on the informed consent document. However, information regarding the recording procedure was omitted to minimize potential demand characteristics. The consent document stated that some information about study procedures had been withheld. After signing the consent form, the participant was covertly recorded from behind while she walked in a hallway to the second experimental room. Recordings were made using a Sony HDR-CX 130 HD flash memory camcorder equipped with a PNY 16GB high speed SDHC memory card. The participant then completed the survey measures, which took approximately 1 hour, in a small windowless room to minimize distractions and insure confidentiality.

The survey responses were collected using Qualtrics, an online data collection website. No identifying information was included with the participant's survey responses. Measures were presented in a manner consistent with the original formatting; however, all items included an additional response option that allowed participants to decline to answer (i.e., " I prefer not to answer"). Participants were required to respond to each item before Qualtrics allowed them to continue on to the next page. The "I prefer not to answer" option was included to comply with the IRB's requirement that participants be able to not answer items while still requiring they provide a response to each item.

Upon completion of the survey, the investigator presented the participant with a debriefing form. The debriefing form included more detailed information about the purpose of the study, provided researchers' contact information, and provided names and contact information for area mental health resources. The debriefing form also contained information about the covert recording procedure and asked the participant to indicate if her recording could be analyzed by the researcher and used in a future study. Three participants declined to provide consent and their videos were destroyed. Participant's data (i.e., consent form, survey responses, recording, debriefing form) were linked with the date and time the participant completed the study, which was recorded on each document. Only the consent and debriefing forms contained the participant's name, and the consent form was used to award RP credit.

Once consent to analyze a participant's video had been obtained, the video was examined to determine if it was appropriate for inclusion in the remainder of the procedure. A total of 41 videos were excluded for the following reasons: walker was not alone in the hallway, walker turned around to face the camera, identifying information was visible on the walker's person. The remaining videos were edited into clips of approximately 15-second using iMovie software. Each clip included only the walker moving away from the camera down the hallway. Three trained members of the research team coded all clips according to Grayson and Stein's (1981) profile. For the purposes of coding, clips were displayed on a computer monitor using Windows Media Player software or iMovie software. Each recording was coded according to the following dimensions: 1) stride length, 2) weight shifts, 3) type of walk, 4) foot movement, and 5) body movement. Additionally, ratings of perceived height, weight, attractiveness, femininity, type of clothing, and type of footwear were recorded. A mean rating for each walker on all features across the 3 raters was used in subsequent analyses.

# CHAPTER 7

## RESULTS PHASE ONE

In the final sample, 48% (*n* = 75) of participants reported a history of some form of sexual victimization since the age of 14 on the Sexual Experiences Survey – Revised (SES-R). Among participants who reported a history of sexual assault, victimization frequency ranged between 1 and 63 times since the age of 14, and the average frequency of sexual victimization was 8 times (*SD* = 9.86, see Table 1 for frequency distribution). Of the total sample, 30% (*n* = 47) reported experiencing some form of sexual victimization in the 12 months prior to participating in the study. A substantial minority of participants reported experiencing a victimization that likely meets the legal definition of attempted or completed rape (i.e., attempted or completed oral, anal, or vaginal penetration without consent by use of force, threat of force, or exploitation of intoxication) since the age of 14 (20%, *n* = 32). In fact, 13% (*n* = 20) of participants reported experiencing an attempted or completed rape in the prior 12 months. In the total sample, the frequency of reported attempted or completed rape ranged from never to 24 times (see Table 2 for frequency distribution). Among women who reported experiencing at least one sexual victimization, the average frequency of reported attempted or completed rape was 1.91 times (*SD* = 4.16); however, among women who reported experiencing at least one attempted or completed rape, the average frequency of attempted or completed rape victimization was 4.47 times (*SD* = 5.24).

Participants reported that verbal coercion (i.e., telling lies, threatening to end a relationship, threatening to spread a rumor about her, continual verbal pressure, showing displeasure, criticizing her sexuality or attractiveness, or getting angry) was the most common

perpetration tactic, with 42% ($n$ = 66) of participants endorsing a sexual victimization that occurred due to verbal coercion. Sexual victimizations that reportedly occurred through exploitation of the victim's intoxication were also common with 24% ($n$ = 38) of participants reporting this type of sexual victimization. Finally, 10% ($n$ = 15) of participants reported a sexual victimization that occurred because the perpetrator used force (e.g., holding her down or having a weapon) or threatened the victim with physical harm.

## Hypothesis One

The first hypothesis stated that participants with a reported sexual victimization would endorse higher levels of PTSD symptoms and lower levels of assertiveness relative to nonvictims, and participants with multiple reported victimizations would report the highest level of PTSD and the lowest levels of assertiveness. Two Analyses of Variance (ANOVAs) were conducted to test this hypothesis with sexual victimization status (i.e., nonvictim, single incident victim, multi-incident-victim) entered as the independent variable. A participant was coded as a multiple-incident victim if she reported multiple adult sexual victimizations on the SES-R. PTSD scores (as assessed by transformed PCL total scores) and assertiveness scores (as measured by RAS total scores) each served as the dependent variable in a separate ANOVA.

First, participants' scores on the PTSD Checklist (PCL; Weathers, Litz, Herman, Huska, & Keane, 1993) were examined (see Table 3 for descriptive statics). Values for the PCL total score ranged from 17 to 61 in the current sample ($M$ = 28.94, $SD$ = 10.28). However, visual examination of the distribution of PCL total scores suggested significant positive skew (see Figure 1 for the histogram), which was confirmed through examination of the $z$-scores for the skewness and kurtosis statics ($p < .001$ and $p = .19$, respectively). Therefore, a log10

transformation was applied to the PCL total scores to address the positive skew and normalize the distribution. Both visual examination and review of the *z*-score for the skewness static suggested less significant departure from normality (see Figure 2 for the histogram). Therefore, the transformed PCL total score was used in all future analyses.

In the first ANOVA analysis, victimization status (i.e., nonvictim, single incident victim, multi-incident-victim) was entered as the independent variable and transformed PCL total score was entered as the dependent variable. As predicted, the group means differed significantly, $F(2, 154) = 9.26$, $p < .001$. Examination of group descriptive statistics showed that nonvictims reported the lowest levels of PTSD symptoms ($n = 82$, $M = 1.40$, $SD = 0.12$), followed by single incident victims ($n = 10$, $M = 1.41$, $SD = 0.14$), and multiple incident victims reported the highest levels ($n = 65$, $M = 1.49$, $SD = 0.16$). Follow up planned comparisons showed that only the mean difference between nonvictims and multiple incident victims was significant, $t(154) = 4.24$, $p < .001$. Therefore, nonvictims did not differ significantly from single incident victims, $t(154) = 0.18$, $p = .86$, and single incident victims did not differ significantly from multiple incident victims, $t(154) = 1.90$, $p = .06$.

Next, participants' scores on the Rathus Assertiveness Schedule (RAS; Rathus, 1973) were examined (see Table 3 for descriptive statics). Visual examination of the distribution of participants' RAS scores suggested non-significant deviations from normality (see Figure 3 for the histogram), which was confirmed by examining the *z*-scores for the skewness and kurtosis statics (*p*s = .56 and .60 respectively). In the current sample, participants' scores on the RAS ranged between -65 and 60 ($M = -8.21$, $SD = 24.10$). In the second ANOVA analysis, contrary to my prediction, level of assertiveness did not differ between victim groups, $F(2, 154) = 0.88$, $p = .42$. Examination of group descriptive statics suggested that single incident victims reported the

highest levels of assertiveness ($n$ = 10, $M$ = 1.00, $SD$ = 28.67), followed by multiple incident victims ($n$ = 65, $M$ = -7.89, $SD$ = 22.49), and finally nonvictims reported the lowest levels of assertiveness ($n$ = 82, $M$ = -9.59, $SD$ = 24.80). Due to the non-significant omnibus ANOVA, no follow up planned comparisons were conducted.

## Hypothesis Two

To test the second hypothesis that victims of adult sexual assault would display more of the gait characteristics described by Grayson and Stein's (1981) profile relative to nonvictims, a Pearson's product-moment correlation analysis was conducted. Adult sexual victimization (as measured by frequency of sexual assault since the age of 14 as reported on the SES-R) was correlated with the gait characteristics composite score (a sum of the average codes on the 5 gait characteristics: stride length, weight shifts, body movement, foot movement, and type of walk).

First descriptive statistics for frequency of sexual assault and the gait characteristics composite score were examined. Examining the *z*-scores for the skewness and kurtosis statics for frequency of sexual assault since the age of 14 as reported on the SES-R suggested significant positive skew and a leptokurtic distribution ($p$s < .001, see Table 3 for descriptive statistics). Therefore, a log10 transformation was applied to normalize the distribution, and the transformed variable was used in all future analyses. For the gait composite score, values of the composite score ranged from 0 to 4.67 ($M$ = 0.60, $SD$ = 0.83) with higher scores representing higher concordance with Grayson and Stein's (1981) gait profile (see Table 4 for descriptive statistics). The z-scores of the skewness and kurtosis statistics suggested significant positive skew and a leptokurtic distribution ($p$s < .001 and see Figure 4 for histogram). Therefore, a log10 transformation was applied, which helped to normalize the distribution of gait composite scores

(see Figure 5). The transformed gait composite score was used in all future analyses. As expected, sexual victimization was positively associated with the gait characteristics composite scores, $r(n = 157) = .27$, $p = .001$, suggesting that victims were coded as displaying more of the gait characteristics described by Grayson and Stein's (1981) profile.

Next, exploratory Pearson's product-moment correlations were conducted to examine the magnitude of the association between sexual victimization (as measured by SES-R scores) and scores on each of the five gait characteristics: stride length, weight shifts, body movement, foot movement, and type of walk. Descriptive statistics were calculated for the five gait characteristics scores, see Table 4 for descriptive statics. The *z*-scores of the skewness and kurtosis statistics suggested significant positive skew and mostly leptokurtic distributions. Although log10 transformations were applied to normalize the distributions, significant deviations from normality remained. The transformed scores for the five gait characteristics were used in all further analyses. Sexual victimization was significantly positively associated with weight shifts, $r(n = 157) = .29$, $p < .001$, and body movement, $r(n = 157) = .18$, $p = .03$. However, sexual victimization was not significantly associated with the other gait features (*p*s between .05 and .10, see Table 5 for the full correlation table). Therefore, victims were more likely to be coded as displaying primarily nonlateral weight shifts and primarily contralateral body movement.

## Hypothesis Three

To test the third hypothesis that current PTSD symptoms would be positively associated with the gait characteristics described by Grayson and Stein's (1981) profile, participants' PTSD symptoms (as assessed by the transformed PCL total scores) were correlated with the gait

characteristics composite score using a Pearson's product-moment correlation analysis. Contrary to my prediction, the gait characteristics composite was not correlated with PTSD symptoms, $r(n = 157) = .06$, $p = .43$. Next, to test the hypothesis that assertiveness would be negatively associated with the gait characteristics described by Grayson and Stein's (1981) profile, participants' assertiveness scores (as measured by RAS total scores), were correlated with the gait characteristics composite score. Contrary to my prediction, the gait characteristics composite was also not correlated with assertiveness, $r(n = 157) = -.02$, $p = .85$.

Finally, exploratory Pearson's product-moment correlation analyses were conducted to examine the magnitude of the association between each element of Grayson and Stein's (1981) gait profile (i.e., stride length, weight shifts, type of walk, foot movement, and body movement), PTSD symptoms, and assertiveness (see Table 5 for descriptive statistics). None of the five elements of the gait profile were found to be significantly associated with PTSD symptoms (*p*s between .22 and .97) or assertiveness (*p*s between .07 and .86).

Table 1. Frequency of any sexual assault since age 14 in Phase 1 participants.

| Value | Frequency | Percent | Cumulative Percent |
|---|---|---|---|
| 0 | 83 | 52.5 | 52.5 |
| 1 | 10 | 6.3 | 58.9 |
| 2 | 10 | 6.3 | 65.2 |
| 3 | 8 | 5.1 | 70.3 |
| 4 | 9 | 5.7 | 75.9 |
| 5 | 4 | 2.5 | 78.5 |
| 6 | 6 | 3.8 | 82.3 |
| 7 | 6 | 3.8 | 86.1 |
| 9 | 2 | 1.3 | 87.3 |
| 10 | 3 | 1.9 | 89.2 |
| 11 | 1 | 0.6 | 89.9 |
| 13 | 4 | 2.5 | 92.4 |
| 14 | 2 | 1.3 | 93.7 |
| 15 | 1 | 0.6 | 94.3 |
| 16 | 2 | 0.6 | 95.6 |
| 18 | 1 | 0.6 | 96.2 |
| 19 | 1 | 0.6 | 96.8 |
| 25 | 1 | 0.6 | 97.5 |
| 27 | 1 | 0.6 | 98.1 |
| 32 | 1 | 0.6 | 98.7 |
| 41 | 1 | 0.6 | 99.4 |
| 63 | 1 | 0.6 | 100.0 |

*Note*. The Frequency of sexual assault was measured by the Sexual Experiences Survey-Revised (Koss et al., 2007).

Table 2. Frequency of rape since age 14 in Phase 1 participants.

| Value | Frequency | Percent | Cumulative Percent |
|---|---|---|---|
| 0 | 126 | 79.7 | 79.7 |
| 1 | 10 | 6.3 | 86.1 |
| 2 | 8 | 5.1 | 91.1 |
| 3 | 2 | 1.3 | 92.1 |
| 4 | 1 | 0.6 | 92.4 |
| 5 | 4 | 2.5 | 93.0 |
| 6 | 2 | 1.3 | 95.6 |
| 7 | 1 | 0.6 | 96.8 |
| 11 | 1 | 0.6 | 97.5 |
| 14 | 1 | 0.6 | 98.1 |
| 19 | 1 | 0.6 | 99.4 |
| 24 | 1 | 0.6 | 100.0 |

*Note.* The frequency of rape victimization was measured by the Sexual Experiences Survey-Revised (Koss et al., 2007).

Table 3. Descriptive statics for study measures in Phase 1 and Phase 2.

| | | | | | Skewness | | | Kurtosis | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Minimum | Maximum | Mean | *SD* | Static | *SE* | *z*-score | Static | *SE* | *z*-score |
| Phase 1 (*n* = 158) | | | | | | | | | | |
| Sexual Assault Frequency | 0.00 | 63.00 | 3.79 | 7.86 | 4.21 | 0.19 | 22.16 | 23.89 | 0.39 | 61.23 |
| Sexual Assault Frequency – log10 | 0.00 | 1.81 | 0.38 | 0.47 | 0.91 | 0.19 | 4.79 | -0.30 | 0.39 | 0.77 |
| Rathus Assertiveness Schedule total | -65.00 | 60.00 | -8.21 | 24.10 | 0.11 | 0.19 | 0.58 | -0.21 | 0.39 | -0.53 |
| PTSD Checklist total | 17.00 | 61.00 | 28.94 | 10.28 | 1.08 | 0.19 | 5.68 | 0.51 | 0.39 | 1.30 |
| PTSD Checklist total – log10 | 1.23 | 1.79 | 1.44 | 0.14 | 0.50 | 0.19 | 2.63 | -0.59 | 0.39 | -1.51 |
| Phase 2 (*n* = 253) | | | | | | | | | | |
| Self-Report Psychopathy-III total | 90.00 | 225.00 | 160.42 | 22.71 | -0.01 | 0.16 | -0.06 | 0.08 | 0.31 | 0.26 |
| Interpersonal Manipulation | 20.00 | 67.00 | 44.64 | 8.04 | -0.06 | 0.16 | -0.38 | 0.10 | 0.31 | 0.32 |
| Callous Affect | 21.00 | 66.00 | 42.60 | 6.88 | 0.02 | 0.15 | 0.13 | 0.40 | 0.31 | 1.29 |
| Erratic Lifestyle | 24.00 | 72.00 | 47.20 | 8.41 | -0.10 | 0.15 | -0.67 | -0.07 | 0.31 | -0.23 |
| Antisocial Behavior | 16.00 | 48.00 | 26.10 | 7.14 | 0.74 | 0.16 | 4.63 | -0.04 | 0.31 | -0.13 |
| Antisocial Behavior – log10 | 1.20 | 1.68 | 1.40 | 0.12 | 0.24 | 0.16 | 1.50 | -0.67 | 0.31 | 2.16 |
| Combined Phase 1 and Phase 2 data | | | | | | | | | | |
| Accuracy | 85.00 | 125.00 | 103.69 | 7.39 | 0.31 | 0.15 | 2.07 | 0.03 | 0.31 | 0.10 |
| Accuracy – log10 | 1.93 | 2.10 | 2.01 | 0.03 | 0.11 | 0.15 | 0.73 | -0.09 | 0.31 | -0.29 |
| Vulnerability | 2.00 | 5.00 | 3.74 | 0.52 | -0.10 | 0.19 | -0.53 | -0.52 | 0.38 | 1.34 |

*Note. SD* = Standard Deviation. *SE* = Standard Error. Sexual assault frequency was measured by the Sexual Experiences Survey-Revised (Koss et al., 2007). The Rathus Assertiveness Schedule total score was measured by the Rathus Assertiveness Schedule (Rathus, 1973). The PTSD Checklist total score was from the PTSD Checklist (Weathers et al., 1993). The psychopathy variables were measured by the Self-Report Psychopathy Scale-IIII (Paulhus et al., in press). Accuracy scores were calculated based on the concordance between Phase 2 participants' vulnerability ratings and Phase1 participants' report of sexual victimization. Vulnerability scores reflect Phase 2 participants' ratings of Phase 1 participants. *Z*-scores with absolute values greater than or equal to 1.96 are significantly different from zero at the $p < .05$ level, and *z*-score with absolute values greater than or equal to 3.29 are significantly different from zero at the $p < .001$ level.

Table 4. Descriptive statics for coding of physical and gait characteristics of Phase 1 participants.

| | | | | | Skewness | | | Kurtosis | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Minimum | Maximum | Mean | *SD* | Static | *SE* | *z*-score | Static | *SE* | *z*-score |
| Gait Profile Composite | 0.00 | 4.67 | 0.60 | 0.83 | 1.78 | 0.19 | 9.37 | 3.86 | 0.39 | 9.89 |
| Gait Profile Composite – log10 | 0.00 | 0.75 | 0.16 | 0.19 | 0.86 | 0.19 | 4.52 | -0.29 | 0.39 | -0.74 |
| Weight Shifts | 0.00 | 1.00 | 0.08 | 0.25 | 3.00 | 0.19 | 15.79 | 7.74 | 0.39 | 19.85 |
| Weight Shifts – log10 | 0.00 | 0.30 | 0.03 | 0.08 | 2.85 | 0.19 | 15 | 6.74 | 0.39 | 17.28 |
| Stride Length | 0.00 | 1.00 | 0.23 | 0.39 | 1.29 | 0.19 | 6.79 | -0.07 | 0.39 | -0.18 |
| Stride Length – log10 | 0.00 | 0.30 | 0.08 | 0.12 | 1.18 | 0.19 | 6.21 | -0.33 | 0.39 | -0.84 |
| Type of Walk | 0.00 | 1.00 | 0.17 | 0.34 | 1.73 | 0.19 | 9.11 | 1.42 | 0.39 | 3.64 |
| Type of Walk – log10 | 0.00 | 0.30 | 0.05 | 0.10 | 1.60 | 0.19 | 8.42 | 0.92 | 0.39 | 2.35 |
| Foot Movement | 0.00 | 1.00 | 0.04 | 0.17 | 4.63 | 0.19 | 24.36 | 20.83 | 0.39 | 53.41 |
| Foot Movement – log10 | 0.00 | 0.30 | 0.01 | 0.05 | 4.44 | 0.19 | 23.37 | 18.89 | 0.39 | 48.44 |
| Body Movement | 0.00 | 1.00 | 0.07 | 0.23 | 3.18 | 0.19 | 16.74 | 8.87 | 0.39 | 22.74 |
| Body Movement – log10 | 0.00 | 0.30 | 0.02 | 0.07 | 3.05 | 0.19 | 16.05 | 7.85 | 0.39 | 20.12 |
| Attractiveness | 1.00 | 12.67 | 3.17 | 1.06 | 4.50 | 0.19 | 23.68 | 40.68 | 0.39 | 104.31 |
| Attractiveness – log10 | 0.00 | 1.10 | 0.48 | 0.13 | -0.51 | 0.19 | -2.68 | 5.72 | 0.39 | 14.67 |

*Note. SD* = Standard Deviation. *SE* = Standard Error. All variables are average scores across the three trained coders. *Z*-score with absolute values greater than or equal to 1.96 are significantly different from zero at the $p < .05$ level and *z*-score with absolute values greater than or equal to 3.29 are significantly different from zero at the $p < .001$ level.

Table 5. Pearson's product-moment correlations between study variables in Phase 1 participants ($n$ = 158).

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Victimization | - | | | | | | | | | | | | | | | |
| 2. Gait Composite | .27 | - | | | | | | | | | | | | | | |
| 3. Stride Length | .13 | .77 | - | | | | | | | | | | | | | |
| 4. Weight Shifts | .29 | .51 | .17 | - | | | | | | | | | | | | |
| 5. Type of Walk | .16 | .57 | .23 | -.03 | - | | | | | | | | | | | |
| 6. Foot Movement | .11 | .43 | .37 | .15 | .11 | - | | | | | | | | | | |
| 7. Body Movement | .18 | .53 | .25 | .55 | .01 | .14 | - | | | | | | | | | |
| 8. PCL total | .29 | .08 | .05 | .09 | .04 | .01 | .05 | - | | | | | | | | |
| 9. RAS total | .06 | -.02 | -.01 | .15 | -.10 | -.03 | -.03 | -.21 | - | | | | | | | |
| 10. Vulnerability | .18 | .30 | .24 | .12 | .13 | .25 | .33 | -.05 | -.03 | - | | | | | | |
| 11. Attractiveness | .13 | -.05 | -.04 | -0.7 | -.01 | .08 | .04 | .06 | -.01 | .49 | - | | | | | |
| 12. Femininity | .08 | -.06 | -.04 | -.06 | -.09 | .11 | .03 | .02 | .12 | .36 | .53 | - | | | | |
| 13. Height | .06 | .12 | .06 | -.07 | .25 | .01 | .03 | -.01 | -.02 | .06 | .12 | .01 | - | | | |
| 14. Weight | .05 | -.04 | -.09 | .06 | .01 | .01 | -.10 | -.06 | -.02 | -.30 | -.38 | -.33 | .22 | - | | |
| 15. Clothing | .08 | .08 | .04 | .06 | .04 | .14 | .04 | .02 | .12 | -.00 | -.02 | -.01 | -.01 | .10 | - | |
| 16. Footwear | .01 | .09 | .10 | -.06 | .00 | .41 | -.05 | .05 | -.04 | -.01 | .06 | .21 | -.03 | .01 | .18 | - |

*Note.* Victimization = sexual assault frequency since the age of 14, which was measured by the Sexual Experiences Survey-Revised (Koss et al., 2007). The gait composite score, stride length, weight shifts, type of walk, foot movement, body movement, attractiveness, femininity, height, weight, clothing, and footwear are average scores across the three coders. PCL total = PTSD Checklist total score, which was measured by the PTSD Checklist (Weathers et al., 1993). RAS total = Rathus Assertiveness Schedule total score, which was measured by the Rathus Assertiveness Schedule (Rathus, 1973). Vulnerability = average perceived vulnerability to sexual assault for each Phase 1 participants across Phase 2 raters.
$p$-values $\leq .15$ are significant at the .05 level

Figure 1. PTSD Checklist (PCL) total score in Phase 1 participants.

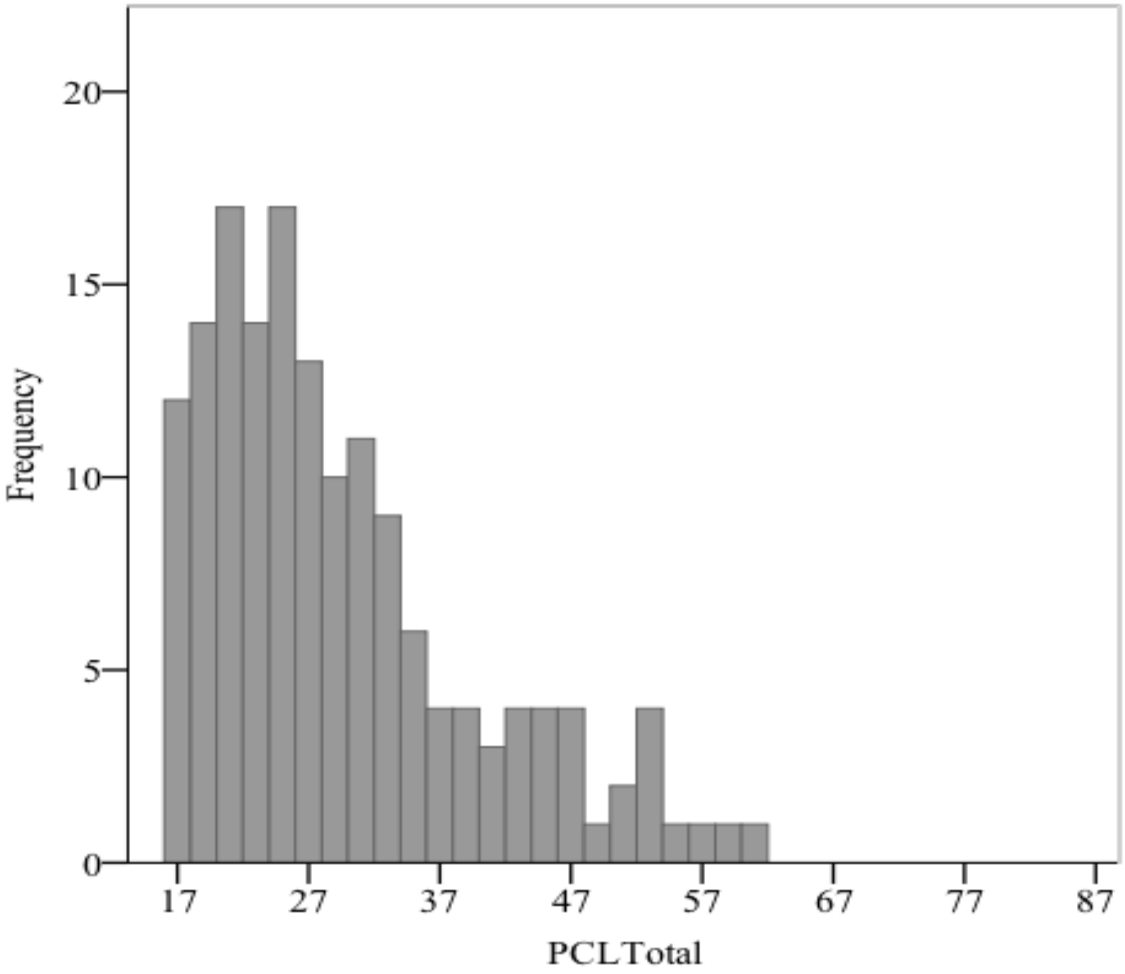


Figure 2. PTSD Checklist (PCL) total scores following log10 transformation.

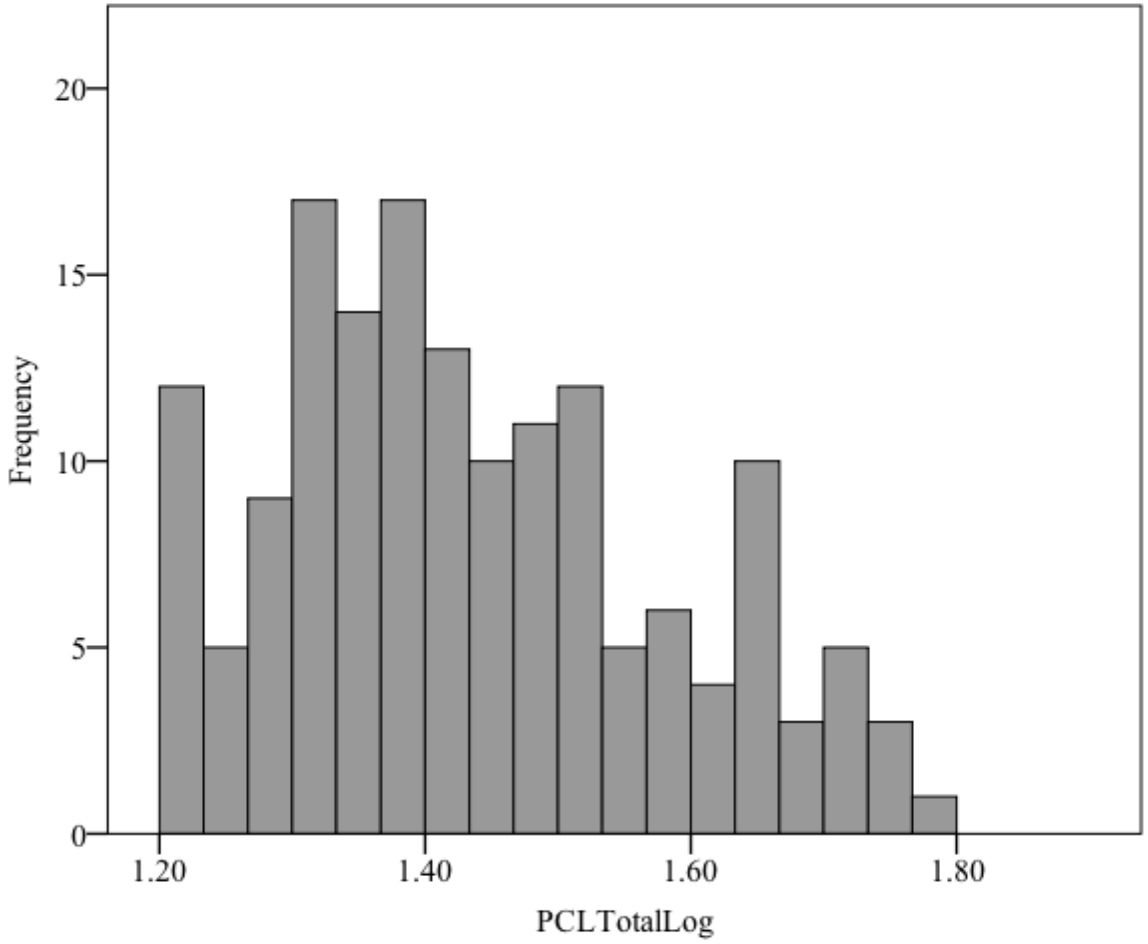


Figure 3. Rathus Assertiveness Scale (RAS) total scores in Phase 1 participants.

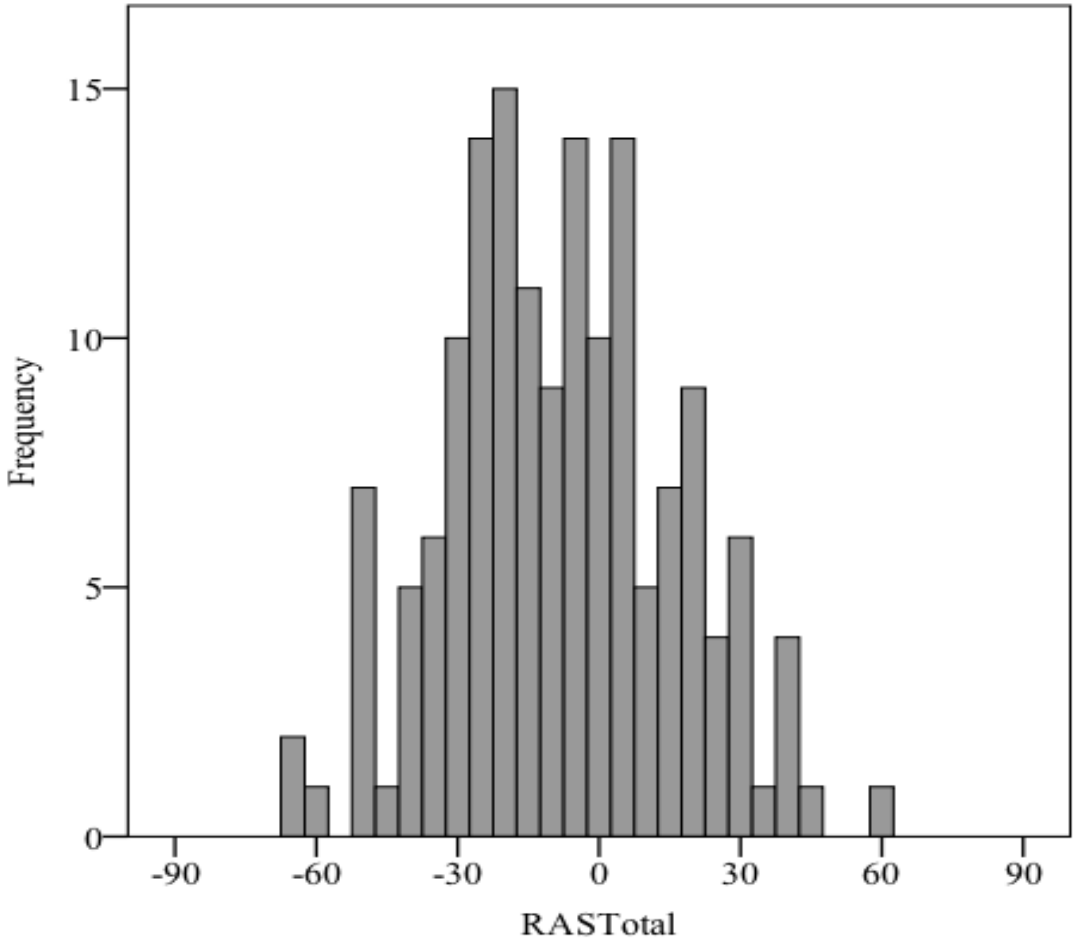


Figure 4. Gait profile scores in Phase 1 participants.

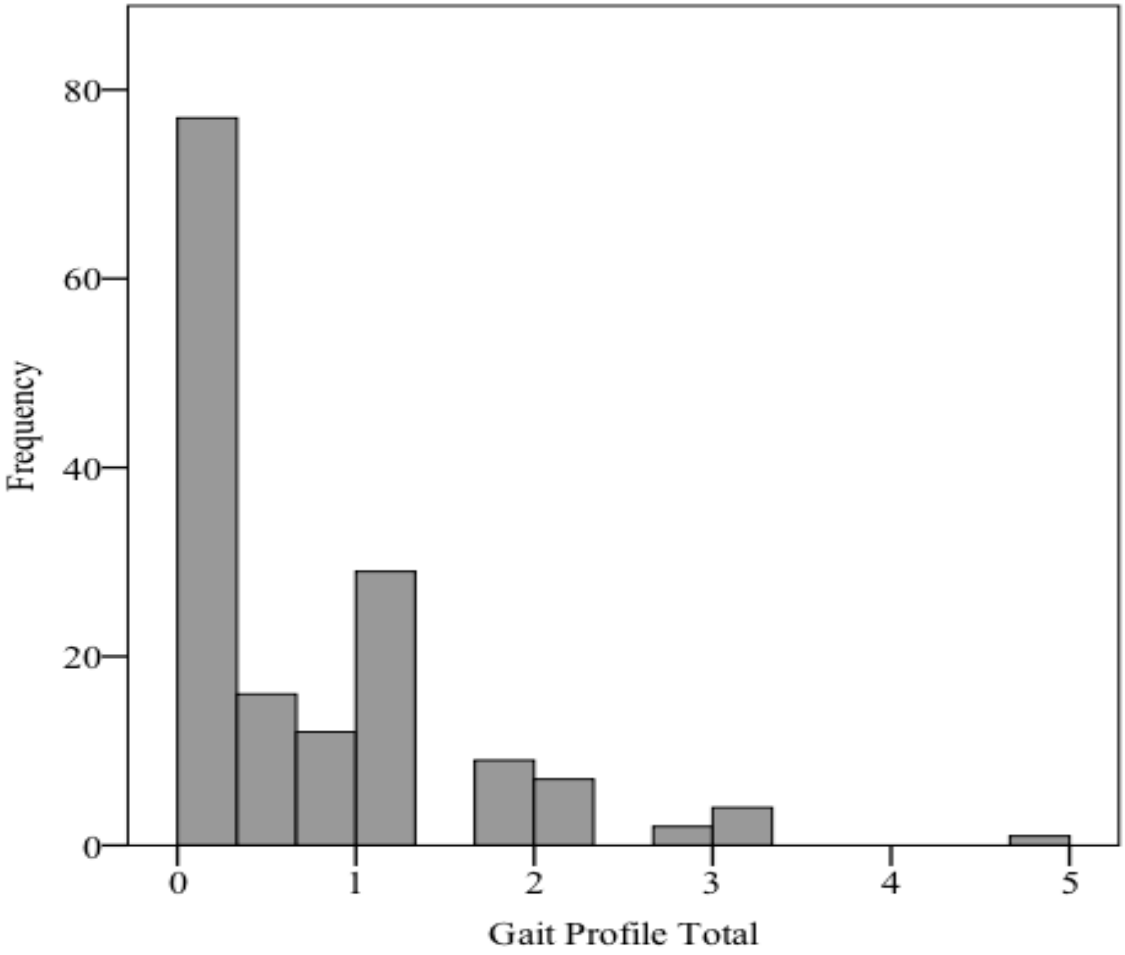


Figure 5. Gait profile scores following log10 transformation in Phase 1 participants.

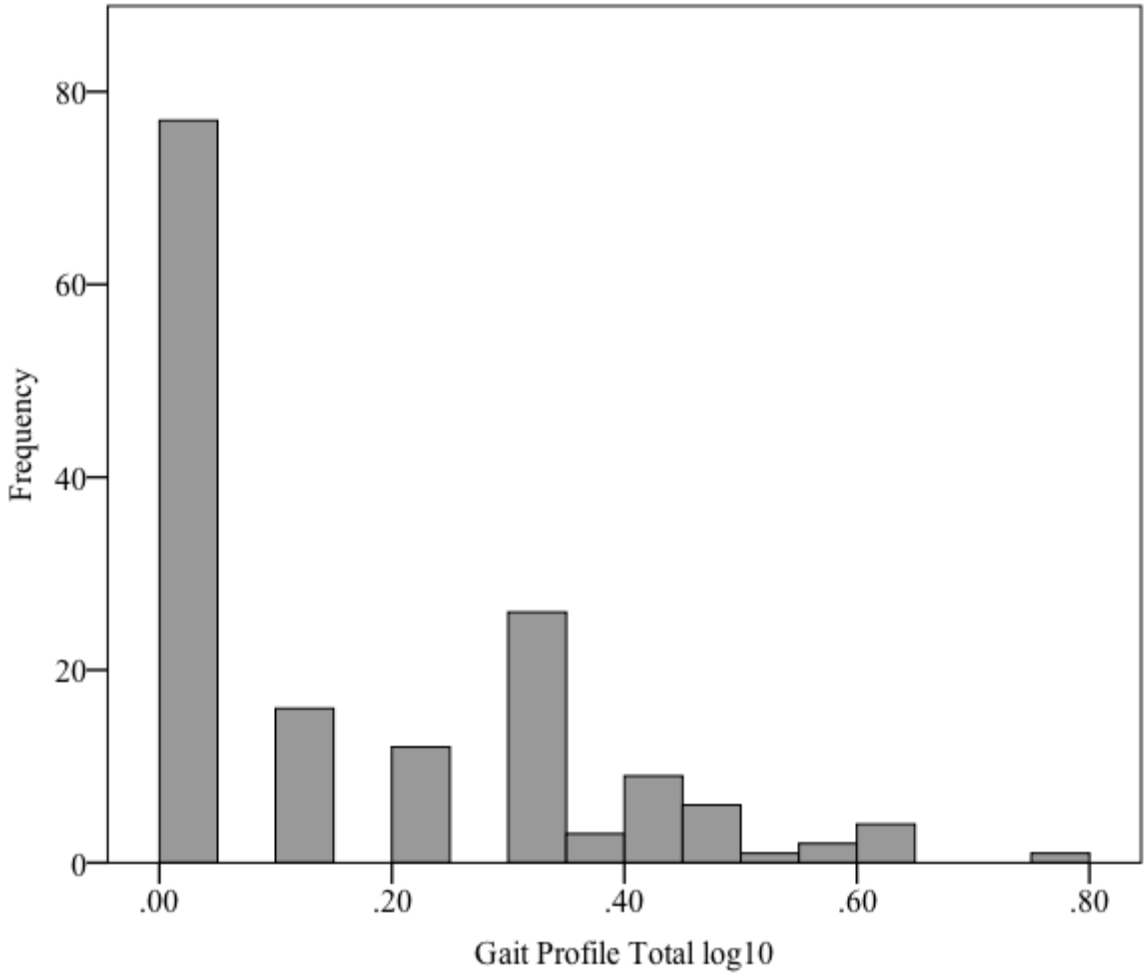


Figure 6. Average perceived vulnerability ratings for Phase 1 participants.

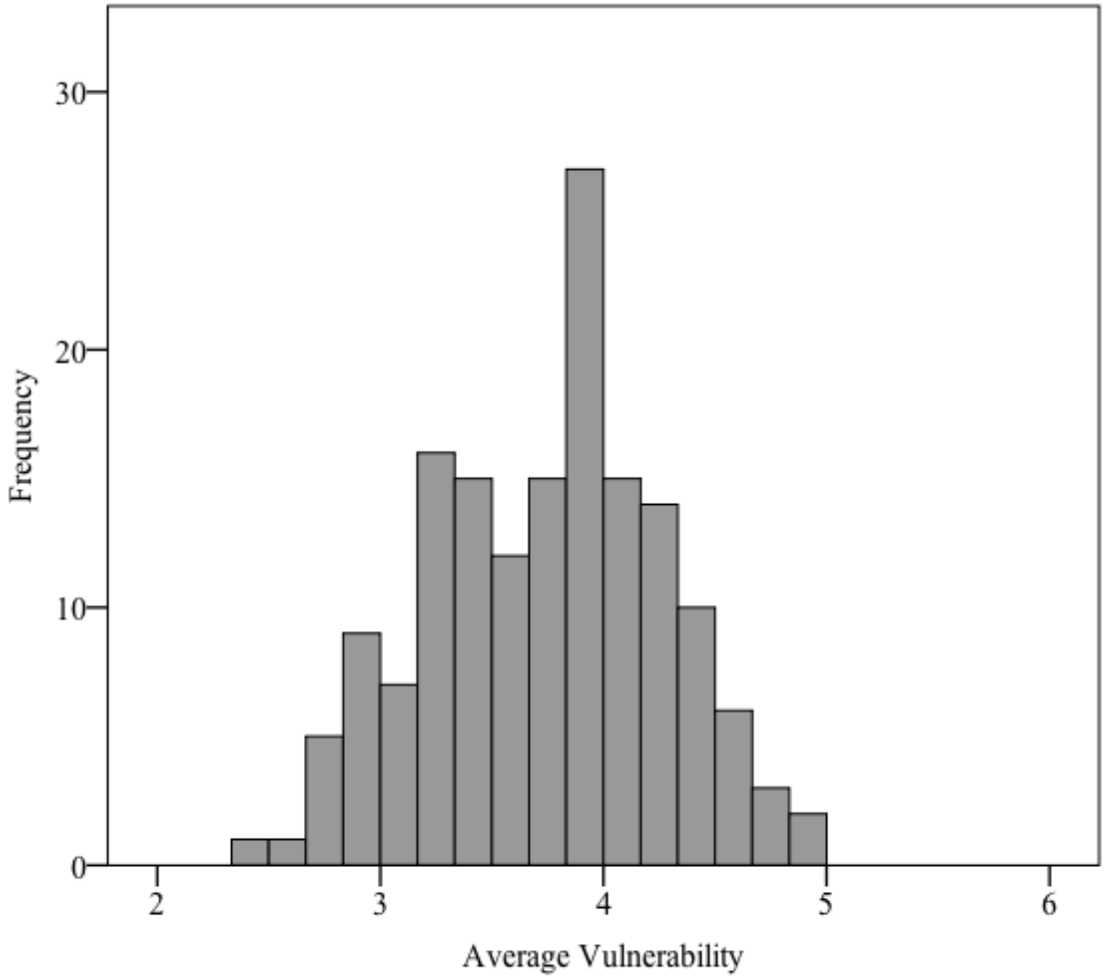
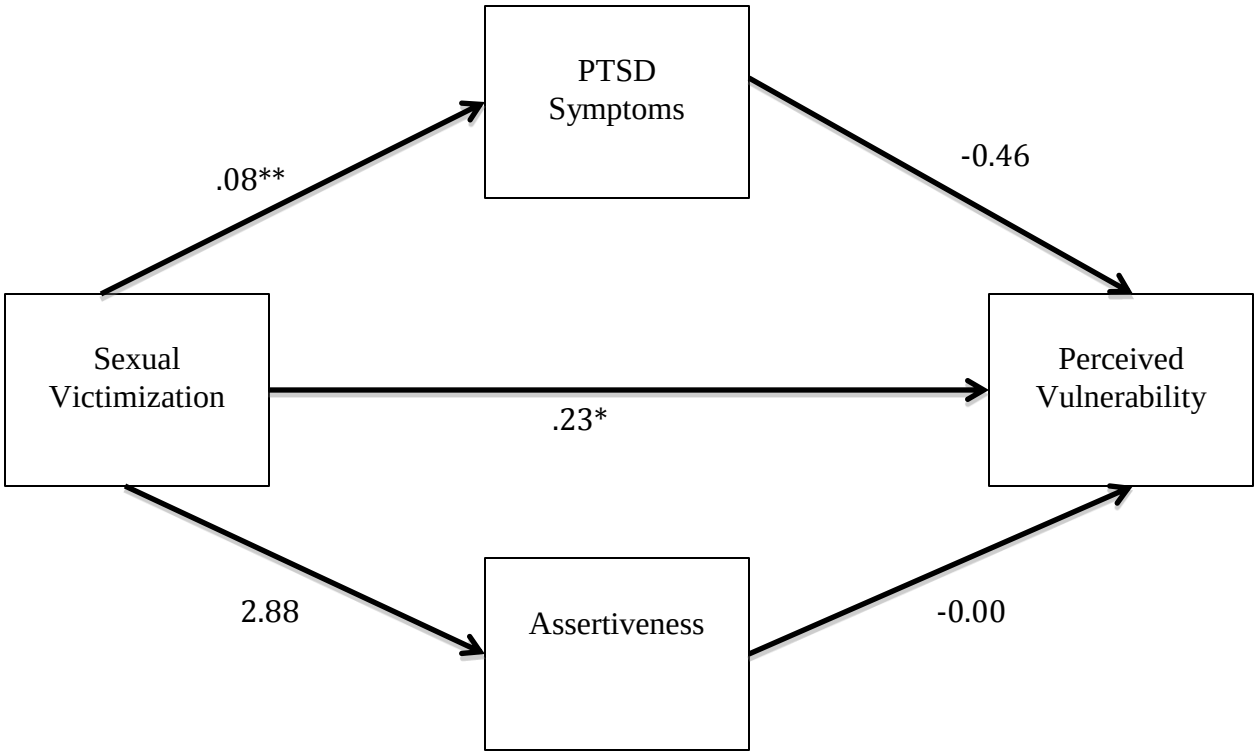


Figure 7. Path model for sexual victimization as a predictor of perceived vulnerability with PTSD symptoms and assertiveness as mediators.



# CHAPTER 8

## METHOD PHASE TWO

Phase 2 utilized a sample of male college undergraduates who viewed a randomly selected subset of the clips created in Phase 1. Participants provided ratings of each walker's perceived vulnerability to sexual victimization. Raters also self-reported on their own history of sexual assault perpetration and level of psychopathy. First I aimed to replicate the associations between sexual victimization and judgments of perceived vulnerability using a well-established measure of sexual assault in Phase 1 participants. A primary aim of Phase 2 was to test the theory that traumatic sequelae mediated the association between sexual victimization and perceived vulnerability (Cloitre et al., 1997; Cloitre et al., 2006; Messman-Moore & Long, 2003) and to examine Grayson and Stein's (1981) profile of nonverbal behavior as a mechanism by which traumatic sequelae impacted perceived vulnerability. Finally, to establish that perceived vulnerability is important for victim selection, I aimed to test the impact of perpetration status on judgments of perceived vulnerability and the accuracy of identifying women who have a history of previous victimizations.

The following hypotheses were tested:

### Hypotheses

1. Following Sakaguchi and Hasegawa (2006) and Wheeler et al. (2009), I predicted that walkers who self-reported a history of adult sexual assault in Phase 1 were perceived as more vulnerable by raters blind to victimization status. Next, an exploratory analysis tested the relative explanatory power of victimization status and other walker characteristics that have been found to impact vulnerability ratings (i.e., walker's weight,

physical attractiveness, femininity, clothing, and footwear, Gunns et al., 2002; Sakaguchi & Hasegawa, 2006).

2. Following the models put forth by Cloitre et al. (1997; 2006) and Messman-Moore and Long (2003), I predicted that traumatic sequelae would mediat the association between sexual victimization and perceived vulnerability. In addition, I predicted that the five features of Grayson and Stein's (1981) nonverbal behavior profile would mediat the relationship between traumatic sequelae and perceived vulnerability.
3. Following McArthur and Baron's (1983) ecological approach to social perception and the theory that judgment accuracy is improved by experience and relevance of the judgment to one's social goals (Fiske & Taylor, 1991; Patterson, 1995; Zebrowitz & Montepare, 2006), I predicted that raters who self-reported a history of sexual assault perpetration would be more accurate in their ratings of vulnerability. Consistent with Wheeler et al. (2009), I predicted that level of psychopathy would be positively associated with rating accuracy. An exploratory analysis examined the relative power of psychopathy and perpetration history in explaining rating accuracy.

## Sample

A sample of 253 male undergraduates[2] who were recruited through the RP pool of the large southeastern university that was described in Phase 1. The study was advertised through the SONA website as consisting of a survey assessing personalities, attitudes, and experiences as

[2] Sample size is based on the results of a priori power analyses that were conducted for all statistical tests using the G*Power 3.1 program (Faul et al., 2009). Results indicated that 104 participants will be necessary to achieve power = .95 with $\alpha = .05$, and medium-large effect size (d = .65) for all statistical tests requiring Phase 2 participants.

well as a rating task. All participants were compensated with credit towards fulfillment of the research requirements of an introductory-level psychology course. Exclusion criteria consisted of the following: current age less than 18 years, female gender, visual impairment severe enough to preclude completion of the rating task. The sample was predominantly comprised of young adult men ($M_{age}$ = 19.84, *SD* = 1.10) in their first (53%, *n* = 134) or second (23%, *n* = 58) year of college. The majority (98%, *n* = 249) reported being single/never married. Participants self-identified as White (73%, *n* = 184), Asian 12% (*n* = 31), Black 8% (*n* = 19), and 7% (*n* = 19) as Hispanic, Latino, Native Hawaiian, Pacific Islander, or "Other." Average reported yearly income for participants' families of origin was $76,000 to $100,000, which is consistent with the university's relatively affluent student body.

## Measures

*Sexual Assault Perpetration.* Perpetration of sexual aggression was assessed using the perpetration version of the same measure used to assess sexual victimization (SES-R-P; Koss et al., 2007). The number of items, item content, and response options were equivalent between two versions. However, relative to the SES-R, the items that comprised the SES-R-P were reworded to measure perpetration rather than victimization. For example, "A man put his penis into my butt, or someone inserted fingers or objects without my consent" became "I put my penis, fingers, or objects into someone's butt without their consent."

The Sexual Experiences Survey (SES; Koss et al., 1987) is the most widely used measure of sexual assault perpetration among college students (Thompson et al., 2011). Validity studies have shown that responses to the instrument correlated strongly with responses obtained in face-to-face interviews (Koss et al., 1987; Koss & Gidycz, 1985; Koss & Oros, 1982). The SES-R-P

was also scored dichotomously, as recommended by the authors. Participants were coded as nonperpetrators if they respond "0 times" to all items, all others were coded as perpetrators. In the current sample, Cronbach's alpha was .92, which indicated high internal consistency reliability.

*Psychopathy*. Psychopathy was assessed with the 64-item Self-Report Psychopathy Scale-IIII (SRP-III; Paulhus, Hemphill, & Hare, in press). The scale was developed by combining items that discriminated between high and low scoring individuals on the PCL-R (Lilienfeld & Andrews, 1996**)** to assess psychopathic characteristics among non-forensic populations. The scale included a total score as well as the following four subscale scores: 1) Interpersonal Manipulation, 2) Callous Affect, 3) Erratic Life Style, and 4) Antisocial Behavior (Paulhus et al., in press). The Interpersonal Manipulation subscale measured traits related to the interpersonal profile of psychopathy, including glibness or superficial charm, pathological lying, and willingness to con or manipulate others (Hare, 1991). The Callus Affect subscale measured the affective components of psychopathy that include shallow emotional experience (particularly anxiety), callous rather than empathetic attitudes, lack of remorse, egocentricity and grandiosity (Hare, 1991). The Erratic Life Style subscale assessed a history of impulsivity and irresponsibility, and the Antisocial Behavior subscale assessed a history of diverse and prolific antisocial and delinquent behavior (Hare, 1991). Each item was answered using a 5-point scale with values ranging 1 (*disagree strongly*) to 5 (*agree strongly*). Items included the following: "It tortures me to see an injured animal." and "I have never attacked someone with the idea of injuring them."

The internal consistency of the SRP-III has been demonstrated to be good (Cronbach's alpha greater than .82; Brinkley, Schmitt, Smith, & Newman, 2001; Warkentin & Gidycz, 2007).

SRP-III scores were moderately correlated with the scores on the PCL-R ($r$ = .35; Brinkley et al., 2001). Validity studies have demonstrated convergent validity via strong positive correlations with other well-established measures of psychopathy and criterion validity via logical associations with five factor model traits (Benning, Patrick, Blonigen, Hicks, & Iacono, 2005; Williams & Paulhus, 2004). Scoring of the SRP-III consisted of summing responses on all items (with some items being reverse coded) to create a total score. Higher SRP-III scores indicated greater self-reported levels of psychopathic traits. Finally, subscale scores were calculated with higher scores suggesting higher levels of the associated psychopathic traits. In the current sample, Cronbach's alpha was .88 for the total score, .81 for the Interpersonal Manipulation subscale, .71 for the Callous Affect subscale, .77 for the Erratic Lifestyle subscale, and .72 for the Antisocial Behavior subscale.

*Vulnerability Ratings*. After viewing each video clip, participants responded to the following question: "How vulnerable is this woman to sexual assault (e.g., having unwanted sex that results from physical force, verbal coercion, threats, or alcohol/drug intoxication)." Response options were provided on a 7-point scale, ranging from 1 (*not at all vulnerable*) to 7 (*extremely vulnerable*).

An average perceived vulnerability score was calculated for each Phase 1 participant across Phase 2 raters, with higher scores indicating greater perceived vulnerability. Next, an overall score for accuracy in labeling victims as more vulnerable than nonvictims was calculated for each Phase 2 participant. To calculate the accuracy score, ratings of Phase 1 participants who reported a sexual victimization were reverse coded so that low scores indicate greater rating accuracy. Next, reverse coded scores were summed with vulnerability ratings for walkers who did report a sexual victimization. The resultant sum for each Phase 2 participant represented

overall rating accuracy of his vulnerability ratings with lower scores indicating more accurate ratings (possible range 25- 175). In the current sample, Cronbach's alpha was .94 indicating high internal consistency.

## Procedure

The university's IRB approved the study procedures. Upon presenting to the experimental room, informed consent was obtained with the participant's signature on the informed consent document. The clips generated in Phase 1 served as stimuli in the Phase 2 rating task. The participant read the following instructions regarding the rating task:

> The current study investigates links between walking style and vulnerability to several types of aggressive behavior. You will be asked to watch video clips of women walking and rate each according to how vulnerable she is to three types of aggressive behavior. The study is concerned with how easy these women would be to attack, and not the likelihood that you would actually attack any of them. The intent is not to assess your character, so please respond honestly. There are no right or wrong answers, and all judgments are equally valid. Please make instinctive and immediate judgments as much as possible. For each video, put yourself in the role of an attacker and decide who would be a "good victim."

The participant viewed five sample clips depicting members of the research team followed by 25 target clips depicting participants from Phase 1. The 25 target clips were randomly selected from the 158 available clips. Each participant viewed a different subset of 25 randomly selected target clips. Using a randomly selected subset of clips for each Phase 2 participant reduced possible fatigue effects while still obtained ratings of all 158 available clips. Each clip was displayed on a

21-inch computer monitor using the Windows Media Player. After each clip, the participant provided ratings of perceived vulnerability to sexual assault (e.g., having unwanted sex that results from physical force, verbal coercion, threats, or alcohol/drug intoxication).

After rating all 25 clips, the participant then completed the survey measures described above. The survey responses were collected using Qualtrics as described in Phase 1. No identifying information was included with the participant's survey responses. Measures were presented in a manner consistent with the original formatting; however, all items included an additional option that allowed participants to decline to respond (i.e., "prefer not to answer") to comply with IRB specifications. Upon completion of the survey, the experimenter presented the debriefing form, which included more detailed information about the purpose of the study, provided researchers' contact information, and provided names and contact information for area mental health resources.

# CHAPTER 9

# RESULTS PHASE TWO

In the final sample, 33% (*n* = 83) of participants reported a history of some form of sexual assault perpetration since the age of 14 on the perpetration version of the Sexual Experiences Survey – Revised (SES-R-P; Koss et al., 2007). Among participants who reported a history of perpetration, frequency of perpetration ranged between 1 and 45 times since the age of 14 with an average frequency of 2.31 times (*SD* = 6.04, see Table 6 for descriptive statistics). Of the total sample, 20% (*n* = 50) reported perpetrating some form of sexual assault in the 12 months prior to participating in the study.

A substantial minority of participants (14%, *n* = 35) reported sexual assault perpetration that likely meets the legal definition of attempted or completed rape (i.e., attempted or completed oral, anal, or vaginal penetration without consent by use of force, threat of force, or exploitation of intoxication) since the age of 14. In fact, 8% (*n* = 21) of participants reported perpetrating an attempted or completed rape in the prior 12 months. In the total sample, the frequency of reported attempted or completed rape perpetration ranged from never to 14 times (see Table 7 for the frequency distribution). Among men who reported perpetrating at least once, the average frequency of reported attempted or completed rape perpetration was 1.45 times (*SD* = 2.75); however, among men who reported perpetrating at least one attempted or completed rape, the average frequency of attempted or completed rape perpetration was 3.43 time (*SD* = 3.35).

Perpetrators reported that verbal coercion (i.e., telling lies, threatening to end a relationship, threatening to spread a rumor about her, continual verbal pressure, showing displeasure, criticizing her sexuality or attractiveness, or getting angry) was the most common

perpetration tactic, with 24% (*n* = 61) of participants endorsing a perpetration that occurred due to verbal coercion. Sexual assaults that reportedly occurred through exploitation of the victim's intoxication were also relatively common, with 15% (*n* = 39) of participants reporting this type of perpetration. Finally, 5% (*n* = 13) of participants reported a perpetration that occurred because they used force (e.g., holding the victim down or using a weapon) or threatened the victim with physical harm.

## Hypothesis One

The first hypothesis stated that walkers who self-reported a history of adult sexual assault victimization in Phase 1 would be rated as more vulnerable by Phase 2 participants blind to victimization status. The hypothesis was tested using an independent samples t-test. A dichotomous measure of sexual assault victimization since the age of 14 (as assessed by SES-R scores) was entered as the independent variable and average perceived vulnerability score was entered as the dependent variable.

First descriptive statistics for the perceived vulnerability ratings for Phase 1 participants were examined. An average perceived vulnerability score was calculated for each Phase 1 participant by averaging across the perceived vulnerability scores of Phase 2 participants who rated her clip. Each Phase 1 participant was rated by between 24 and 158 Phase 2 participants (*M* = 40.73, *SD* = 20.44). Phase 1 participants' average perceived vulnerability ratings ranged from 2 to 5 with a mean of 3.74 (*SD* = 0.52). Visual examination of distribution of average perceived vulnerability scores suggested non-significant deviations from normality (see Figure 6 for the histogram), which was confirmed by examination of the z-scores for the skewness and kurtosis statics (*p*s = .60 and .17, respectively). As expected, victims' mean level of perceived

vulnerability ($M$ = 3.84, $SD$ = 0.53) was significantly higher than that of nonvictims ($M$ = 3.65, $SD$ = 0.50), $t(156) = 2.30$, $p = .02$.

Next an exploratory analysis tested the relative explanatory power of victimization status and other walker characteristics that have been found to impact vulnerability ratings (i.e., walker's weight, physical attractiveness, femininity, clothing, and footwear). In preparation, descriptive statistics for coding of these characteristics were examined. Average attractiveness scores ranged from 1 to 12.67 ($M$ = 3.17, $SD$ = 1.06). The $z$-scores of the skewness and kurtosis statistics suggested significant positive skew and a leptokurtic distribution ($p$s < .001). Therefore, a log10 transformation was performed to normalize the distribution; however, the distribution remained significantly leptokurtic. Average femininity scores ranged from 1 to 5 ($M$ = 3.15, $SD$ = 0.66). The $z$-scores of the skewness and kurtosis statistics suggested non-significant deviations from normality (p = .40 and .06, respectively). The majority of women were coded as either between 4'6'' and 5' ($n$ = 118, 75%) or between 5' and 5'6'' ($n$ = 35, 23%). However, two participants were coded as between 4' and 4'6'' and two were coded as between 5'6'' and 6'. The majority of women were coded as weighing between 125 and 150 pounds ($n$ = 141, 89%), 9 women as between 100 and 125 pounds, 6 women as between 150 and 175 pounds, and 1 woman as between 175 and 200 pounds. Participants were mostly coded as wearing pants, shorts, or leggings ($n$ = 151, 96%) rather than skirts or dresses ($n$ = 6, 4%) and as wearing flat shoes ($n$ = 153, 98%) rather than high-heeled shoes ($n$ = 4, 3%).

A correlational analysis was used to explore the association between vulnerability ratings and walker's weight, physical attractiveness, femininity, clothing, and footwear (see Table 5 for the correlation table). Vulnerability ratings were significantly positively associated with walker's weight, $r(n = 157) = -.30$, $p < .001$, attractiveness, $r(n = 157) = .49$, $p < .001$, and femininity, $r(n$

= 157) = .36, $p < .001$. However, height, clothing, and footwear were not significantly related to vulnerability ratings (*p*s of .47, .96, and .93, respectively). Thus, Phase 1 participants who were coded as more attractive, more feminine, and less heavy were more likely to be rated as vulnerable to sexual victimization by Phase 2 participants.

Next, a linear multiple regression analysis was used to examine the association between the walkers' characteristics and perceived vulnerability ratings. Average perceived vulnerability scores were regressed on the explanatory variables, which consisted of walkers' sexual victimization history, weight, attractiveness, and femininity. The model explained 26% of the variance in perceived vulnerability ratings, $F(4, 152) = 13.54$, $p < .001$. With all explanatory variables in the model, attractiveness explained significant unique variance, $\beta = 0.38$, $p < .001$, but femininity, $\beta = 0.11$, $p = .19$, weight, $\beta = -0.12$, $p = .16$, and sexual victimization, $\beta = 0.04$, $p = .61$, did not.

## Hypothesis Two

The second hypothesis stated that traumatic sequelae would mediate the association between sexual victimization and perceived vulnerability. To test this hypothesis, a mediation analysis was conducted using the PROCESS macro from Hayes (2012). Sexual victimization (as assessed by transformed frequency of sexual assault since the age of 14 as measured by the SES-R) served as the independent variable and average perceived vulnerability score served as the dependent variable. PTSD symptoms (as assessed by transformed PCL total scores) and assertiveness (as measured by RAS total scores) served as the mediators. Raw score (i.e., unstandardized) coefficients for all of the paths in this model appear in Figure 7. The total $R^2$ was .05 for prediction of perceived vulnerability from sexual victimization and traumatic sequelae,

*F*(3, 153) = 2.60, *p* = .05. Contrary to my prediction, neither PTSD symptoms (*B* = -0.46, *SE* = 0.31, *p* = .14, 95% *CI* = -1.08 to 0.15), nor assertiveness (*B* = -0.00, *SE* = 0.00, *p* = .38, 95% *CI* = -0.01 to 0.00) mediated the association between sexual victimization and average perceived vulnerability. Due to the non-significant mediation by both PTSD symptoms and assertiveness, the proposed exploratory analysis to examine the relative magnitude effect of PTSD symptoms and assertiveness was not performed.

The second hypothesis also stated that nonverbal behavior would mediate the association between traumatic sequelae and perceived vulnerability; however, because no association was found between traumatic sequelae and perceived vulnerability the proposed analyses to test this hypothesis was not performed.

## Hypothesis Three

The third hypothesis stated that raters who self-reported a history of sexual assault perpetration would more accurately label victims as vulnerable to exploitation. An independent-samples t-test was conducted to test this hypothesis. Perpetration status (as assessed by a dichotomous measures of perpetration since the age of 14 reported on the SES-R) served as the grouping variable and rating accuracy served as the outcome variable. In preparation, descriptive statistics of rating accuracy were examined. Each Phase 2 participant viewed and rated 25 Phase 1 participants in terms of the women's perceived vulnerability to sexual assault. An overall accuracy score was calculated for each Phase 2 participant. Lower accuracy scores indicated that a participant rated women who self-identified as victims of sexual assault as more vulnerable to sexual assault relative to nonvictims. Accuracy scores ranged from 85 to 125 with a mean of 103.69 (*SD* = 7.39). Visual examination of the distribution suggested a relatively normal

distribution (see 8 for the histogram); however, examination of the skewness and kurtosis statics suggested significant positive skew (*ps* = .03 and *p* = .99, respectively). Therefore, a log10 transformation was applied to normalize the distribution (see Figure 9 for the histogram). The transformed variable demonstrated non-significant skewness and kurtosis (*ps* = .47 and *p* = .77, respectively) and was used in further analyses. Next, an independent-samples t-test was conducted. As predicted, sexual assault perpetrators (*M* = 2.00, *SD* = 0.03) were more accurate in their vulnerability ratings than were nonperpetrators (*M* = 2.02, *SD* = 0.03), *t*(248) = -2.12, *p* = .04.

The third hypothesis also stated that raters who scored higher on a measure of psychopathy would more accurately identify victims as vulnerable. A bivariate correlation between level of psychopathy (as measured by SRP-III total score) and rating accuracy was conducted to test this hypothesis. In preparation, participants' scores on the Self-Report Psychopathy Scale-IIII (SRP-III; Paulhus, Hemphill, & Hare, in press) were examined (see Table 3 for descriptive statics). Visual examination of the distribution of participants' SRP-III total scores suggested non-significant deviations from normality (see Figure 10 for the histogram), which was confirmed by examining the *z*-scores for the skewness and kurtosis statics (*p*s = .95 and .79, respectively). In the current sample, participants' scores SRP-III total scores ranged between 90 and 225 (*M* = 160.42, *SD* = 22.71). Next, the SRP-III subscale scores were examined. Scores on the Interpersonal Manipulation subscale ranged from 20 to 67 (*M* = 44.64, *SD* = 8.04). On the Callous Affect subscale, participants' scores ranged from 21 to 66 (*M* = 42.60, *SD* = 6.88). For the Erratic Lifestyle subscale, scores ranged between 24 and 72 (*M* = 47.20, *SD* = 8.41). Finally, on the Antisocial Behavior subscale of the SRP-III, participants' scores ranged from 16 to 48 (*M* = 26.10, *SD* = 7.14). Examination of the *z*-scores for the

skewness and kurtosis statics for the Interpersonal Manipulation, Callous Affect, and Erratic Lifestyle subscales suggested non-significant deviations for normality for skewness (*p*s between .50 and .90) and kurtosis (*p*s between .20 and .81). However, visual examination of the distribution of the Antisocial Behavior subscale of the SRP-III suggested significant positive skew (see Figure 11 for the histogram), which was confirmed through examination of the *z*-scores for the skewness and kurtosis statics ($p < .001$ and $p = .89$ respectively). Therefore, a log10 transformation was applied to the Antisocial Behavior subscale to address the positive skew and normalize the distribution. Both visual examination and review of the *z*-score for the skewness static for the transformed Antisocial Behavior subscale suggested less significant departure from normality (see Figure 12 for the histogram). Therefore, the transformed Antisocial Behavior subscale score was used in the subsequent analyses. Next, the bivariate correlation was conducted. As expected, raters who scored higher on psychopathy were more accurate in their ratings of vulnerability, $r(n = 253) = -.14$, p = .03 (see Table 8 for full correlation table with all Phase 2 variables).

Finally, an exploratory analysis examined the relative power of psychopathy and sexual assault perpetration history in explaining rating accuracy using a linear multiple regression analysis. Rating accuracy was regressed on psychopathy (as measured by SRP-III total score) and sexual assault perpetration history (as measured by perpetration since the age of 14 reported on the SES-R) with both explanatory variables entered simultaneously to assess their relative explanatory power. The model explained 9% of the variance in accuracy ratings, $F(2, 247) = 12.52$, $p < .001$. With both explanatory variables in the model, perpetration history ($\beta = -0.28$, $p < .001$) but not psychopathy ($\beta = -0.06$, $p = .38$) explained significant unique variance in the accuracy of participants' ratings.

Table 6. Frequency of any sexual assault perpetration since age 14 in Phase 2 participants.

| Value | Frequency | Percent | Cumulative Percent |
|---|---|---|---|
| 0 | 170 | 67.2 | 67.2 |
| 1 | 18 | 7.1 | 74.3 |
| 2 | 17 | 6.7 | 81.0 |
| 3 | 11 | 4.3 | 85.4 |
| 4 | 3 | 1.2 | 86.6 |
| 5 | 3 | 1.2 | 87.7 |
| 6 | 3 | 1.2 | 88.9 |
| 7 | 3 | 1.2 | 90.1 |
| 8 | 4 | 1.6 | 91.7 |
| 9 | 3 | 1.2 | 92.9 |
| 10 | 1 | 0.4 | 93.3 |
| 11 | 1 | 0.4 | 93.7 |
| 12 | 3 | 1.2 | 94.9 |
| 14 | 2 | 0.8 | 95.7 |
| 17 | 1 | 0.4 | 96.0 |
| 18 | 1 | 0.4 | 96.4 |
| 19 | 1 | 0.4 | 96.8 |
| 20 | 1 | 0.4 | 97.2 |
| 22 | 1 | 0.4 | 97.6 |
| 25 | 2 | 0.8 | 98.4 |
| 29 | 1 | 0.4 | 98.8 |
| 34 | 1 | 0.4 | 99.2 |
| 36 | 1 | 0.4 | 99.6 |
| 45 | 1 | 0.4 | 100.0 |

*Note.* Sexual assault perpetration frequency was measured by the Sexual Experiences Survey-Revised (Koss et al., 2007).

Table 7. Frequency of rape perpetration since age 14 in Phase 2 participants.

| Value | Frequency | Percent | Cumulative Percent |
|---|---|---|---|
| 0 | 218 | 86.2 | 86.2 |
| 1 | 14 | 5.5 | 91.7 |
| 2 | 5 | 2.0 | 93.7 |
| 3 | 5 | 2.0 | 95.7 |
| 4 | 2 | 0.8 | 96.4 |
| 5 | 2 | 0.8 | 97.2 |
| 6 | 2 | 0.8 | 98.0 |
| 7 | 1 | 0.4 | 98.4 |
| 8 | 1 | 0.4 | 98.8 |
| 9 | 1 | 0.4 | 99.2 |
| 13 | 1 | 0.4 | 99.6 |
| 14 | 1 | 0.4 | 100.0 |

*Note.* Rape perpetration frequency was measured by the Sexual Experiences Survey-Revised (Koss et al., 2007).

Table 8. Pearson's product-moment correlations between study variables in Phase 2 participants ($n$ = 253).

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| 1. Perpetration | - | | | | | | |
| 2. Accuracy | -.13 | - | | | | | |
| 3. SRP total | .09 | -.14 | - | | | | |
| 4. SRP Antisocial Behavior | .07 | -.12 | .70 | - | | | |
| 5. SRP Interpersonal Manipulation | .08 | -.10 | .77 | .32 | - | | |
| 6. SRP Callous Affect | .01 | -.04 | .73 | .35 | .50 | - | |
| 7. SRP Erratic Lifestyle | .11 | -.14 | .77 | .46 | .44 | .37 | - |

*Note*. Perpetration = Sexual assault perpetration frequency, which was measured by the Sexual Experiences Survey-Revised (Koss et al., 2007). Accuracy was calculated based on the concordance between Phase 2 participants' vulnerability ratings and Phase1 participants' report of sexual victimization. Higher scores represent less accurate ratings. SRP = Self-Report Psychopathy Scale. The psychopathy variables were measured by the Self-Report Psychopathy Scale-IIII (Paulhus et al., in press).
$p$-values $\leq$ .13 are significant at the .05 level.

Figure 8. Accuracy ratings in Phase 2 participants.

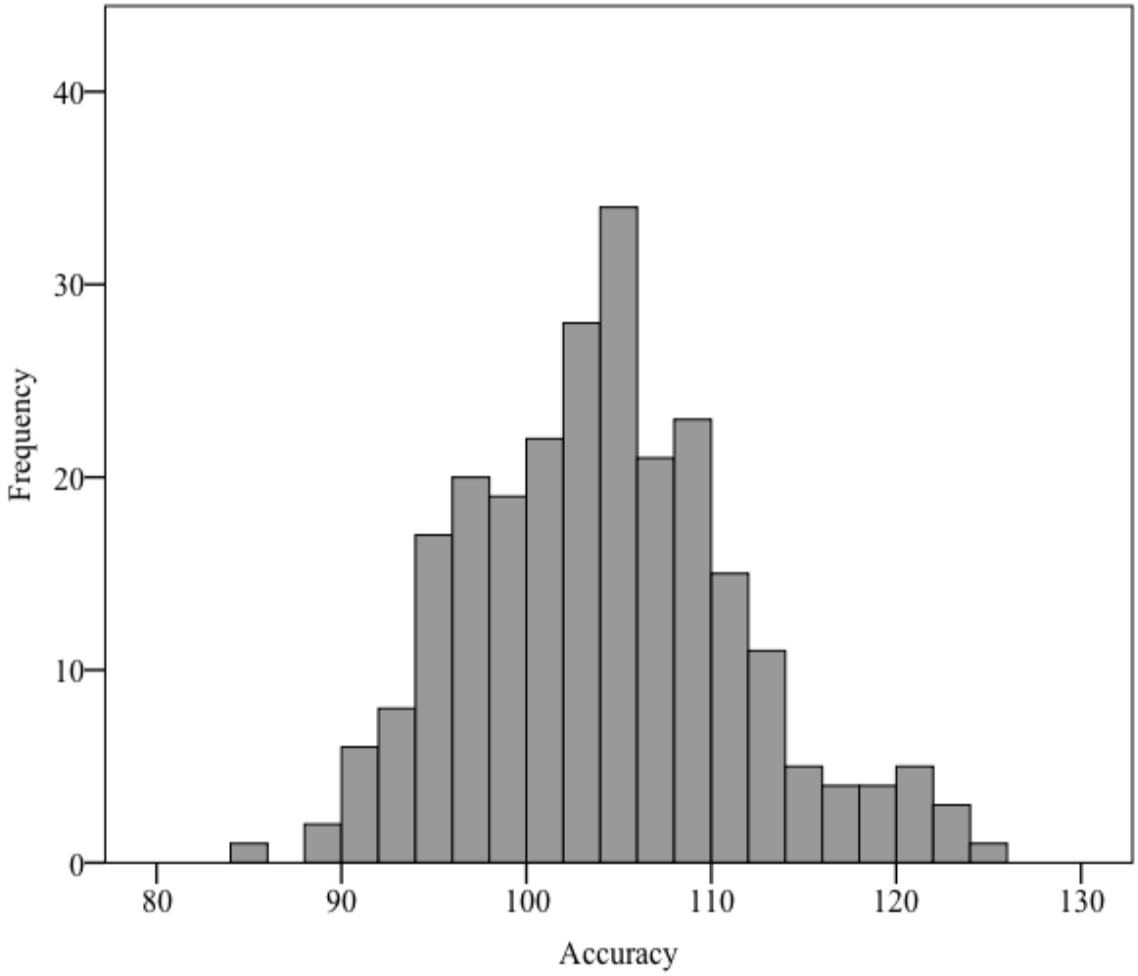


Figure 9. Accuracy ratings following log10 transformation in Phase 2 participants.

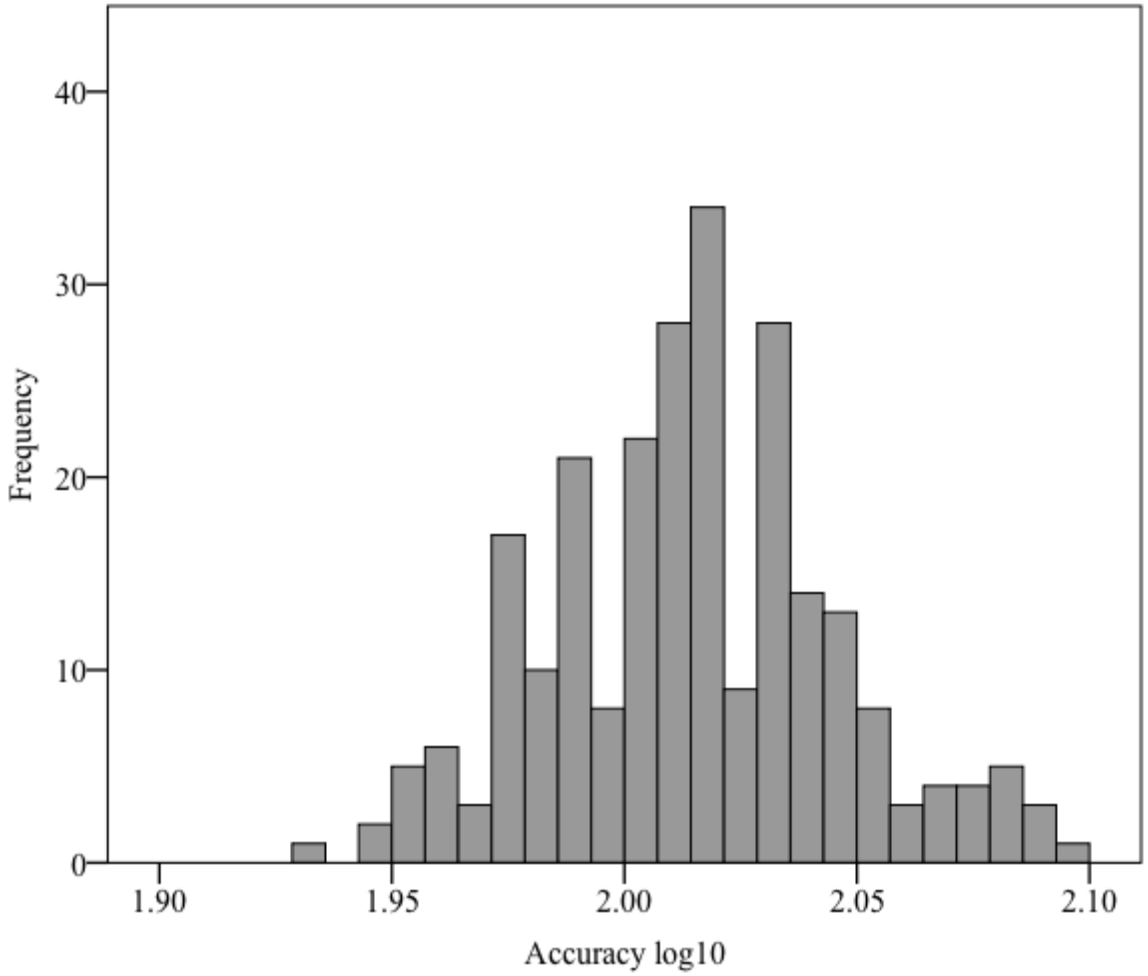


Figure 10. Self-Report Psychopathy III total score in Phase 2 participants.

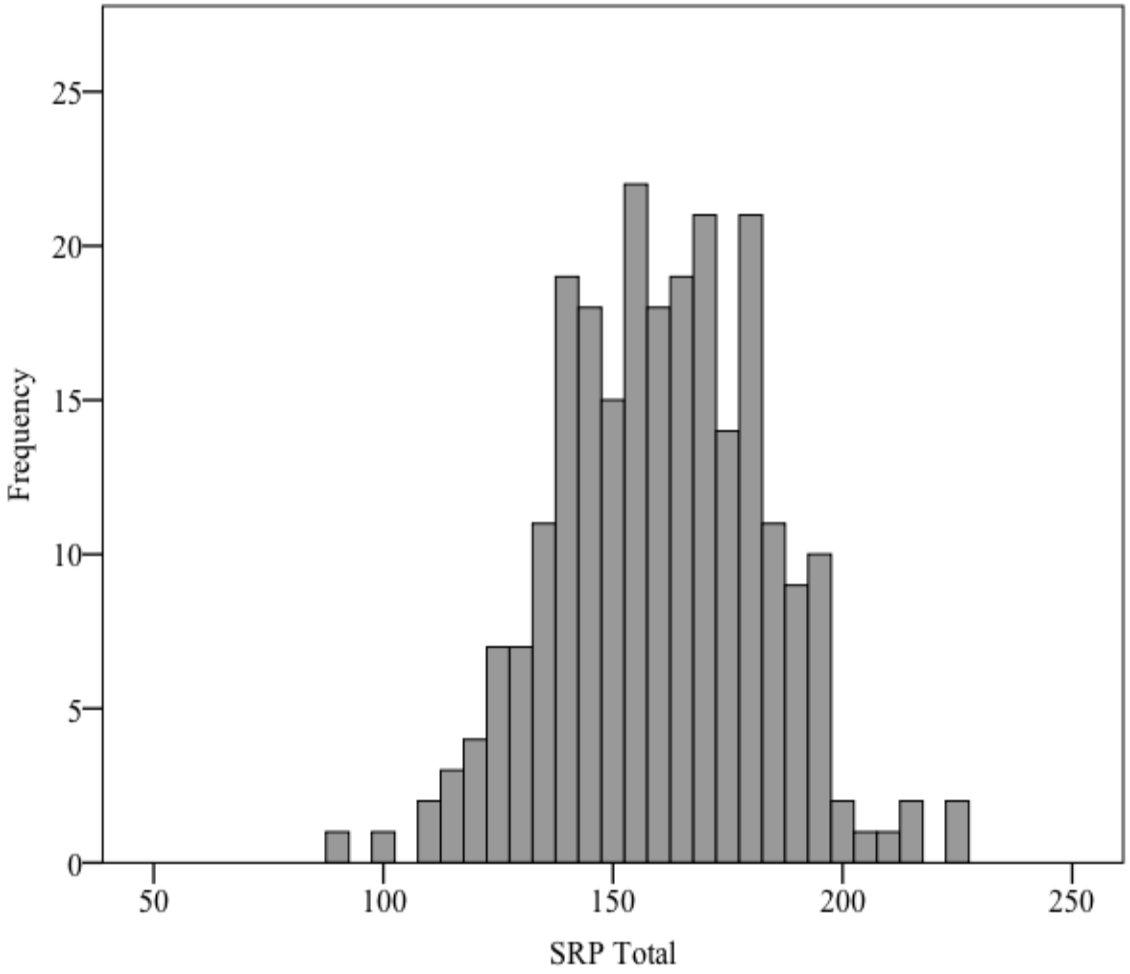


Figure 11. Self-Report Psychopathy III Antisocial Behavior sub scale in Phase 2 participants.

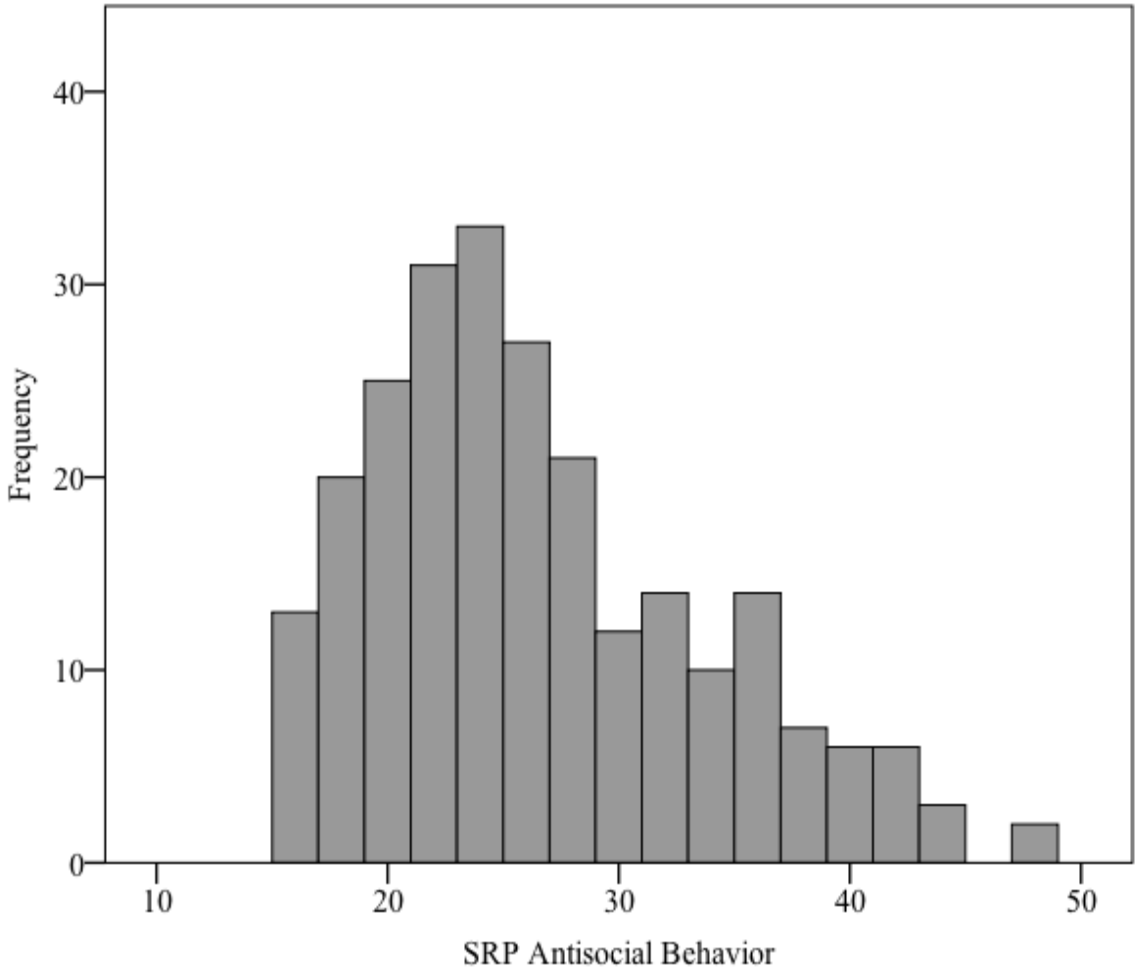
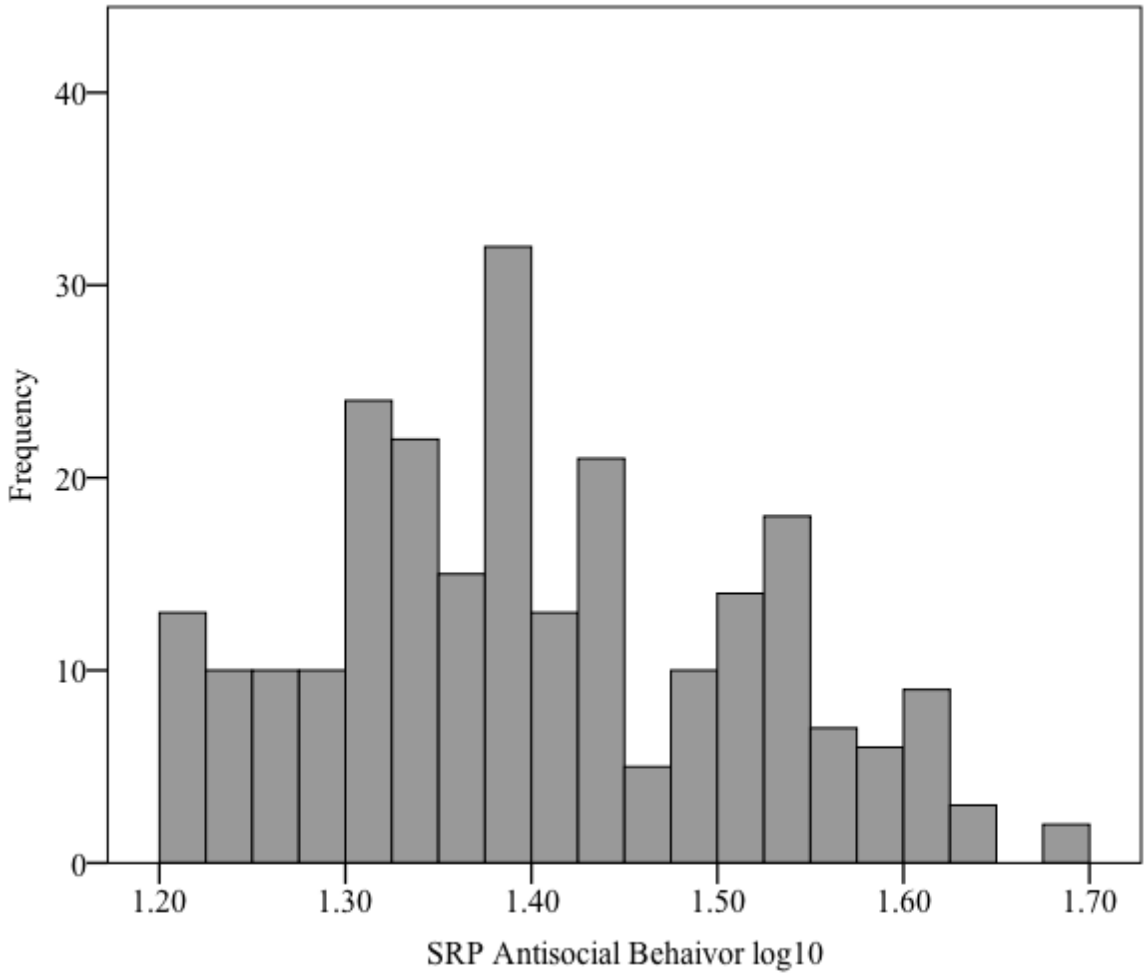


Figure 12. Self-Report Psychopathy III Antisocial Behavior sub scale following log10 transformation in Phase 2 participants.



# CHAPTER 10

# DISCUSSION

Sexual violence is all too common in our society generally and on our college campuses specifically. In the current sample of college women, 48% reported a history of some form of sexual victimization since the age of 14, and 20% reported a victimization that likely met the legal definition of attempted or completed rape (i.e., attempted or completed oral, anal, or vaginal penetration without consent by use of force, threat of force, or exploitation of intoxication). Similarly, in the larger literature approximately 50% of women report a history of some form of sexual victimization (Fisher et al., 2000; Koss et al., 1987), and 10-18% of women report a lifetime history of rape (Basile et al., 2007; Kilpatrick et al., 2007). Experiencing a sexual victimization is associated with negative outcomes for victims, including fear, depression, PTSD, decreased self-esteem and interpersonal problems (Kearns & Calhoun, 2010; Kessler et al., 1995; Resnick et al., 1993). Women who experience an initial victimization are also at much higher risk for revictimization (Cloitre et al., 1996; Gidycz et al., 1993; Humphrey & White, 2000; Kilpatrick et al., 1997; Tjaden & Thoennes, 2000). For example, on average rape victims in the current sample reported experiencing more than four rapes since the age of 14, and a relatively small percentage of women reported being single incident victims ($n$ = 10) relative to multiple incident victims ($n$ = 65). Therefore, exposure to violence is not randomly distributed, and a substantial percentage of women will never experience a serious victimization while others tend to be chronically exploited.

Although perpetrators are responsible for all acts of violence, in recent decades research has focused on understanding risk factors for sexual victimization. The bulk of this extant

literature has focused on engagement in behaviors that increase contact with perpetrators, deficits in risk recognition, and ineffective behavioral responding (Marx et al., 1998; 2001; Meadows et al., 1995; Schwartz & Pitts, 1995; Testa et al., 2010; Wilson et al., 1999; Yeater et al., 2010). However, it has also been suggested that perceived vulnerability may convey risk for sexual victimization (Cloitre et al., 1997; Cloitre & Rosenberg, 2006; Messman-Moore & Long, 2003). This suggestion is consistent with the rational choice approach to crime, which proposes that criminals choose victims who appear vulnerable to reduce the costs associated with criminal behavior (Becker, 1968; Cornish, 1993; Klepper & Nagin, 1989; Paternoster, 1987). Preliminary research in the area of nonverbal communication suggests that perceived vulnerability to interpersonal violence is related to a specific gait profile (Grayson & Stein, 1981) that can be reliably identified by observers (Sakaguchi & Hasegawa, 2007; Wheeler et al., 2009). However, relatively little is known about the role of perceived vulnerability in sexual victimization generally and this nonverbal profile specifically. To address this gap in the literature, the current dissertation examined the relationships between perceived vulnerability, sexual victimization, and Grayson and Stein's (1981) gait profile.

The dominant models proposed to explain revictimization focus on the role of the traumatic sequelae of earlier victimization in producing risk for later victimization by impacting women's threat detection, behavioral responding, exposure to potential perpetrators, and perceived vulnerability (Chu, 1992; Cloitre, 1998; Finkelhor & Browne, 1985; Messman-Moore & Long, 2003). However, the association between traumatic sequelae and perceived vulnerability has yet to be empirically tested. The current dissertation attempted to address this gap in the literature by examining the association between perceived vulnerability and two types of traumatic sequelae (i.e., PTSD symptoms and assertiveness).

Finally, studies linking nonverbal behavior to perceived vulnerability have yet to examine the impact of perpetration history on judgments of perceived vulnerability. Since perceived vulnerability may be an important component in victim selection decisions (Cloitre et al., 1997; 2006; Messman-Moore & Long, 2003), it is important to more fully understand how perpetrators make these judgments. Wheeler et al. (2009) found that psychopathy was related to more accurate judgments of perceived vulnerability (i.e., assigning greater perceived vulnerability to victims relative to nonvictims). If perpetrators also perceive women who have been previously victimized as more vulnerable, then this may explain why some women are repeatedly targeted and victimized. Therefore, the current dissertation tested the impact of both perpetration history and psychopathy on the accuracy of perceived vulnerability judgments.

## Summary of Findings

The first important finding from this study was that women's sexual victimization history was positively associated with the gait characteristics described by Grayson and Stein's (1981) profile. Sexual victimization was positively associated with the gait characteristics composite score, which incorporated the average score on all five characteristics of the profile. Sexual victimization was also positively associated with the characteristics of nonlateral weight shifts and unilateral body movements, specifically. Therefore, results of the current study suggest that college women who reported experiencing a sexual victimization tended to move in an uncoordinated manner, with a stride that was too short or too long for their height. Nonvictims, in contrast, displayed a more coordinated walk, a normal stride length, and foot movement and shifts of body weight showed synchrony. Additionally, in the current study women who reported

a sexual victimization had significantly higher mean levels of perceived vulnerability than did nonvictims.

Therefore, women who reported experiencing a sexual victimization were coded as displaying more of the gait characteristics described by Grayson and Stein's (1981) profile and were rated as more vulnerable to sexual victimization, which is consistent with the findings of several previous studies (Sakaguchi & Hasegawa, 2007; Wheeler et al., 2009). Specifically, Wheeler et al. (2009) used a mixed-gender sample of college students who self-reported on history of interpersonal victimization (i.e., victimization greater than or equal to bullying). Male raters who were blind to victim-status judged victims to be more vulnerable to mugging. Only one other study has investigated the association between sexual victimization and perceived vulnerability. Sakaguchi and Hasegawa (2007) obtained self-reported history of unwanted sexual touching, which is a common type of sexual victimization in Japan, from a sample of female Japanese college students. Consistent with results from the current study, sexual victimization was positively associated with the vulnerability judgments made by male undergraduate raters, and victims were coded as displaying more of the gait characteristics described by Grayson and Stein's (1981) profile.

It is important to note that the current study was the first to assess victimization using a well-validated measure (i.e., the Sexual Experiencing Survey-Revised, Koss et al., 2007) rather than relying on participants' self-identification as victims (i.e., one-question researcher-generated measures that ask if participants had been the victim of sexual assault or bullying). This is an important methodological improvement because the majority of college rape victims do not label their experience as rape, and unacknowledged victims may be at elevated risk of revictimization (Fisher et al., 2003; Hammond & Calhoun, 2007). Therefore, this study is one of the first to

replicate the associations between sexual assault, the gait profile described by Grayson and Stein (1981), and perceived vulnerability to sexual assault, and the very first to identify these associations in unacknowledged victims.

Judgments of vulnerability were also found to be associated with other physical characteristics of the Phase 1 participants. Specifically, vulnerability ratings were significantly positively associated with women's attractiveness and femininity and negatively associated with weight; however, height, clothing, and footwear were not found to be significantly related to vulnerability ratings. Thus, women in the current study who were coded as more attractive, more feminine, and lighter were more likely to rated as vulnerable to sexual victimization. Similarly, Gunns et al. (2002) reported weight (but not height) to be negatively associated with vulnerability rating for both male and female walkers, and Sakaguchi and Hasegawa (2006) found that women judged to be more attractive and feminine were rated as more vulnerable to sexual victimization. Regarding clothing and footwear, a previous study found that female participants wearing skirts rather than pants and high-heeled shoes rather than flat shoes were judged to be more vulnerable (Gunns et al., 2002). Therefore, the null results for clothing and footwear in the current sample may have resulted from restriction of range due to an overwhelming preponderance of pants, shorts, and leggings (96%) and flat shoes (98%).

The next important finding of the current dissertation regarded the associations between traumatic sequelae (i.e., PTSD symptoms, assertiveness), sexual victimization, and perceived vulnerability. I predicted that women who reported a sexual victimization would report higher levels of PTSD symptoms and lower levels of assertiveness. As expected, women who reported multiple sexual victimizations reported significantly higher levels of PTSD symptoms than did nonvictims. Nonvictims did not differ significantly from single incident victims, and single

incident victims did not differ significantly from multiple incident victims. Results of the current study are largely consistent with the existing literature linking sexual victimization to the experience of PTSD symptoms (Kessler et al., 1995; Resnick et al., 1993; Rothbaum et al., 1992; Zinzow et al., 2010).

Contrary to my prediction, level of assertiveness did not differ between victim groups. Although several studies have identified a relationship between lower levels of assertiveness and victimization history (Amick & Calhoun, 1987; Myers, Templer, & Brown, 1984; Selkin, 1978), there have also been studies that did not replicate this association (Himelein, 1995; Koss, 1985). Kearns and Calhoun (2010) offered an explanation for these divergent findings. The authors suggested that victims demonstrate situation specific assertiveness deficits (rather than global deficits) that are active in situations involving the possibility of sexual behavior. Kearns and Calhoun (2010) found that global assertiveness did not differentiate victims from nonvictims, whereas sexual refusal assertiveness (i.e., assertiveness related to refusing unwanted sexual advances) differed between women with and without a history of sexual victimization. Similarly, sexual refusal assertiveness (Livingston et al., 2007) and assertiveness with the opposite sex (Greene & Navarro, 1998) have both been found to be negatively associated with sexual victimization. The null result in the current study with the Rathus Assertiveness Schedule (Rathus, 1973), which measures global assertiveness, is therefore consistent with Kearns and Calhoun's (2010) explanation.

Also contrary to my predictions, neither the gait characteristics composite, nor any of the five individual gait characteristics scores was significantly associated with PTSD symptoms or assertiveness. Additionally, neither PTSD symptoms nor assertiveness mediated the association between sexual victimization and perceived vulnerability. These results are at odds with the

kinematic specification of dynamics principle, which proposes that nonverbal behavior is determined by the mover's psychological as well as physical characteristics (Runeson & Frykholm, 1983). Therefore, an observer should be able to obtain information about an individual's internal state from his/her movement. Past studies replicating Grayson and Stein's (1981) profile have found that a variety of internal characteristics (i.e., walker's personality, asking a walker to imagine walking in a dangerous environment) impact judgments of perceived vulnerability (Johnston et al., 2004; Sakaguchi & Hasegawa, 2006). Results of the current study suggested that, although these internal characteristics impacted ratings of nonverbal behavior and perceived vulnerability, PTSD symptoms and assertiveness did not. I speculate that the use of a college sample in the current study may have placed a restriction of range on both PTSD symptoms and assertiveness. Therefore, results may have differed if these associations were measured in a community or clinical sample. It is also possible that PTSD symptoms and global assertiveness did not impact participants gait in a reliable manner due to the significant heterogeneity inherent in these constructs. Finally, McArthur and Baron's (1983) ecological approach to social perception may also offer an explanation. The ecological approach specifies that humans have evolved to quickly and easily make judgments that have implications for survival and adaptive action but characteristics that don't have survival value are harder to detect and require more deliberate processing. It is possible that judgments related to PTSD symptoms and assertiveness do not have strong implications for survival and adaptive action and, thus, require more information and more deliberate processing than was available to raters in the current study.

The last important finding regarded the accuracy of college men's judgments of vulnerability (i.e., the concordance of their ratings with women's reported experience of sexual

victimization). As predicted, men who scored higher on a measure of psychopathy rated victims as more vulnerable to sexual assault than nonvictims. The result is consistent with the only other published study that examined the association between accuracy of perceived vulnerability ratings and psychopathy (Wheeler et al., 2009). To understand this link it is important to note that psychopathic traits are a well-established correlate of sexual as well as general aggression among incarcerated (Knight & Guay, 2006) and nonincarcerated (Abbey et al., 2011; DeGue & DiLillo, 2004; Kosson et al., 1997; Mouilso & Calhoun, 2012; Mouilso & Calhoun, 2013; Petty & Dawson, 1989) populations. Wheeler et al. (2009) suggested that individuals high on psychopathy have experience with "social predation," and, therefore, develop the ability to quickly and accurately recognize cues of vulnerability (p. 636). Consistent with this suggestion, sexual assault perpetration was associated with greater accuracy of participants' vulnerability ratings. In fact, when both psychopathy and perpetration were entered together as explanatory variables, only perpetration explained significant unique variance in rating accuracy. The current study is the first to examine the impact of sexual assault perpetration on perceptions of vulnerability, and it suggests the importance of perceived vulnerability in the cycle of victimization and revictimization.

## Limitations and Qualifications of the Present Study

Results of the current study should be considered in the context of several important limitations. First, the sample size presented a possible limitation. Although the sample size was sufficient to adequately power the analyses and perpetration rates were consistent with those in the larger literature (e.g., Koss et al., 1987; Malamuth, Sockloskie, Koss, & Tanaka, 1991), perpetrators were a relatively small group and rape perpetrators were even more rare. In order to

assess for differences between various types of perpetration, a larger sample of men would have been necessary.

The cross-sectional nature of the current study was also a limitation. Although results suggested that perceived vulnerability and the gait characteristics of Grayson and Stein's (1981) profile were associated with sexual victimization, I could not determine the direction of these relationships or discuss results in terms of predictive power. For example, it is impossible to determine from cross-sectional data if perpetrating sexual assault enables men to be more accurate in their vulnerability ratings or if men who are more accurate are more likely to perpetrate. In the future, collecting longitudinal data would likely facilitate a deeper understanding of these relationships.

The reliance on self-report measures also represented a limitation. Unfortunately, researchers attempting to investigate sexual aggression among nonincarcerated populations are presented with very few, if any, viable alternatives to self-report measures. However, supplementing self-reports with peer-ratings of personality traits and past behavior is one manner in which corroborating evidence may be collected. In the present study, several measures were taken to ensure participants' privacy while completing the survey and participants were advised that their responses would be kept confidential. It is encouraging that participants in the current sample reported rates of victimization and perpetration that were consistent with the existing literature. For these reasons, although the self-report nature of the data was a limitation, valid conclusions may still be drawn.

Finally, the fact that the sample was drawn primarily from students in their first and second years of college was also a limitation. Data collection using the research participation pool draws heavily on freshman and sophomore students, and results in samples that may not be

representative of the larger college population. Ideally, researchers would have access to a random sample of college students in different years and different majors.

## Implications of Findings and Future Directions

Despite the aforementioned limitations, the present study makes a number of important contributions to the extant literature. First and most importantly, the current study was one of the first to empirically examine the association between perceived vulnerability and sexual victimization. It replicated the associations between sexual victimization and judgments of perceived vulnerability using a well-established measure of sexual assault (rather than one-item researcher-generated measures used in previous studies, Sakaguchi & Hasegawa, 2006; Wheeler et al., 2009). Prominent theorists have suggested that perceived vulnerability may be an important factor in sexual victimization and revictimization (Cloitre et al., 1997; Cloitre et al., 2006; Messman-Moore & Long, 2003); however, this theory has yet to be well studied. The current dissertation supported the theory that perpetrators target women who are perceived as vulnerable, which increases the likelihood that these women will experience victimization and revictimization. Preliminary qualitative studies with incarcerated rapists have also supported the role of perceived vulnerability in victim selection (Beauregard et al., 2007; Stevens, 1998); however, additional research in this area is necessary. Future studies of this nature using nonincarcerated men would likely shed further light on the role of perceived vulnerability in victim-selection decisions and, thus, the cycle of victimization and revictimization.

Sexual assault continues to be a common experience for college women, and a substantial number of college men report perpetration of sexual assault. To date, the majority of studies in this area have focused on attitudinal and behavioral correlates of perpetration and have largely

ignored the contribution of personality traits. The current study, along with a small but growing body of existing research, makes a strong case for the inclusion of personality measures, such as psychopathy, in future studies. The current study also supported the idea that personality has been undervalued in the study of sexual aggression. It is hoped that future studies will continue to increase our knowledge and understanding of these issues and allow us to develop more effective methods of preventing sexual assault.

The current study also replicated the association between sexual victimization and Grayson and Stein's (1981) profile of nonverbal behavior using a well-established measure of sexual assault. Results suggest that nonverbal behavior may be an important factor in victim selection and, therefore, a risk factor for sexual victimization. While perpetrators are responsible for every act of interpersonal violence and victim-blaming concerns are legitimate, it is also important to identify factors that clinicians and survivors can influence in order to reduce risk for victimization. Perceived vulnerability has been shown to change when alterations are made to an individual's physical or internal state. For example, Johnston et al. (2004) reported that either participating in a self-defense course, or receiving four individual training sessions focused on altering the characteristics of Grayson and Stein's (1981) profile decreased women's perceived vulnerability. The perceived vulnerability of any given individual is therefore not fixed and may present a novel mechanism by which we can intervene to reduce risk for victimization and revictimization.

There has been a dramatic increase in our understating of the risk and protective factors associated with sexual victimization and perpetration in the last 30 years, and the federal government now mandates that all universities receiving federal funds implement sexual assault risk reduction programming (National Association of Student Personnel Administrators, 1994).

A variety of such programs have been implemented and systematically evaluated (Anderson & Whiston, 2005). However, participants in sexual assault risk reduction and prevention programs generally display increased factual knowledge about rape, decreased acceptance of rape myths, and decreased blame of rape victims, but demonstrate nonsignificant changes in behavior (see Anderson & Whiston, 2005 for a meta-analytic review). Future risk reduction programs with women could incorporate feedback and training related to Grayson and Stein's (1981) profile in an effort to improve program effectivness. Systematic evaluation of programs that incorporate these elements would also allow researchers to better understand the direction of the associations among nonverbal behavior, sexual vicitmization, and perceived vulnerability. Interestingly, the sexual assault risk reduction programs that have been found to reduce rates of sexual vicitmization often include self-defense training components (Gidycz, Rich, Orchowski, King, & Miller, 2006; Orchowski, Gidycz, & Raffle, 2008). Johnston et al. (2004) reported that participating in a self-defense course decreased female college students' level of perceived vulnerability in a similar manner to training focused on Grayson and Stein's (1981) gait characteristics. Thus, it is possible that perceptions of vulnerability and gait characteristics mediate the association between self-defense training and reduced risk of sexual victimization. Future interventions could test this prediction by measuring perceived vulnerability and gait characteristics pre and post self-defense training.

Finally, the current study did not find support for a traumatic sequelae model of revictimization in that PTSD symptoms and assertiveness were not significantly related to perceptions of vulnerability. It is important to note that use of a college sample may have resulted in a restricted range for the traumatic sequelae variables. Future studies using community or, ideally, clinical samples of rape victims will be important before firm conclusions

can be drawn. Future studies could also examine the associations among perceptions of vulnerability, Grayson and Stein's (1981) gait characteristics, and other types of traumatic sequelae, such as self-blame, low sexual refusal assertiveness, low assertiveness with the opposite sex, dissociative symptoms, and low self-esteem.

In summary, the current dissertation provided insight into the role of perceived vulnerability in college women's' experience of sexual victimization. Perceived vulnerability has been understudied relative to other constructs believed to confer risk for sexual victimization and revictimization (i.e., behaviors that increase exposure to potential perpetrators, deficits in risk recognition, and ineffective responding to identified risk cues). Similarly, the current study is one of the first to explore victim-selection factors among nonincarcerated perpetrators. Because the vast majority of rapes go unreported and unprosecuted (Fisher et al., 2003), incarcerated samples comprise only a small subset of sexually aggressive individuals. However, studies to date have largely ignored the process of victim-selection among nonincarcerated perpetrators. Similarly, the current study points to the importance of psychopathy in nonincarcerated as well as incarcerated perpetrators. Future efforts to understand the cycle of sexual victimization and revictimization should take these factors into account when examining perpetration behavior and modifiable risk factors for sexual victimization.

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# APPENDIX

## Modified Sexual Experiences Survey: Victimization

Directions: Please answer the following questions about your sexual experiences.

| Sexual Experiences | How many times since the last assessment? |
|---|---|
| 1. **Someone fondled, kissed, or rubbed up against the private areas of my body (lips, breast/chest, crotch or butt) or removed some of my clothes without my consent *(but did not attempt sexual penetration)* by:** | |
| a. Telling lies, threatening to end the relationship, threatening to spread rumors about me, making promises I knew were untrue, or continually verbally pressuring me after I said I didn't want to. | 0 1 2 3+ prefer not to answer |
| b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn't want to. | 0 1 2 3+ prefer not to answer |
| c. Taking advantage of me when I was too drunk or out of it to stop what was happening. | 0 1 2 3+ prefer not to answer |
| d. Threatening to physically harm me or someone close to me. | 0 1 2 3+ prefer not to answer |
| e. Using force, for example holding me down with their body weight, pinning my arms, or having a weapon. | 0 1 2 3+ prefer not to answer |
| 2. **Someone had oral sex with me or made me have oral sex with them without my consent by:** | |
| a. Telling lies, threatening to end the relationship, threatening to spread rumors about me, making promises I knew were untrue, or continually verbally pressuring me after I said I didn't want to. | 0 1 2 3+ prefer not to answer |
| b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn't want to. | 0 1 2 3+ prefer not to answer |
| c. Taking advantage of me when I was too drunk or out of it to stop what was happening. | 0 1 2 3+ prefer not to answer |
| d. Threatening to physically harm me or someone close to me. | 0 1 2 3+ prefer not to answer |

e. Using force, for example holding me down with their body weight, pinning my arms, or having a weapon. 0 1 2 3+ prefer not to answer

3. **If you are a male, skip to item 4**
**A man put his penis into my vagina, or someone inserted fingers or objects without my consent by:**

a. Telling lies, threatening to end the relationship, threatening to spread rumors about me, making promises I knew were untrue, or continually verbally pressuring me after I said I didn't want to. 0 1 2 3+ prefer not to answer

b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn't want to. 0 1 2 3+ prefer not to answer

c. Taking advantage of me when I was too drunk or out of it to stop what was happening. 0 1 2 3+ prefer not to answer

d. Threatening to physically harm me or someone close to me. 0 1 2 3+ prefer not to answer

e. Using force, for example holding me down with their body weight, pinning my arms, or having a weapon. 0 1 2 3+ prefer not to answer

4. **A man put his penis into my butt, or someone inserted fingers or objects without my consent by:**

a. Telling lies, threatening to end the relationship, threatening to spread rumors about me, making promises I knew were untrue, or continually verbally pressuring me after I said I didn't want to. 0 1 2 3+ prefer not to answer

b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn't want to. 0 1 2 3+ prefer not to answer

c. Taking advantage of me when I was too drunk or out of it to stop what was happening. 0 1 2 3+ prefer not to answer

d. Threatening to physically harm me or someone close to me. 0 1 2 3+ prefer not to answer

e. Using force, for example holding me down with their body weight, pinning my arms, or having a weapon. 0 1 2 3+ prefer not to answer

5. **Even though it did not happen, someone TRIED to have oral sex with me, or make me have oral sex with them without my consent by:**

a. Telling lies, threatening to end the relationship, threatening to spread rumors about me, making promises I knew were untrue, or 0 1 2 3+ prefer not to answer

continually verbally pressuring me after I said I didn't want to.

b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn't want to. 0 1 2 3+ prefer not to answer

c. Taking advantage of me when I was too drunk or out of it to stop what was happening. 0 1 2 3+ prefer not to answer

d. Threatening to physically harm me or someone close to me. 0 1 2 3+ prefer not to answer

e. Using force, for example holding me down with their body weight, pinning my arms, or having a weapon. 0 1 2 3+ prefer not to answer

**6. If you are male, skip to item 7.**

**Even though it did not happen, a man TRIED to put his penis into my vagina, or someone tried to stick in fingers or objects without my consent by:**

a. Telling lies, threatening to end the relationship, threatening to spread rumors about me, making promises I knew were untrue, or continually verbally pressuring me after I said I didn't want to. 0 1 2 3+ prefer not to answer

b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn't want to. 0 1 2 3+ prefer not to answer

c. Taking advantage of me when I was too drunk or out of it to stop what was happening. 0 1 2 3+ prefer not to answer

d. Threatening to physically harm me or someone close to me. 0 1 2 3+ prefer not to answer

e. Using force, for example holding me down with their body weight, pinning my arms, or having a weapon. 0 1 2 3+ prefer not to answer

**7. Even though it did not happen, a man TRIED to put his penis into my butt, or someone tried to stick in objects or fingers without my consent by:**

a. Telling lies, threatening to end the relationship, threatening to spread rumors about me, making promises I knew were untrue, or continually verbally pressuring me after I said I didn't want to. 0 1 2 3+ prefer not to answer

b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn't want to. 0 1 2 3+ prefer not to answer

c. Taking advantage of me when I was too drunk or out of it to stop 0 1 2 3+

| | | |
|---|---|---|
| | what was happening. | prefer not to answer |
| d. | Threatening to physically harm me or someone close to me. | 0 1 2 3+<br>prefer not to answer |
| e. | Using force, for example holding me down with their body weight, pinning my arms, or having a weapon. | 0 1 2 3+<br>prefer not to answer |

**PTSD Checklist**

INSTRUCTIONS: Below is a list of problems and complaints that people sometimes have in response to stressful life experiences. Please read each one carefully, then circle one of the numbers to the right to indicate how much you have been bothered by that problem in the past month.

1. Repeated, disturbing *memories, thoughts,* or *images* of a stressful experience from the past?

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Not at all | A little bit | Moderately | Quite a bit | Extremely | Prefer not to answer |

2. Repeated, disturbing *dreams* of a stressful experience from the past?

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Not at all | A little bit | Moderately | Quite a bit | Extremely | Prefer not to answer |

3. Suddenly *acting* or *feeling* as if a stressful experience *were happening again* (as if you were reliving it)?

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Not at all | A little bit | Moderately | Quite a bit | Extremely | Prefer not to answer |

4. Feeling *very upset* when *something reminded you* of a stressful experience from the past?

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Not at all | A little bit | Moderately | Quite a bit | Extremely | Prefer not to answer |

5. Having *physical reactions* (e.g., heart pounding, trouble breathing, sweating) when *something reminded you* of a stressful experience from the past?

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Not at all | A little bit | Moderately | Quite a bit | Extremely | Prefer not to answer |

6. Avoiding *thinking about* or *talking about* a stressful experience from the past or avoiding *having feelings* related to it?

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Not at all | A little bit | Moderately | Quite a bit | Extremely | Prefer not |

to answer

7. Avoiding *activities* or *situations* because *they reminded you* of a stressful experience from the past?

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Not at all | A little bit | Moderately | Quite a bit | Extremely | Prefer not to answer |

8. Trouble *remembering important parts* of a stressful experience from the past?

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Not at all | A little bit | Moderately | Quite a bit | Extremely | Prefer not to answer |

9. *Loss of interest* in activities that you used to enjoy?

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Not at all | A little bit | Moderately | Quite a bit | Extremely | Prefer not to answer |

10. Feeling *distant* or *cut off* from other people?

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Not at all | A little bit | Moderately | Quite a bit | Extremely | Prefer not to answer |

11. Feeling *emotionally numb* or being unable to have loving feelings for those close to you?

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Not at all | A little bit | Moderately | Quite a bit | Extremely | Prefer not to answer |

12. Feeling as if your *future* will somehow be *cut short*?

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Not at all | A little bit | Moderately | Quite a bit | Extremely | Prefer not to answer |

13. Trouble *falling* or *staying asleep*?

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Not at all | A little bit | Moderately | Quite a bit | Extremely | Prefer not to answer |

14. Feeling *irritable* or having *angry outbursts*?

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Not at all | A little bit | Moderately | Quite a bit | Extremely | Prefer not to answer |

15. Having *difficulty concentrating*?

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Not at all | A little bit | Moderately | Quite a bit | Extremely | Prefer not to answer |

16. Being *"super-alert"* or watchful or on guard?

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Not at all | A little bit | Moderately | Quite a bit | Extremely | Prefer not to answer |

17. Feeling *jumpy* or easily startled?

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Not at all | A little bit | Moderately | Quite a bit | Extremely | Prefer not to answer |

**Rathus Assertiveness Schedule**

Directions: Indicate how characteristic or descriptive each of the following statements is of you by using the code given below.

+3 very characteristic of me, extremely descriptive
+2 rather characteristic of me, quite descriptive
+1 somewhat characteristic of me, slightly descriptive
-1 somewhat uncharacteristic of me, slightly nondescriptive
-2 rather uncharacteristic of me, quite nondescriptive
-3 very uncharacteristic of me, extremely nondescriptive
4 prefer not to answer

1. Most people seem to be more aggressive and assertive than I am.

   +3 +2 +1 -1 -2 -3 4

2. I have hesitated to make or accept dates because of "shyness."

   +3 +2 +1 -1 -2 -3 4

3. When the food served at a restaurant is not done to my satisfaction, I complain about it to the waiter or waitress.

   +3 +2 +1 -1 -2 -3 4

4. I am careful to avoid hurting other people's feelings, even when I feel that I have been injured.

   +3 +2 +1 -1 -2 -3 4

5. If a salesman has gone to considerable trouble to show me merchandise, which is not quite suitable, I have a difficult time in saying "No."

   +3 +2 +1 -1 -2 -3 4

6. When I am asked to do something, I insist upon knowing why.

   +3 +2 +1 -1 -2 -3 4

7. There are times when I look for a good, vigorous argument.

   +3 +2 +1 -1 -2 -3 4

8. I strive to get ahead as well as most people in my position.

+3 +2 +1 -1 -2 -3 4

9. To be honest, people often take advantage of me.

+3 +2 +1 -1 -2 -3 4

10. I enjoy starting conversations with new acquaintances and strangers.

+3 +2 +1 -1 -2 -3 4

11. I often don't know what to say to attractive persons of the opposite sex.

+3 +2 +1 -1 -2 -3 4

12. I will hesitate to make phone calls to business establishments and institutions.

+3 +2 +1 -1 -2 -3 4

13. I would rather apply for a job or for admission to a college by writing letters than by going through with personal interviews.

+3 +2 +1 -1 -2 -3 4

14. I find it embarrassing to return merchandise.

+3 +2 +1 -1 -2 -3 4

15. If a close and respected relative were annoying me, I would smother my feelings rather than express my annoyance.

+3 +2 +1 -1 -2 -3 4

16. I have avoided asking questions for fear of sounding stupid.

+3 +2 +1 -1 -2 -3 4

17. During an argument I am sometimes afraid that I will get so upset that I will shake all over.

+3 +2 +1 -1 -2 -3 4

18. If a famed and respected lecturer makes a statement, which I think is incorrect, I will have the audience hear my point of view as well.

+3 +2 +1 -1 -2 -3 4

19. I avoid arguing over prices with clerks and salesmen.

+3 +2 +1 -1 -2 -3 4

20. When I have done something important or worthwhile, I manage to let others know about it.

+3 +2 +1 -1 -2 -3 4

21. I am open and frank about my feelings.

+3 +2 +1 -1 -2 -3 4

22. If someone has been spreading false and bad stories about me, I see him (her) as soon as possible to "have a talk" about it.

+3 +2 +1 -1 -2 -3 4

23. I often have a hard time saying "No."

+3 +2 +1 -1 -2 -3 4

24. I tend to bottle up my emotions rather than make a scene.

+3 +2 +1 -1 -2 -3 4

25. I complain about poor service in a restaurant and elsewhere.

+3 +2 +1 -1 -2 -3 4

26. When I am given a compliment, I sometimes just don't know what to say.

+3 +2 +1 -1 -2 -3 4

27. If a couple near me in a theatre or at a lecture were conversing rather loudly, I would ask them to be quiet or to take their conversation elsewhere.

+3 +2 +1 -1 -2 -3 4

28. Anyone attempting to push ahead of me in a line is in for a good battle.

+3 +2 +1 -1 -2 -3 4

29. I am quick to express an opinion.

+3 +2 +1 -1 -2 -3 4

30. There are times when I just can't say anything.

+3 +2 +1 -1 -2 -3 4

**Coding Sheet**

1. Stride Length relative to Height

   1 (Very Short) 2 3 4 5 6 7 (Very Long)

2. Weight Shifts

   1 (Primarily lateral or side-to-side motion)
   0 (Primarily nonlateral)

   Primarily nonlateral = 3D a smooth motion involving the whole body centered around the hips, **or** Primarily up-and-down motion-a "bounce" in the walk, **or** Primarily forward-and-back motion-a sway in the walk, shifting weight from the front to the back of the foot with each stride

3. Type of Walk

   1 (Primarily gestural)
   0 (Primarily postural)

   Primarily postural = Motion activating the whole body
   Primarily gestural = Motion activating only a part of the body

4. Foot Movement

   1 (Swinging, heel-to-toe motion) 2 3 4 5 (Lifted the whole foot as a unit)

5. Body Movement

   1 (Primarily unilateral)
   0 (Primarily contralateral)

   Primarily unilateral = Motion of only one side of the body at a time
   Primarily contralateral = Motion of the two sides of the body together

6. Physical attractiveness

   1 (Very unattractive) 2 3 4 5 (Very attractive)

7. Femininity

   1 (Very unfeminine) 2 3 4 5 (Very feminine)

8. Height

   4’ to 4’6’’ 4’6’’ to 5’ 5’to 5’6’’ 5’6’’ to 6’ 6’ to 6’6’’

9. Weight

   100 to 125 125 to 150 150 to 175 175 to 200 200 to 225 225 to 250 250 to 275 275 to 300

10. Type of Clothing

    1 (Skirt or dress)
    0 (Pants, Shorts, or Leggings)

11. Type of Footwear

    1 (High heels)
    0 (Flat shoes)

## Self-Report Psychopathy Scale-III

Please rate the degree to which you agree with the following statements about you. You can be honest because your name will be detached from the answers as soon as they are submitted.

1. I'm a rebellious person.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

2. I'm more tough-minded than other people.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

3. I think I could "beat" a lie detector.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

4. I have taken illegal drugs (e.g., marijuana, ectasy).

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

5. I have never been involved in delinquent gang activity.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

6. I have never stolen a truck, car or motorcycle.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

7. Most people are wimps.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

8. I purposely flatter people to get them on my side.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

9. I've often done something dangerous just for the thrill of it.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

10. I have tricked someone into giving me money.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

11. It tortures me to see an injured animal.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

12. I have assaulted a law enforcement official or social worker.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

13. I have pretended to be someone else in order to get something.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

14. I always plan out my weekly activities.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

15. I like to see fist-fights.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

16. I'm not tricky or sly.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

17. I'd be good at a dangerous job because I make fast decisions.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

18. I have never tried to force someone to have sex.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

19. My friends would say that I am a warm person.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

20. I would get a kick out of 'scamming' someone.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

21. I have never attacked someone with the idea of injuring them.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

22. I never miss appointments.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

23. I avoid horror movies.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

24. I trust other people to be honest.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

25. I hate high speed driving.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

26. I feel so sorry when I see a homeless person.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

27. It's fun to see how far you can push people before they get upset.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

28. I enjoy doing wild things.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

29. I have broken into a building or vehicle in order to steal something or vandalize.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

30. I don’t bother to keep in touch with my family any more.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

31. I find it difficult to manipulate people.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

32. I rarely follow the rules.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

33. I never cry at movies.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

34. I have never been arrested.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

35. You should take advantage of other people before they do it to you.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

36. I don’t enjoy gambling for real money.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

37. People sometimes say that I’m cold-hearted.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

38. People can usually tell if I am lying.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

39. I like to have sex with people I barely know.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

40. I love violent sports and movies.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

41. Sometimes you have to pretend you like people to get something out of them.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

42. I am an impulsive person.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

43. I have taken hard drugs (e.g., heroin, cocaine).

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

44. I'm a soft-hearted person.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

45. I can talk people into anything.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

46. I never shoplifted from a store.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

47. I don’t enjoy taking risks.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

48. People are too sensitive when I tell them the truth about themselves.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

49. I was convicted of a serious crime.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

50. Most people tell lies everyday.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

51. I keep getting in trouble for the same things over and over.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

52. Every now and then I carry a weapon (knife or gun) for protection.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

53. People cry way too much at funerals.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

54. You can get what you want by telling people what they want to hear.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

55. I easily get bored.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

56. I never feel guilty over hurting others.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

57. I have threatened people into giving me money, clothes, or makeup.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

58. A lot of people are "suckers" and can easily be fooled.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

59. I admit that I often "mouth off" without thinking.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

60. I sometimes dump friends that I don't need any more.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

61. I would never step on others to get what I want.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

62. I have close friends who served time in prison.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

63. I purposely tried to hit someone with the vehicle I was driving.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

64. I have violated my probation from prison.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Disagree Strongly | Disagree | Neutral | Agree | Agree Strongly | Prefer not to answer |

**Sexual Experiences Survey-Perpetration**

Directions: Please answer the following questions about your sexual experiences.

| Sexual Experiences | How many times in the past 12 months? | How many times since age 14? |
|---|---|---|
| 8. **Fondled, kissed, or rubbed up against the private areas of someone's body (lips, breast/chest, crotch or butt) or removed some of their clothes without their consent *(but did not attempt sexual penetration)* by:** | | |
| f. Telling lies, threatening to end the relationship, threatening to spread rumors about them, making promises I knew were untrue, or continually verbally pressuring them after they said they didn't want to. | 0 1 2 3+ prefer not to answer | 0 1 2 3+ prefer not to answer |
| g. Showing displeasure, criticizing their sexuality or attractiveness, getting angry but not using physical force, after they said they didn't want to. | 0 1 2 3+ prefer not to answer | 0 1 2 3+ prefer not to answer |
| h. Taking advantage of them when they was too drunk or out of it to stop what was happening. | 0 1 2 3+ prefer not to answer | 0 1 2 3+ prefer not to answer |
| i. Threatening to physically harm them or someone close to them. | 0 1 2 3+ prefer not to answer | 0 1 2 3+ prefer not to answer |
| j. Using force, for example holding them down with my body weight, pinning their arms, or having a weapon. | 0 1 2 3+ prefer not to answer | 0 1 2 3+ prefer not to answer |
| 9. **Had oral sex with someone or made them have oral sex with me without their consent by:** | | |
| a. Telling lies, threatening to end the relationship, threatening to spread rumors about them, making promises I knew were untrue, or continually verbally pressuring them after they said they didn't want to. | 0 1 2 3+ prefer not to answer | 0 1 2 3+ prefer not to answer |

| | | | |
|---|---|---|---|
| b. | Showing displeasure, criticizing their sexuality or attractiveness, getting angry but not using physical force, after they said they didn't want to. | 0 1 2 3+ prefer not to answer | 0 1 2 3+ prefer not to answer |
| c. | Taking advantage of them when they was too drunk or out of it to stop what was happening. | 0 1 2 3+ prefer not to answer | 0 1 2 3+ prefer not to answer |
| d. | Threatening to physically harm them or someone close to them. | 0 1 2 3+ prefer not to answer | 0 1 2 3+ prefer not to answer |
| e. | Using force, for example holding them down with my body weight, pinning their arms, or having a weapon. | 0 1 2 3+ prefer not to answer | 0 1 2 3+ prefer not to answer |

10. **Put my penis, fingers, or objects into a woman's vagina without her consent by:**

| | | | |
|---|---|---|---|
| a. | Telling lies, threatening to end the relationship, threatening to spread rumors about them, making promises I knew were untrue, or continually verbally pressuring them after they said they didn't want to. | 0 1 2 3+ prefer not to answer | 0 1 2 3+ prefer not to answer |
| b. | Showing displeasure, criticizing their sexuality or attractiveness, getting angry but not using physical force, after they said they didn't want to. | 0 1 2 3+ prefer not to answer | 0 1 2 3+ prefer not to answer |
| c. | Taking advantage of them when they was too drunk or out of it to stop what was happening. | 0 1 2 3+ prefer not to answer | 0 1 2 3+ prefer not to answer |
| d. | Threatening to physically harm them or someone close to them. | 0 1 2 3+ prefer not to answer | 0 1 2 3+ prefer not to answer |
| e. | Using force, for example holding them down with my body weight, pinning their arms, or having a weapon. | 0 1 2 3+ prefer not to answer | 0 1 2 3+ prefer not to answer |

11. **Put my penis, fingers, or objects into someone's butt without their consent by:**

a. Telling lies, threatening to end the relationship, threatening to spread rumors about them, making promises I knew were untrue, or continually verbally pressuring them after they said they didn't want to. 0 1 2 3+ prefer not to answer 0 1 2 3+ prefer not to answer

b. Showing displeasure, criticizing their sexuality or attractiveness, getting angry but not using physical force, after they said they didn't want to. 0 1 2 3+ prefer not to answer 0 1 2 3+ prefer not to answer

c. Taking advantage of them when they was too drunk or out of it to stop what was happening. 0 1 2 3+ prefer not to answer 0 1 2 3+ prefer not to answer

d. Threatening to physically harm them or someone close to them. 0 1 2 3+ prefer not to answer 0 1 2 3+ prefer not to answer

e. Using force, for example holding them down with my body weight, pinning their arms, or having a weapon. 0 1 2 3+ prefer not to answer 0 1 2 3+ prefer not to answer

12. **Even though it did not happen, TRIED to have oral sex with someone or to make them have oral sex with me without their consent by:**

a. Telling lies, threatening to end the relationship, threatening to spread rumors about them, making promises I knew were untrue, or continually verbally pressuring them after they said they didn't want to. 0 1 2 3+ prefer not to answer 0 1 2 3+ prefer not to answer

b. Showing displeasure, criticizing their sexuality or attractiveness, getting angry but not using physical force, after they said they didn't want to. 0 1 2 3+ prefer not to answer 0 1 2 3+ prefer not to answer

c. Taking advantage of them when they was too drunk or out of it to stop what was happening. 0 1 2 3+ prefer not to answer 0 1 2 3+ prefer not to answer

| | | |
|---|---|---|
| 1. Threatening to physically harm them or someone close to them. | 0 1 2 3+ prefer not to answer | 0 1 2 3+ prefer not to answer |
| 2. Using force, for example holding them down with my body weight, pinning their arms, or having a weapon. | 0 1 2 3+ prefer not to answer | 0 1 2 3+ prefer not to answer |

13. **Even though it did not happen, TRIED to put my penis, fingers, or objects into a woman's vagina without her consent by:**

| | | |
|---|---|---|
| a. Telling lies, threatening to end the relationship, threatening to spread rumors about them, making promises I knew were untrue, or continually verbally pressuring them after they said they didn't want to. | 0 1 2 3+ prefer not to answer | 0 1 2 3+ prefer not to answer |
| b. Showing displeasure, criticizing their sexuality or attractiveness, getting angry but not using physical force, after they said they didn't want to. | 0 1 2 3+ prefer not to answer | 0 1 2 3+ prefer not to answer |
| c. Taking advantage of them when they was too drunk or out of it to stop what was happening. | 0 1 2 3+ prefer not to answer | 0 1 2 3+ prefer not to answer |
| 3. Threatening to physically harm them or someone close to them. | 0 1 2 3+ prefer not to answer | 0 1 2 3+ prefer not to answer |
| 4. Using force, for example holding them down with my body weight, pinning their arms, or having a weapon. | 0 1 2 3+ prefer not to answer | 0 1 2 3+ prefer not to answer |

14. **Even though it did not happen, TRIED to put my penis, fingers, or objects into someone's butt without their consent by:**

| | | |
|---|---|---|
| a. Telling lies, threatening to end the relationship, threatening to spread rumors about them, making promises I knew were untrue, or continually verbally pressuring them after they said they didn't want to. | 0 1 2 3+ prefer not to answer | 0 1 2 3+ prefer not to answer |

| | | | |
|---|---|---|---|
| b. | Showing displeasure, criticizing their sexuality or attractiveness, getting angry but not using physical force, after they said they didn't want to. | 0 1 2 3+ prefer not to answer | 0 1 2 3+ prefer not to answer |
| c. | Taking advantage of them when they was too drunk or out of it to stop what was happening. | 0 1 2 3+ prefer not to answer | 0 1 2 3+ prefer not to answer |
| 5. | Threatening to physically harm them or someone close to them. | 0 1 2 3+ prefer not to answer | 0 1 2 3+ prefer not to answer |
| 6. | Using force, for example holding them down with my body weight, pinning their arms, or having a weapon. | 0 1 2 3+ prefer not to answer | 0 1 2 3+ prefer not to answer |

**Vulnerability Ratings**

The current study investigates links between walking style and vulnerability to several types of aggressive behavior. You will be asked to watch video clips of women walking and rate each according to how vulnerable she is to three types of aggressive behavior. The study is concerned with how easy these women would be to attack, and not the likelihood that you would actually attack any of them. The intent is not to assess your character so please response honestly. There are no right or wrong answers, and all judgments were equally valid. Please make instinctive and immediate judgments as much as possible.

For each video, put yourself in the role of an attacker and decide who would be a "good victim."

Clip #1

1. How vulnerable is this woman to sexual assault (e.g., having unwanted sex that results from physical force, verbal coercion, threats, or alcohol/drug intoxication)?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| Not at all vulnerable | | | Moderately vulnerable | | | Extremely vulnerable | Prefer not to answer |

Clip #2

2. How vulnerable is this woman to sexual assault (e.g., having unwanted sex that results from physical force, verbal coercion, threats, or alcohol/drug intoxication)?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| Not at all vulnerable | | | Moderately vulnerable | | | Extremely vulnerable | Prefer not to answer |

Clip #3

3. How vulnerable is this woman to sexual assault (e.g., having unwanted sex that results from physical force, verbal coercion, threats, or alcohol/drug intoxication)?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| Not at all vulnerable | | | Moderately vulnerable | | | Extremely vulnerable | Prefer not to answer |

Clip #4

4. How vulnerable is this woman to sexual assault (e.g., having unwanted sex that results from physical force, verbal coercion, threats, or alcohol/drug intoxication)?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| Not at all vulnerable | | | Moderately vulnerable | | | Extremely vulnerable | Prefer not to answer |

Clip #5

5. How vulnerable is this woman to sexual assault (e.g., having unwanted sex that results from physical force, verbal coercion, threats, or alcohol/drug intoxication)?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| Not at all vulnerable | | | Moderately vulnerable | | | Extremely vulnerable | Prefer not to answer |

Clip #6

6. How vulnerable is this woman to sexual assault (e.g., having unwanted sex that results from physical force, verbal coercion, threats, or alcohol/drug intoxication)?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| Not at all vulnerable | | | Moderately vulnerable | | | Extremely vulnerable | Prefer not to answer |

Clip #7

7. How vulnerable is this woman to sexual assault (e.g., having unwanted sex that results from physical force, verbal coercion, threats, or alcohol/drug intoxication)?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| Not at all vulnerable | | | Moderately vulnerable | | | Extremely vulnerable | Prefer not to answer |

Clip #8

8. How vulnerable is this woman to sexual assault (e.g., having unwanted sex that results from physical force, verbal coercion, threats, or alcohol/drug intoxication)?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| Not at all vulnerable | | | Moderately vulnerable | | | Extremely vulnerable | Prefer not to answer |

Clip #9

9. How vulnerable is this woman to sexual assault (e.g., having unwanted sex that results from physical force, verbal coercion, threats, or alcohol/drug intoxication)?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| Not at all vulnerable | | | Moderately vulnerable | | | Extremely vulnerable | Prefer not to answer |

Clip #10

10. How vulnerable is this woman to sexual assault (e.g., having unwanted sex that results from physical force, verbal coercion, threats, or alcohol/drug intoxication)?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| Not at all vulnerable | | | Moderately vulnerable | | | Extremely vulnerable | Prefer not to answer |

Clip #11

11. How vulnerable is this woman to sexual assault (e.g., having unwanted sex that results from physical force, verbal coercion, threats, or alcohol/drug intoxication)?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| Not at all vulnerable | | | Moderately vulnerable | | | Extremely vulnerable | Prefer not to answer |

Clip #12

12. How vulnerable is this woman to sexual assault (e.g., having unwanted sex that results from physical force, verbal coercion, threats, or alcohol/drug intoxication)?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| Not at all vulnerable | | | Moderately vulnerable | | | Extremely vulnerable | Prefer not to answer |

Clip #13

13. How vulnerable is this woman to sexual assault (e.g., having unwanted sex that results from physical force, verbal coercion, threats, or alcohol/drug intoxication)?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| Not at all vulnerable | | | Moderately vulnerable | | | Extremely vulnerable | Prefer not to answer |

Clip #14

14. How vulnerable is this woman to sexual assault (e.g., having unwanted sex that results from physical force, verbal coercion, threats, or alcohol/drug intoxication)?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| Not at all vulnerable | | | Moderately vulnerable | | | Extremely vulnerable | Prefer not to answer |

Clip #15

15. How vulnerable is this woman to sexual assault (e.g., having unwanted sex that results from physical force, verbal coercion, threats, or alcohol/drug intoxication)?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| Not at all vulnerable | | | Moderately vulnerable | | | Extremely vulnerable | Prefer not to answer |

Clip #16

16. How vulnerable is this woman to sexual assault (e.g., having unwanted sex that results from physical force, verbal coercion, threats, or alcohol/drug intoxication)?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| Not at all vulnerable | | | Moderately vulnerable | | | Extremely vulnerable | Prefer not to answer |

Clip #17

17. How vulnerable is this woman to sexual assault (e.g., having unwanted sex that results from physical force, verbal coercion, threats, or alcohol/drug intoxication)?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| Not at all vulnerable | | | Moderately vulnerable | | | Extremely vulnerable | Prefer not to answer |

Clip #18

18. How vulnerable is this woman to sexual assault (e.g., having unwanted sex that results from physical force, verbal coercion, threats, or alcohol/drug intoxication)?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| Not at all vulnerable | | | Moderately vulnerable | | | Extremely vulnerable | Prefer not to answer |

Clip #19

19. How vulnerable is this woman to sexual assault (e.g., having unwanted sex that results from physical force, verbal coercion, threats, or alcohol/drug intoxication)?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| Not at all vulnerable | | | Moderately vulnerable | | | Extremely vulnerable | Prefer not to answer |

Clip #20

20. How vulnerable is this woman to sexual assault (e.g., having unwanted sex that results from physical force, verbal coercion, threats, or alcohol/drug intoxication)?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| Not at all | | | Moderately | | | Extremely | Prefer not |

| | | |
|---|---|---|
| vulnerable | vulnerable | vulnerable to answer |

Clip #21

21. How vulnerable is this woman to sexual assault (e.g., having unwanted sex that results from physical force, verbal coercion, threats, or alcohol/drug intoxication)?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| Not at all vulnerable | | | Moderately vulnerable | | | Extremely vulnerable | Prefer not to answer |

Clip #22

22. How vulnerable is this woman to sexual assault (e.g., having unwanted sex that results from physical force, verbal coercion, threats, or alcohol/drug intoxication)?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| Not at all vulnerable | | | Moderately vulnerable | | | Extremely vulnerable | Prefer not to answer |

Clip #23

23. How vulnerable is this woman to sexual assault (e.g., having unwanted sex that results from physical force, verbal coercion, threats, or alcohol/drug intoxication)?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| Not at all vulnerable | | | Moderately vulnerable | | | Extremely vulnerable | Prefer not to answer |

Clip #24

24. How vulnerable is this woman to sexual assault (e.g., having unwanted sex that results from physical force, verbal coercion, threats, or alcohol/drug intoxication)?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| Not at all vulnerable | | | Moderately vulnerable | | | Extremely vulnerable | Prefer not to answer |

Clip #25

25. How vulnerable is this woman to sexual assault (e.g., having unwanted sex that results from physical force, verbal coercion, threats, or alcohol/drug intoxication)?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| Not at all vulnerable | | | Moderately vulnerable | | | Extremely vulnerable | Prefer not to answer |