

**AN ECOLOGICAL STUDY OF  
REPEATED SEXUAL VICTIMIZATION AMONG COLLEGE WOMEN**

BY

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THESIS

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## Abstract

Five hundred and two ethnically diverse college women reported their experiences of sexual victimization in childhood, adolescence and adulthood. Approximately 1 in 5 participants revealed a history of sexual victimization; and of those, nearly 1 in 5 had experienced 2 or more separate instances of sexual violence. To better understand the processes that link 1 instance of sexual victimization to another, 3 theoretical models were tested using path analysis. Self-blame, posttraumatic stress, and number of sexual partners did not mediate repeated experiences of sexual victimization. Hierarchical multiple regression analyzed the relative importance of individual, interpersonal and environmental risk factors in predicting repeated sexual victimization. Each block of variables improved the model's ability to explain variance in the number of developmental time periods in which a participant experienced completed or attempted rape. Number of children, siblings, romantic partners, having lived with a nonbiological father figure, posttraumatic stress, and perceived gender harassment across 5 settings were each associated with increased number of victimizations. Implications for prevention and treatment interventions and future research are discussed.

An Ecological Study of  
Repeated Sexual Victimization among College Women

In his classic book *Blaming the Victim*, Ryan (1976) exposed the hidden assumptions of many social policies in America. Ryan argued that a great deal of research and social interventions inadvertently blame victims for their problems. In the case of sexual violence, the substantive topic of this paper, there are many overt ways to blame a rape victim such as faulting her for wearing revealing clothing or for accompanying a date to an isolated spot. Ryan's (1976) process of victim blaming, however, is subtler than that. Blaming the victim is a rational, four-step process that ultimately results in a simple formula for humanitarian action, intervention and prevention: change the victim. A close examination of a current hot topic in rape research, repeated sexual victimization, reveals that the field may be dangerously close to emulating Ryan's (1976) classic victim-blaming formula. As a means of introducing the topic of repeated sexual victimization, a brief analysis of Ryan's theory will be applied to this area of research.

The first step in blaming the victim is to identify a social problem (Ryan, 1976). Over three decades, scholars have built and disseminated a scientific base of information that suggests sexual violence is a pressing American problem, affecting women and children in nearly epidemic proportions. An expert review of prevalence studies suggests that approximately one in four women will be raped during her lifetime (Koss, 1993). When the definition of sexual violence is expanded to include non-contact sexual abuse and applied to children, the numbers become even more sobering; 40.5% of females and 49.5% of males reported at least one unwanted sexual experience before the age of 16 (Stevenson & Gajarsky, 1991). Research has also demonstrated that the impact of sexual violence is severe. Most survivors experience

physical, psychological, sexual and/or interpersonal problems following the sexual abuse (Golding, 1996; Kimerling & Calhoun, 1994; Koss, Woodruff & Koss, 1990; Resick, 1993).

The next step in blaming the victim is to study those affected by the problem in order to discover the ways in which they are different from others (Ryan, 1976). Substantial empirical evidence suggests that history of previous sexual victimization is one of the most reliable differences between women who are sexually assaulted as adults and those who are not. For women, being sexually abused or assaulted as a girl statistically predicts being subsequently and/or repeatedly sexually assaulted later in life (Messman & Long, 1996; Roodman & Clum, 2001). These experiences of repeated sexual assault result in cumulative harm, such that multiply victimized women have more mental, physical, and sexual problems than victims of a single instance of sexual violence (Follette, Polusny, Bechtle & Naugle, 1996; Messman-Moore, Long & Siegfried, 2000).

The third step in blaming the victim is to define the differences between victims and nonvictims as the cause of the social problem itself. In the case of repeated sexual victimization, some researchers hypothesize that early sexual victimization experiences set into motion a chain of events in the victim's life that leads to increased risk for subsequent sexual victimization. These types of hypotheses fit into Ryan's (1976) blaming the victim paradigm. Although some researchers are careful to note in their discussion sections that the actual cause of the victimization is the perpetrator's violent behavior, the analyses and results are usually presented in a way that suggests women's responses to early abuse experiences either directly or indirectly cause later sexual victimization. Two of the most common causal explanations proposed by rape researchers will be presented in greater depth in this paper.

Developing intervention programs to compensate for the differences that have been identified in victims is the last step in blaming the victim (Ryan, 1976). Researchers have already designed such interventions for women with histories of sexual abuse in childhood or adolescence. These programs provide survivors with psychoeducation and skills training in hopes of reducing their risk for subsequent sexual victimization (Breitenbecher & Gidycz, 1998; Hanson & Gidycz, 1993; Marx, Calhoun, Wilson & Meyerson, 2001). For example, Marx, Calhoun, Wilson and Meyerson's (2001) two-session prevention program used group leader and video presentations to discuss definitions, statistics, danger signals, and personal risk factors for acquaintance rape. Participants also filled out a worksheet listing the perpetrator, situational and personal risk factors that were indicative of their own victimization histories. In a subsequent session, participants discussed their personal risk factors with other members of the group and were trained to use a problem-solving model to avoid revictimization. Additionally, group leaders used a "covert modeling procedure to teach participants appropriate assertiveness skills" (Marx et. al., 2001, p. 26). Such a program is the logical result of the Ryan's (1976) process of blaming the victim.

Although he suggests that programs such as "revictimization prevention" described above may be problematic, Ryan (1976) acknowledges the humanitarian aims of these types of programs. In this case, the purpose of the program is to help child sexual abuse or adolescent sexual assault victims from incurring further harm, an important goal. The problem, then, lies not in the intention of the program, but in the approach of treating the social problem (here, sexual assault). This approach focuses on identifying characteristics within individual victims such as prior abuse history, ability to detect risk, or lack of assertiveness. However, there is another approach to treating social problems, which focuses on factors in the community rather than in

the individual. This approach, one that examines environmental factors, is nearly absent from the published literature on repeated sexual victimization.

The short critique of the current literature on sexual revictimization provides an opportunity to reflect on the following question: what is known about repeated experiences of sexual violence? First, there appears to be a statistical association between experiences of sexual victimization across the lifetime, particularly between childhood sexual abuse and adult sexual assault. Although there are exceptions (Mandoki & Burkhart, 1989; Combs-Lane & Smith, 2001), this is a consistent finding in the victimology literature. Second, several (sometimes competing) theoretical models (e.g., Gold, Sinclair, & Balge, 1999; Grauerholz, 2000) for understanding the relationships between repeated experiences of sexual violence have been proposed. Third, results of empirical tests of various explanatory hypotheses for repeated sexual victimization have been published. However, findings of these studies do not, as yet, present a consistent, viable explanation for the connection between an early sexual victimization, such as child sexual abuse, and a subsequent experience of rape. Before devoting limited resources to applied preventative interventions, additional basic research may be warranted until mixed findings can be clarified.

Some researchers have started to test explanatory hypotheses for repeated sexual victimization. The majority of studies thus far have targeted characteristics of individual victims, such as unresolved trauma, interpersonal problems, or sexual promiscuity, as potential pathways between a first sexual assault and a subsequent victimization. This type of research starts with the first instance of sexual violence and proposes a causal chain of intra-psychic and/or behavioral sequelae that place victims at higher risk, ultimately leading to a second victimization experience. For example, some researchers have proposed that after experiencing child sexual

abuse, a young girl might learn that she is helpless to stop sexual abuse and begin to mentally dissociate from routine experiences as a way of coping. This dissociative state may then prevent her from detecting risk in interpersonal interactions, leading to additional sexual abuse as an adolescent or adult.

Although a few variables, such as posttraumatic stress symptoms or number of sexual partners, have been modestly associated with revictimization, no single theory has received unequivocal support (Breitenbecher, 2001). Researchers in this field have largely overlooked the social and environmental context of women's lives. Contextual factors might include women's romantic relationships, environments, social networks, and/or cultural norms about women and rape. The purpose of this study is to expand current knowledge by exploring situational and environmental factors that may be related to the sexual revictimization of women. The literature review will highlight the scope of repeated sexual victimization (including prevalence and impact on survivors) as well as theoretical explanations for the phenomenon. Two theoretical frameworks used to explain repeated sexual victimization – the psychological model and the behavioral model – will be described, and research evaluating each model will be summarized. Then, using an ecological model for sexual revictimization (Grauerholz, 2000) as a framework for conceptualizing women's experiences, risk factors associated with repeated sexual victimization of college women will be analyzed.

### *Repeated Sexual Victimization: The Scope of the Problem*

#### *Definitional Issues*

Researchers categorize sexual violence in several ways. The relationship between the perpetrator and the victim is often used to classify nonconsensual sexual experiences, resulting in categories such as incest, date rape, acquaintance rape, stranger rape, and marital rape. Another

way to categorize sexual victimization is by the degree of force used. This classification technique places nonconsensual sexual experiences along a continuum. For example, completed rape is usually considered “worse” than attempted rape. Sexual assault involving physical force or use of a weapon is “worse” than assault involving coercion. Assaults involving penetration are “worse” than contact abuse such as fondling, which is “worse” than noncontact sexual abuse (e.g., exhibitionism). These classifications allow researchers to transform the severity of early sexual victimization experiences into a continuous variable used to predict subsequent victimization experience (e.g., Arata, 2000; Koverola, Proulx, Battle & Hanna, 1996; West, Williams & Siegel, 2000).

Researchers also categorize experiences of sexual victimization according to the age of the victim at the time of violence, which results in classifications such as childhood sexual abuse/assault, adolescent sexual assault, and adult sexual assault.<sup>1</sup> Childhood sexual abuse and adult rape are frequently studied independently of one another with different theories as to their etiologies, correlates and sequelae. Child sexual abuse researchers and rape researchers have used various terms to describe women’s sexual victimization across the lifespan. For the sake of clarity, the following definitions will be used throughout this paper:

- The term *revictimization* will be used to describe cases where the first incident of sexual violence occurs in childhood and is followed by subsequent sexual victimization in adolescence or adulthood.
- The term *multiple sexual victimization* will be used to describe cases where the first incident of sexual violence occurs in adolescence or adulthood (i.e., after the age of 14) and is followed by subsequent sexual victimization in adolescence or adulthood.

- The term *repeated sexual victimization* will be used as an “umbrella term” to encompass both revictimization and multiple sexual victimization at the same time.

*Prevalence.* The varying methods for conceptualizing, defining, and measuring sexual victimization lead to rather unclear estimates of the number of women who experience repeated sexual victimization. Results from the National Violence Against Women Survey, which used random digit dialing procedures to generate a sample of 8,000 women and 8,005 men, revealed that women who reported they were raped before age 18 were more than twice as likely to report being raped as an adult (Tjaden & Thoennes, 2000). Extrapolation of results from this study suggests an overall lifetime prevalence rate of 1.62% for revictimization of women (18.3% of women who reported rape as minor also reported being raped as an adult multiplied by 9% of women reported being raped before age 18) (Tjaden & Thoennes, 2000). This figure accounts for completed rapes only, excluding other types of sexual violence.

Evidence from other studies suggests that the prevalence of sexual revictimization may be higher than the number suggested by the National Violence Against Women Survey. For example, Messman and Long (1996) reviewed 19 empirical studies that measured both child and adult sexual victimization experiences, and found slightly higher average rates of revictimization.<sup>ii</sup> On average, about a third (33%) of child sexual abuse victims (range 6% to 72%) reported subsequent abuse in adolescence or adulthood; and 44 percent of adult rape victims (range 18% to 66%) reported a history of child sexual abuse (Messman & Long, 1996). They conclude that between 15% and 72% of women who experience sexual abuse as a child are likely to be revictimized later in life (Messman & Long, 1996).<sup>iii</sup> The study of sexual repeated sexual victimization has been characterized by varying conceptualizations, theoretical frameworks, measurement, methods, and results across studies. It is likely that differences in

definitions and measurement of sexual victimization at each time point accounts for the wide range of prevalence rates of sexual revictimization found in this review.

*Effect size.* Interestingly, although research has produced wildly differing results on *how many* women experience repeated sexual victimization, results of a meta-analysis suggest that the *strength of the association* between victimization experiences is considerable. Roodman and Clum (2001) conducted a meta-analysis of 19 empirical studies of adult females published between 1986 and 1996. The purposes of their analyses were: to determine the magnitude of the effect of early victimization on adult victimization,<sup>iv</sup> and to identify systematic sources of method variance contributing to differences in that effect. Across all studies, they found a mean effect size of .59, which they describe as a “moderate” effect<sup>v</sup> (Roodman & Clum, 2001).

A striking finding of Roodman and Clum’s (2001) meta-analysis was that studies that utilized more inclusive definitions of abuse (e.g., contact and noncontact sexual abuse) yielded smaller effect sizes than studies that used more restrictive definitions of abuse (e.g., completed rape only). In other words, the association between childhood abuse broadly defined (physical, noncontact sexual, and/or contact sexual abuse) on adult victimization broadly defined (physical and/or sexual abuse) was weaker than associations found in studies that used more conservative measures of victimization. The calculation of the revictimization rate in a given sample depends on how the researcher defines and measures both child sexual abuse and adult sexual assault. Some definitions result in a stronger association between childhood experiences and adulthood experience. The strongest revictimization effect was that of contact childhood sexual abuse on subsequent attempted and completed rape experiences (Roodman & Clum, 2001).

These findings are consistent with an empirical study that systematically investigated the use of different definitions of sexual victimization. To determine why some researchers (e.g.,

Mandoki & Burkhart, 1989; Briere & Runtz, 1987) did not find evidence of revictimization while many others studies did, Mayall and Gold (1995) compared three different definitions for adult and child victimization. Results of this study indicate that less restrictive definitions (of both child and adult sexual assault) were not associated with revictimization, whereas more restrictive definitions were significantly associated with revictimization (Mayall & Gold, 1995). Obviously, a widely cast net captures more experiences. So researchers that include both contact and noncontact forms of sexual abuse in their definitions of child and adult sexual victimization will find more abuse experiences overall. However, as the pools of both childhood and adulthood abuse experiences grow larger, each group contains more people that experience only child victimization or only adult victimization, reducing the strength of the association between the two types of victimization.

#### *Cumulative Effects of Repeated Sexual Victimization*

Repeated sexual victimization may have a cumulative effect on victims' well being, such that each experience of sexual violence increases the amount of distress, disruption, and harm to victims' lives (Follette et al., 1996). Women with repeated victimization experiences reported more difficulties in a number of different realms (e.g., somatization, interpersonal sensitivity, hostility, posttraumatic stress disorder, dissociation, sexual problems) than women with only one form of adult abuse or no victimization (Follette et al, 1996; Messman-Moore et al., 2000).

In two related studies of college women, Arata (1999a,b) looked at relationships between repeated sexual violence and a number of mental disorders including depression, bipolar, alcohol abuse, phobias, bulimia and posttraumatic stress disorder. Comparing among four groups (no victimization, child-only, adult-only, and repeat victims), she found that repeat victims met criteria for more disorders than nonvictims (1999a). However, posttraumatic stress disorder was

the only disorder that differentiated between repeat victims and other victims (child-only or adult-only) (1999a). In a second study using the same data, Arata (1999b) narrowed her focus by comparing two of the groups, the child-only victims and the repeat victims. Similar to the first study, repeat victims were more likely than child-only victims to meet criteria of lifetime posttraumatic stress disorder. Arata's (1999a,b) findings indicate that posttraumatic stress disorder, a serious mental health issue for rape victims, may be exacerbated for victims of repeated sexual violence.

A number of other studies provide support for a cumulative effect of sexual violence on victims' experiences of posttraumatic stress symptoms (Koverola, et al., 1996; Maker, Kemmelmeier & Peterson, 2001; Proulx, Koverola, Fedorowicz & Kral, 1995; Roth, Wayland & Woolsey, 1990). Roth, Wayland and Woolsey (1990) found that incest victims who were subsequently victimized scored higher on denial (a component of posttraumatic stress as measured by the Impact of Events Scale) but not on other measures. Similarly, Koverola and colleagues (1996) found that those who had been sexually revictimized reported significantly more posttraumatic stress disorder symptoms (but did not report more global distress, depression, anxiety or somatization) than other victimization groups.<sup>vi</sup> While there are sometimes no differences between single- and multiple-incident victims on general measures of psychological health, victims of repeated sexual violence often have higher levels of posttraumatic stress symptoms.

Repeated sexual victimization also affects women's sexual health. West, Williams and Siegel (2000) recruited African American women with documented histories of childhood sexual abuse and studied them using a prospective design. They found that women that were revictimized reported more prostitution, partner violence, and sexual health problems – including

problems conceiving, repeated vaginal infections, sexually transmitted diseases, and painful intercourse – than those who did not experience subsequent adult victimization (West, Williams & Siegel, 2000). Although Wyatt, Guthrie and Notgrass (1992) found no significant effect of revictimization on psychological well being,<sup>vii</sup> their research with African American and Caucasian women confirmed differential effects of revictimization on sexual health (i.e., higher rates of unintended and aborted pregnancies, more frequent sexual activity including risky practices such as anal sex, group sex and partner swapping) by racial identity. This evidence suggests that revictimization may be related to risky sexual behaviors, especially among women of Color.

Research has produced evidence that repeated experiences of sexual victimization may lead to severely disrupted sexual health and posttraumatic stress. Furthermore, repeated rape victims may be more likely to come to the attention of service providers than singly victimized women (Ellis, Atkeson & Calhoun, 1982). Although it seems that many women endure repeated sexual victimization and suffer negative outcomes, it is not clear how and why survivors of sexual violence are more likely to be assaulted again. To develop effective treatment and prevention efforts, it is imperative that we clarify explanations for repeated sexual victimization.<sup>viii</sup>

### *Explanations for Sexual Revictimization*

Having ascertained a reliable association between repeated victimization experiences (for a review, see Messman & Long, 1996), recent research has explicitly tested various theories that link early sexual victimization to subsequent sexual assault. Two basic models, which can be termed the *psychological model* and the *behavioral model*, describe the majority of explanations found in the published literature. Both the psychological and the behavioral models use the same

structure, *mediation*, to explain the relationship between repeated sexual victimization experiences. These theories propose a chain of psychological effects or behaviors by which a first victimization experience eventually leads to another. However, some of the research summarized below has revealed that a second explanatory mechanism, *moderation*, may better explain repeated sexual victimization. In moderation, the relationship between two variables, child sexual assault and adult sexual assault, for example, depends on a third variable. In this section, both models will be briefly described and the empirical evidence for each will be reviewed.

### *The Psychological Model*

Many researchers have suggested that susceptibility to sexual assault in adulthood is increased by unresolved trauma from a first victimization experience such as child sexual abuse (See Figure 1). These kinds of psychological theories often have psychodynamic underpinnings. For example, theorists have posed that, as a maladaptive form of coping, traumatized victims may place themselves in sexually abusive situations because of a psychological need to master the previous experience (van der Kolk, 1989; Chu, 1992). Other psychological theories suggest that cognitive effects of sexual violence, such as learned helplessness or impaired risk detection reduce a victim's ability to protect herself from subsequent violence (e.g., Marx, Calhoun, Wilson & Meyerson, 2001).

*Empirical tests of the psychological model.*<sup>ix</sup> Theories that focus on the psychological ramifications of the early abuse on victims' lives are quite popular. Therefore, evidence, both supporting and discrediting, the psychological model has accumulated. Some studies support the idea that psychological adjustment may mediate the relationship between child sexual abuse and later revictimization. For example, Arata (1999b) found that child sexual abuse survivors who

were revictimized in adulthood were more likely to have posttraumatic stress disorder than child sexual abuse survivors who were not revictimized. Although the data were crosssectional in nature, participants reported that the posttraumatic stress symptoms started in childhood (Arata 1999b). These results support the theory that child sexual abuse may cause posttraumatic stress symptoms, which may be a risk factor for adult victimization.

Gidycz and colleagues have had mixed success in establishing a connection between revictimization and anxiety or depression. Gidycz, Coble, Latham and Layman (1993) conducted a prospective analysis of the pathways linking multiple victimization experiences among college women. After analyzing measures of sexual victimization, depression, and anxiety at two time points approximately nine weeks apart from one another, these authors concluded that sexual victimization early in life is a risk factor for victimization as an adult. This study also provided empirical support that poorer psychological functioning (i.e., higher levels of anxiety and depression) may mediate the relationship between early and subsequent sexual victimization. Path analyses showed that child and adolescent victimization predicted psychological adjustment at time one, and that psychological adjustment was directly related to subsequent adult victimization at time two (Gidycz et al, 1993). These findings are consistent with retrospective accounts that find multiple victimization experiences to be significantly associated with higher levels of psychological distress (Arata, 1999b; Follette, et al., 1996; Messman-Moore, et al., 2000; Roth, et al., 1990).<sup>x</sup>

In subsequent work, Gidycz, Hanson and Layman (1995) assessed women's victimization experiences and psychological functioning, family adjustment, alcohol use, interpersonal functioning, and sexual behavior at three, six, and nine month intervals. The authors replicated the revictimization effect (women with history of victimization were almost twice as likely to

experience subsequent sexual assault), but they were not able to find consistent evidence for the role of the mediating variables (Gidycz et al, 1995). The psychological adjustment variable at the 6-month follow-up predicted subsequent victimization at the nine month follow-up. However, psychological adjustment did not consistently predict subsequent victimization at other time points; nor did it mediate the relationships between victimization experiences (Gidycz et al, 1995). Although these results contradict earlier work (Gidycz et al., 1993), they are consistent with other research that finds little to no evidence that depression, anxiety, dissociation, or general psychological well being predict sexual revictimization (Irwin, 1999; Kessler & Bieschke, 1999; Koverola, et al., 1996; Maker, et al., 2001; Wilson, Calhoun & Bernat, 1999).

Further complicating matters, some work suggests that posttraumatic stress may actually help *protect* victims of sexual assault from subsequent sexual attacks. Wilson, Calhoun and Bernat (1999) used experimental methods to compare varying levels of sexual victimization on women's perception of risk. They hypothesized that posttraumatic stress disorder and dissociative symptoms would inhibit sexually revictimized women's ability to detect risk in an audiotaped date rape vignette. Surprisingly, revictimized women with high posttraumatic stress detected risk at similar rates as nonvictims. But revictimized women with *lower* posttraumatic stress were slower to detect risk (Wilson, et al., 1999). These data suggest a moderating effect of arousal symptoms among sexually revictimized women, such that the effect of victimization experiences on risk detection depends on the level of posttraumatic stress disorder symptoms. In this instance, posttraumatic stress actually increased women's sensitivity to cues of sexual coercion.<sup>xi</sup> This evidence contradicts the presumption of psychological models that unresolved trauma decreases victims' ability to detect risk of sexual victimization.

There is additional support that posttraumatic stress may moderate the revictimization pathway. In another prospective study of college women over a 10-week academic quarter, Sandberg, Matorin and Lynn (1999) found that posttraumatic stress and dissociative symptoms did not mediate the relationship between multiple sexual victimization experiences. However, they did detect a *moderating* effect of posttraumatic stress on sexual revictimization, such that previous sexual victimization was more strongly associated with subsequent sexual victimization in the presence of high posttraumatic stress symptoms (Sandberg et al., 1999). In interpreting these findings, Sandberg and colleagues (1999) shifted the focus off of the victim by suggesting that the presence of posttraumatic stress symptoms might affect *perpetrator's behavior*. They offer the explanation that perpetrators may be able to identify individuals with posttraumatic stress and target them as victims.

#### *The Behavioral Model*

Whereas the first theoretical model focuses primarily on the psychological experience of victimization (e.g., betrayal, unresolved trauma), the behavioral model highlights the sexual aspect of the abuse. The second set of theories includes behavioral effects of early nonconsensual sexual experiences as mediators between repeated victimizations (See Figure 2). Within the behavioral framework, there are several explanations for why child abuse survivors may be engaged in more frequent sexual activity and/or have more sexual partners than nonvictims. For example, the experience of child sexual abuse may lead to earlier disinhibition regarding sexual activity, learned helplessness in the face of sexual advances, or feeling valued only for their sexuality (Mayall & Gold, 1995). A resulting increase in the number of consensual sexual partners in adolescence is thought to heightening the risk of encountering a sexually aggressive partner (Fergusson, Horwood & Lynskey, 1997).

*Empirical tests of the behavioral model.* Without explicitly testing the mediation suggested in the behavioral model, early cross-sectional research did establish the importance of considering consensual sexual activity when studying repeated sexual victimization. For example, Mayall and Gold (1995) found that women with a history of child sexual abuse reported having significantly more sexual experiences during adulthood than women without a history of child sexual abuse. Furthermore, these researchers found that while child sexual abuse was significantly associated with adult sexual assault, adult consensual sexual activity was an even better predictor of adult sexual assault (Mayall & Gold, 1995). In their interpretation of these results, the authors proposed a mediational model in which child sexual abuse leads to more sexual partners/activity, which leads to increased chances of sexual victimization in adulthood.

Only one study that has statistically tested the mediating relationship specified in the behavioral model found support for this causal chain of relationships. Krahe, Scheinberger-Olwig, Waizenhofer and Kolpin (1999) found significant effects of child sexual abuse (the independent variable) on consensual sexual activity (the mediator) as well as on subsequent sexual victimization (the dependent variable). Consensual sexual activity significantly predicted subsequent sexual assault after the age of 18 (Krahe et al, 1999). Lastly, when sexual activity variables were entered as covariates, the effect of child sexual assault on adult sexual assault decreased, but was still significant (Krahe et al, 1999). According to Baron and Kenny's (1986) three-step approach to testing mediation, this pattern of results supported a partially mediated model.

Other research has not been able to support consensual sexual activity as a mediator of repeated sexual victimization experiences. In a prospective study, Gidycz et al (1995) used path

analysis to test the mediation specified in the behavioral model. While a history of victimization at each time period (independent variable) predicted victimization at the following time period (dependent variable), sexual victimization history was not always related to the mediator, number of sexual partners. Furthermore, number of sexual partners did not predict subsequent victimization (Gidycz et al, 1995). This evidence is consistent with results of research that examined consensual sexual activity among revictimized women without explicitly testing for mediation. For example, West, Williams and Siegel (2000) studied 113 Black women who had obtained emergency medical care following a case of sexual abuse in childhood. Approximately fifteen years after they had been sexually abused in childhood, the women completed a number of measures. Results indicate that revictimized women were not more likely to have earlier consensual sexual intercourse nor to report a greater number of male consensual partners than child sexual abuse victims who were not revictimized (West et al., 2000). Similarly, Wyatt and colleagues (1992) found no effect of victimization status on number of sexual partners.

In a study of 1887 female Navy recruits, Merrill et al (1999) were also unable to support their hypothesis that number of sexual partners mediated the relationship between child sexual abuse and adult rape. They found a significant effect of childhood sexual abuse on number of sexual partners, the mediator, as well as on the dependent variable, adult rape. Additionally, number of sexual partners was significantly related to adult rape. However, the final results indicated independent effects of childhood sexual abuse history and number of sexual partners on adult rape (Merrill et al., 1999). This pattern of results indicates that the associations between the three variables – child sexual abuse, number of sexual partners and adult sexual assault – are not best explained using a linear, causal chain model.

These findings are also consistent with cohort research conducted in New Zealand that combined prospective and retrospective designs. Fergusson, Horwood and Lynskey (1997) followed a group of individuals from birth until age 18, assessing social and contextual variables prospectively. However, due to ethical issues, they did not inquire about sexual experiences until participants reached age 18, at which point participants were surveyed retrospectively on their sexual experiences. These researchers hypothesized that age at first intercourse mediated the relationship between child sexual abuse and sexual assault as an adolescent. However, they found that even after accounting for age at first intercourse (as well as social and family factors), child sexual abuse increased the likelihood of rape or attempted rape in adolescence (Fergusson et al, 1997). The hypothesized mediation was not supported.

Interestingly, some studies that hypothesized sexual activity as a mediator between multiple abuse experiences failed to find any support of the revictimization effect at all. In other words, some research found the association between child sexual abuse and adult sexual assault experiences to be no stronger than what one would expect by chance (Briere & Runtz, 1987; Combs-Lane & Smith, 2002; Mandoki & Burkhart, 1989). Without this crucial link between child sexual abuse, the independent variable, and adult sexual assault, the dependent variable, there was no case for pursuing the hypothesized mediating effect of consensual sexual activity between the two types of abuse experiences.

Two of these studies did uncover significant relationships between measures of consensual sexual activity and one or both types of victimization. For example, Mandoki and Burkhart (1989) found that adult sexual assault could not be predicted by child sexual abuse history. However, they did find that a history of child sexual abuse was significantly associated with the number of adult sexual partners. Similarly, adult sexual assault was significantly

associated with the number of adult sexual and dating partners (Mandoki & Burkhart, 1989). More recently, in Combs-Lane and Smith's (2002) longitudinal study of female college students, a history of sexual victimization at the time of the first survey was not associated with proportionately higher rates of new sexual victimization at the time of the second survey. Additionally, compared to participants who reported no sexual victimization, participants with a history of sexual victimization did not report more involvement in risky sexual, dating or social activities on the second survey (Combs-Lane & Smith, 2002). However, higher levels of sexual/dating and social activity – especially when it included the use of alcohol – increased the likelihood of sexual victimization at the second time point.

In these studies, measures of consensual sexual or dating activity were found to be independently related to child sexual abuse (Mandoki & Burkhart, 1989) and/or adult sexual victimization (Combs-Lane & Smith, 2002; Mandoki & Burkhart, 1989). Although these studies do not support the idea that a history of sexual victimization increases a woman's chance of subsequent assault, they do suggest that high levels of sexual and dating activity are important to assess when examining repeated sexual victimization. A lack of evidence for mediation suggests researchers ought to conceptualize consensual sexual activity as something other than a mediator between repeated experiences of sexual victimization.

#### *Combining Unresolved Trauma and Sexual Behavior: The Psycho-Behavioral Model*

Recently, Arata (2000) tested a combination of the psychological and behavioral models (See Figure 3). She hypothesized a partially mediated model in which characteristics of the child sexual abuse (duration, force, physical severity and victim-perpetrator relationship) directly predicted sexual revictimization as well as indirectly predicting it through post-abuse psychological trauma (i.e., internalized blame and posttraumatic stress symptoms). Also, the

relationship between psychological trauma and sexual revictimization was hypothesized to be partially mediated by sexual behavior. This integrated model specified that child sexual abuse would lead to self-blame and posttraumatic stress, which would lead to risky sexual behavior that would, in turn, lead to sexual revictimization.

The results of Arata's (2000) study of 221 undergraduate women partially supported her hypotheses. Consistent with other studies (e.g., West et al., 2000), path analyses of retrospective data suggested that physical severity was the only attribute of child sexual abuse that predicted sexual revictimization (Arata, 2000). Physical severity of the child sexual abuse predicted self-blame, posttraumatic stress and consensual sexual behavior, the set of mediating variables. Each of these mediators was significantly associated with revictimization, the dependent variable. However, there was no relationship between the psychological factors and the sexual behavior. Rather, severity of abuse was directly associated with consensual sexual behavior, which was, in turn, directly associated with sexual revictimization (Arata, 2000). Symptoms of trauma and self-blame did not *lead to* increased sexual behavior; instead the relationship between consensual sexual behavior and revictimization was independent of psychological variables.

#### *Conclusions from the Literature: Implications for Future Research*

A review of the revictimization literature reveals that effects documented in one study are not consistently replicated in others (Breitenbecher, 2001). However, some patterns of findings were helpful in planning the current study. First, after integrating research on the psychological model, there is little support for examining most psychological variables (e.g., dissociative symptoms, anxiety, depression, psychological adjustment), especially as mediators (e.g., Gidycz et al., 1995; Irwin, 1999; Kessler & Bieschke, 1999; Koverola, et al., 1996; Maker, et al., 2001). However, the accumulated evidence suggests that one psychological variable, posttraumatic

stress, may be important to include in a conceptual framework of repeated sexual victimization (Arata, 1999a,b; Sandberg, et al., 1999; Wilson et al., 1999). Posttraumatic stress may moderate (rather than mediate) a woman's history of sexual victimization and subsequent revictimization. However, results of tests of moderation have been mixed. Some research suggests that survivors with *low* levels of posttraumatic stress have a greater likelihood of being revictimized (Wilson et al., 1999), while other research suggests that survivors with *high* levels of posttraumatic stress have a greater likelihood of being revictimized (Sandberg, et al., 1999).

Tests of the behavioral model indicate that sexual behavior is probably important to include in studies of repeated sexual victimization. However, as was the case with psychological variables, many hypotheses posing sexual behavior as a *mediator* have not been supported by evidence (e.g., Gidycz et al, 1995). Some research indicates that number of sexual partners has a direct, independent effect on adult victimization (Combs-Lane & Smith, 2002; Fergusson et al., 1997; Merrill et al., 1999). While both posttraumatic stress and number of sexual partners seem to be important variables in piecing together why some women are repeatedly victimized, additional work with these constructs is necessary. Breitenbecher (2001) notes that most models only predict a small amount of the variance in the dependent variable. This finding implies the need for broadened conceptualizations of sexual revictimization, ones that consider more variables and different relationships among those variables. Grauerholz's (2000) ecological model provides a framework for expanding the study of repeated sexual victimization of women.

*An Ecological Model for Sexual Victimization Across the Lifespan:*

*Identifying Risk at Multiple Levels of Analysis*

Theoretical explanations of sexual revictimization often have lacked an exploration of extra-individual factors that may be related to sexual revictimization. Most of the work considers

individual victims and characteristics of their abuse, mental health, personality or behavior as risks for repeated sexual victimization. Some of the more inclusive studies took account of socioeconomic status, social support and/or information about the victim's family of origin as contextual variables. However, few studies have explicitly considered how environmental or sociocultural variables might influence a woman's risk of being victimized repeatedly.

Grauerholz (2000) conceptualized an ecological framework to "help organize what is currently known about sexual revictimization, to move beyond these individualistic explanations, and to consider the complex relationships between personal, interpersonal, and sociocultural factors contributing to sexual revictimization" (p. 5).

Adopting Heise's (1998) ecological framework for violence against women, Grauerholz (2000) suggests that women are embedded in a series of ecological "systems," and that risk of sexual revictimization can be examined at each of four levels of analysis (see Figure 4). The four levels of analysis include Bronfenbrenner's (1977, 1979) ideas of *microsystem*, *exosystem* and *macrosystem*, and Belsky's (1980) idea of *ontogenic development*, or personal history. To identify important factors at each of these four levels of analysis, literature on sexual revictimization, adult sexual assault, sexual perpetrators, and criminological theories of victimization were reviewed and integrated. Key findings of this review have shaped the theoretical underpinnings of the current study.

#### *Personal History and the Individual*

Grauerholz's (2000) ecological approach does not include a separate individual level. Instead, the individual is conceptualized as embedded within (and influenced by) a series of settings. The innermost concentric circle represents what is termed *ontogenic development*, or personal history. Risk factors for repeated sexual victimization at this first level include early

family experiences, history of previous victimization, and the effects of the abuse (e.g., trauma, alcohol/drug use, low self-esteem, running away from home) (Grauerholz, 2000).

In studies that assessed family experiences, few family-level variables were consistently associated with sexual revictimization. These include father's antisocial behaviors (Maker et al., 2001), lack of maternal support (Mayall & Gold, 1996), and having ever lived apart from mother during childhood (Mandoki & Burkhart, 1989). While Gidycz et al (1995) found negligible influence of a family's cohesion, conflict, and control in their prospective study, Koverola et al (1996) found that these variables did differentiate victims from nonvictims. Family factors that were not significant in the relationship between multiple incidents of sexual victimization include: witnessing marital violence, parental substance abuse (Maker, et al., 2001), father's supportiveness (Mayall & Gold, 1996), whether parents were separated/divorced, presence of a stepfather, strictness of parents, and number of siblings (Mandoki & Burkhart, 1989).

The literature on sexual revictimization was reviewed to identify the characteristics and sequelae of early abuse that were most strongly associated with subsequent victimization. The severity of the initial sexual victimization, but not necessarily other characteristics of the abuse (e.g., relationship to perpetrator), appears to be a risk factor for subsequent victimization (e.g., Arata, 2000; West et al., 2000). Three correlates of childhood abuse experiences show promise for their ability to predict repeated sexual victimization: posttraumatic stress, self-blame and risky behavior related to social activities and sexual relationships. First, in studies of the traumatic effects of early sexual abuse, posttraumatic stress seems to be the psychological construct most consistently associated with subsequent victimization (Arata, 1999b; Follette et al, 1996; Messman-Moore et al., 2000; Roth et al., 1990).

There is also empirical support that self-blame may link multiple victimization experiences. Self-blame has been associated with a number of deleterious outcomes among child sexual abuse survivors, including revictimization (Arata, 2000; Frazier, 1991; Kellogg & Hoffman, 1997; Kessler & Bieschke, 1999). For example, Kessler and Bieschke (1999) found that shame was a significant predictor of adult victimization among survivors of childhood sexual abuse. Additional research documents that self-blame does function as a mediator between child sexual abuse and other outcomes. In early work on this topic, Frazier (1991) found that self-blame mediated the relationship between prior incest and current depression among a sample of rape victims. More recently, Arata (2000) examined the role of self-blame in the revictimization phenomenon. She found that survivors of child sexual abuse that had been revictimized reported significantly more self-blame for the child sexual abuse than did survivors who were not revictimized. Path analyses suggested that the relationship between child sexual abuse and subsequent victimization was mediated, in part, by self-blame (Arata, 2000).

A third individual difference that has been used to predict sexual victimization and repeated victimization is certain behavior related to alcohol use and/ or risky dating, social and sexual behaviors. Risky behaviors are more extreme than typical dating and social activities, for example, mixing drugs and alcohol, staying at a party after one's friends have left, having sex without a condom, or going to bars alone. Research on these behaviors has found positive associations between an individual's risk-taking and their victimization status. In a prospective study, Combs-Lane & Smith (2001) found that reports of heavy alcohol use at baseline assessment were correlated with new victimization at six months later. Davis, Combs-Lane, & Jackson (2002) found that college women with multiple sexual assault experiences reported significantly more risky dating, social and sexual behaviors than students with single sexual

assaults who, in turn, reported more risky behavior than participants with no sexual assault history. In virtually all of the literature, risk-taking behavior has been conceptualized as a characteristic that varies as a function of *individual* judgment and choice, distinct from the “routine” dating and sexual relationships described in the next section as *interpersonal* elements of the microsystem.

### *The Microsystem*

The *microsystem* represents the immediate context in which the phenomenon of interest takes place. In the case of repeated sexual victimization, researchers are primarily concerned with adult rape following a previous experience of sexual violence. It has been documented that most adult sexual assaults occur within dating, acquaintance, or marital relationships (Koss, 1985). Therefore, the microsystem, or the immediate context in which repeated sexual victimization takes place, is most likely to be within dating and sexual relationships. However, because women can also be raped by strangers, “the microsystem might entail very diverse settings” (Grauerholz, 2000, p. 10).

At the microsystem, Grauerholz (2000) refers to an *exposure risk*, or routine activities that lead to increased contact with potential perpetrators.<sup>xii</sup> Other researchers have used ideas similar to exposure risk to understand risk of criminal victimization. For example, *lifestyle exposure models* assert that individuals’ daily activity patterns determine “the likelihood that a motivated offender will be brought together with a suitable target in the absence of capable guardians” (Davis & Smith, 1994, p.56). Similarly, Gottfredson and colleagues have argued that the probability of victimization is a function of routine activities, which determine the amount of interaction individuals have in high-risk situations (Gottfredson, 1981). Some routine activities include spending time in public places and spending time among nonfamily members

(Hindelang, Gottfredson & Garofalo, 1978). Even seemingly benign leisure activities, such as going to a mall or eating out, have been associated with increased risk of criminal victimization among college women (Mustaine & Tewksbury, 1998).

Recently, Combs-Lane and Smith (2002) applied *routine activities theory* to the study of sexual victimization. These researchers argue that although typical routine activities theory focuses on exposure to strangers, in the case of sexual assault it may be useful to extend the theory to exposure to male acquaintances since most women are raped by someone known to them (Koss, Dinero, Seibel & Cox, 1988). Research on sexual violence perpetration indicates that coercive males use alcohol and isolation to create situations where sexual violence can occur (Abbey, McAuslan, Zawacki, Clinton & Buck, 2001). To the extent that friendships and dating relationships involve two people spending time alone together (isolation) and the use of alcohol, the relational setting may become conducive to the perpetration of sexual assault. Thus, women's routine activities like maintaining friendships or romantic relationships with men may constitute exposure risk for sexual victimization at the microsystem level.

### *The Exosystem*

The *exosystem* is described as the social institutions in which the microsystem is embedded. In this case, the interpersonal relationships in which sexual revictimization occurs (the microsystem) are embedded within multiple institutions. College women travel through various settings as they go about their day-to-day business and activities. These routine travel patterns – from home, to neighborhood convenience store, to school, to work, for example – can be considered women's "daily rounds" (Lofland, 1975; Miranne & Young, 2000). Similarly, the physical and social settings that they traverse over the course of the day can be conceptualized as

the social institutions of the exosystem (Grauerholz, 2000). Unfortunately, women are free from sexual victimization in none of these daily round settings (Koss et al, 1994).

This study has applied ideas from the sexual harassment literature to understand the factors within settings that might contribute to risk of repeated sexual victimization. Grauerholz (2000) contends that to understand a woman's vulnerability to sexual revictimization, one must pay attention to contextual details at the level of the exosystem, such as how social power is allocated within those social institutions. One method sometimes used by a dominant gender group to maintain social power within an institution or organization is sexual harassment. Researchers have, for years, examined sexual harassment with organizations as the unit of analysis. As one leading researcher put it, "sexual harassment ...is most profitably conceptualized and studied at the level of group culture and organizational climate" (Fitzgerald, Drasgow, Hulin,, Gelfand, & Magley, 1997; p. 578). Therefore, sexual harassment theory is a useful place to begin to understand sexual victimization risks within social institutions (i.e., the exosystem).

Sexual harassment has been described as a function of two conditions. The first condition, *gender context*, refers to the proportion of men (compared to women) in the workgroup (Gutek, Cohen, & Konrad, 1990). Similar to sexual harassment in organizations, sexual violence in heterosexual relationships might be influenced by the gender context of a woman's daily round settings. Specifically, a very masculine gender context may increase the odds that a woman encounters a sexually aggressive male. Victimologists have begun to empirically study this concept. Combs-Lane and Smith (2001) included a variable called *exposure to potential perpetrators* in their prospective analyses of risk-taking and victimization.

They found that increased exposure to potential perpetrators at the first assessment was significantly and positively correlated with new victimization approximately six months later.

The second condition, *organizational climate*, refers to characteristics of an organization that communicate tolerance of sexual harassment (Gutek et al, 1990). In addition to gender context or exposure to potential perpetrators, it might be useful to explore aspects of climate in college women's daily round settings as risk factors for repeated sexual victimization. The extent to which social institutions like family, neighborhood or other social settings communicate tolerance of violence in general, and the objectification of women in particular, might reflect a *rape supportive climate*. There is empirical evidence supporting this idea in at least one of women's daily round settings: her neighborhood. Criminology research that analyzed repeat incidents of crimes reported substantial neighborhood-level variation in terms of both property and violent victimization. Outlaw, Rubek & Britt (2002) found a moderate impact of neighborhood context on the risk of being repeatedly victimized, and concluded that "repeat victims of violence may be disproportionately from "bad" neighborhoods because such environments are conducive to violence and people tend to spend much of their time near home" (p. 200).

### *Macrosystem*

The macrosystem includes the social norms and context that influence the individual, her relationships, and the social institutions in which they are embedded. Grauerholz (2000) identifies the tendency to blame victims and the cultural construction of good girl/bad girl as social norms that may be related to the revictimization of child sexual abuse survivors. The argument states that because it is common to assume that women who are sexually abused as children a) were seductive or precocious girls, and b) are "damaged goods" now, perpetrators

may have a ready justification for revictimizing a woman with a history of sexual abuse (Russell, 1986). In other words, perpetrators may adopt the common attitude that a sexual abuse victim must have somehow “asked for” or wanted the initial experience and must also desire being raped now. Similarly, the accepted belief that after the first violation, sexual abuse victims are “damaged goods,” who cannot be violated again may disinhibit men from committing acts of sexual violence against women with a history of sexual victimization.

Grauerholz (2000) also theorizes that victim blaming social norms can lead to *internalized* blame and shame among victims, which “may place them at greater risk of even further abuse” (p.14). As described previously, being victimized by multiple perpetrators has been associated with higher levels of self-blame and other negative outcomes. However, no studies that support the relationship between social norms about rape, internalized blame among survivors and repeated incidents of sexual assault have yet been published. To be consistent with the existing literature, this study will consider self-blame at the individual level of the ecological model, and not as a proxy measure for victim-blaming norms and beliefs at the macrosystem level.

### *The Current Study*

Translating ecological theory into research and practice represents one of the greatest challenges to and, simultaneously, most important contributions of community psychology. The violence against women literature currently lacks empirical investigation using an ecological approach such as that suggested by Grauerholz’s (2000), although researchers have begun to call for assessment of extra-individual factors. This study attempted to measure and model some of the extra-individual variables that are likely to be associated with a history of sexual victimization at different points in college women’s lives.

This study started by assessing three theoretical explanations found in the revictimization literature: the *psychological model* (Figure 1), the *behavioral model* (Figure 2), and the *psycho-behavioral model* (Figure 3). Previous research has rarely examined more than a single explanation within the same study, so these models have not yet been directly compared. The first research question in this study asked whether the relationship between sexual victimization experiences is mediated by psychological processes, behavioral processes, or both. Can one of the theoretical models described in the literature account for more variance in adolescent/adult sexual victimization than the others? Using an ethnically diverse sample of college students, path analyses tested the relationships between a history of child sexual victimization and subsequent adult sexual assault according to these three models.

Another line of inquiry focused on applying some of the concepts from the ecological approach to understanding sexual revictimization proposed by Grauerholz (2000). A second research question asked which personal, interpersonal and sociocultural variables are empirically associated with repeated experiences of sexual victimization. Hierarchical multiple regression was used to test the predictive relationships between five blocks of risk factors and the number of different developmental periods (i.e., childhood, adolescence and adulthood) in which participants had experienced sexual victimization.

To increase comparability between the results of the proposed study and published research, methods of sampling, design, measurement and scaling were replicated where possible. For example, consistent with the majority of published literature, this study examined repeated experiences of sexual violence using survey data and quantitative analytical techniques. Similar to other studies, a convenience sample of university women was recruited, and established measures of sexual experiences, posttraumatic stress, and gender context were used.

## Method

### *Participants*

Female undergraduates, aged eighteen or older, were recruited from introductory psychology classes and given course credit in exchange for their participation in this project. Although introductory psychology subject pool samples have been criticized for their lack of generalizability, they offer an advantage in studying sexual assault because college-aged women are at increased risk for sexual assault (Fisher, Cullen & Turner, 2000). This sample was comparable to previous samples used in the study of sexual revictimization in terms of age and education levels, but was more ethnically diverse than other studies.

A total of 502 college women were enrolled in this study. Approximately one-third (31.1%) identified as European American; another third (29.3%) identified themselves as Asian American<sup>xiii</sup>; 19.3% identified as Latina/Hispanic and 12.5% identified as African American. The remaining participants identified as Bi/Multi-Racial (3.4%), Arabic American (3%), Jewish American (.8%), Other (.4%) or Native American (.2%). Most participants were young ( $M=19.15$  years old;  $SD=1.93$  years), heterosexual (96%), either single (51.6%) or in a committed romantic relationship (44.6%), and had no children (95.8%). The majority of these college women were employed part time (55.6%) or full time (2.2%) in addition to taking coursework. Most students lived with their family (59.2%) or in university dorms (24.3%); and the average household income was almost bimodal, with 32.9% of students living in households making \$10,000 or less per year and 22.4% living in households with incomes of over \$50,000. Table 1 summarizes the demographic characteristics of participants.

### *Procedure*

Following the guidelines of the Department of Psychology at the University of Illinois at Chicago, students enrolled in Psychology 100 signed up to participate in the project and completed the surveys in small groups (10 or less participants per group). Informed consent was obtained in accordance with Institutional Review Board (IRB) specifications, starting with a verbal explanation of the purpose of the research, the risks involved, and participants' right to terminate their participation without penalty at any time. Participants were also informed that, if they chose to participate in the survey, they could elect to not answer any questions that made them feel uncomfortable. Without exception, each woman who signed up for the session agreed to participate in the project and signed a written consent document (see Appendix A). Signed copies of the consent form were collected prior to passing out surveys and stored separately from completed surveys.

After completing the survey (see Appendix B), participants received a debriefing document containing information about the research, a copy of the consent form, and a list of resources for obtaining additional information or counseling services related to sexual assault and abuse (see Appendix C). Over the course of the two semesters of data collection, several participants remained in the room to discuss their feelings about taking the survey; none of them appeared distressed. During conversations that included self-disclosure of sexual victimization, participants emphasized that they felt it was important that researchers were trying to understand their experiences, and were glad to have had the opportunity to participate in the project.

However, despite their willingness to complete this survey, participating in this type of research may have been more emotionally difficult than victims would have thought. Three questions from work by Walker, Newman, Koss and Bernstein (1997) were included at the end of the survey; and t-tests were conducted to assess whether there were differences between

participants who reported no history of victimization and those who reported at least one incident of sexual assault. There were no significant differences between victims and nonvictims in their ratings of whether they gained something positive from filling out the survey and whether they would still agree to complete the survey if they knew what it would be like for them.

Nonetheless, victims agreed more strongly that completing the survey upset them more than they had expected ( $M=2.24$   $SD=1.09$ ) than nonvictims ( $M=1.73$   $SD=.90$ ). However, it should be noted that the average scores were still low (below the midpoint of the five point scale).

### *Measures*

*Sexual victimization experiences.* Consistent with other research on this topic, behaviorally specific language was used to identify participants with histories of sexual victimization. The items were modified from the two-stage measurement format used in the National College Women Sexual Victimization study (Fisher et al., 2000). First a series of dichotomous (yes/no) screen questions were asked to determine if a participant had experienced an act of sexual violence (e.g., *Has anyone ever made you have sexual intercourse by using force or threatening to harm you or someone close to you?*). If the participant answered yes, she answered additional questions about the specific act. Although these questions were originally designed for use in an interview format, this study converted the interview questions to a self-report survey format.

In the current study, only the screen items for completed rape (penetration of any type by force or the threat of force) and attempted rape were included. The decision to not include completed and attempted sexual coercion, completed and attempted sexual contact by force, and completed sexual contact without force was made for methodological as well as conceptual reasons. First, use of only completed and attempted rape by force maximizes the power of the

proposed analyses. Research suggests that revictimization effect sizes are highest when more restrictive definitions of victimization are used (Mayall & Gold, 1995; Roodman & Clum, 2001). Less statistical power is needed to detect larger effects (Keppel, 1997). Given the complexity of the proposed analyses and the limited resources for conducting the current study, chances of obtaining significant results with a relatively small sample size are increased by testing this larger effect. There are conceptual and practical implications of using only the most “severe” forms of sexual violence as well. For example, the experiences examined in this study are likely to be classified as rape by even the most conservative of conventions. Thus, these experiences are likely to be identified by survivors as sexual violence, meet the legal definition of rape in all states, and represent the types of violations that most policy, services, and interventions are designed to alleviate.

Five types of sexual violation were included as screen items: vaginal, oral, anal, penetration by foreign objects, and attempted rape. Each violation could have occurred in one or more of three developmental stages in life. Consistent with the majority of published literature, age 14 was used to demarcate childhood from adolescence, and age 18 was used to demarcate adolescence from adulthood. For each screen item that was endorsed, participants specified in dichotomous (*yes/no*) follow-up questions whether they experienced the act before they turned 14, whether they experienced the act between ages 14 and 18, and whether they experienced the act after the age of 18. Table 2 displays endorsement rates of each type of sexual assault experienced in childhood, adolescence, and/or adulthood. Of the total sample of 502 college women, 11 participants elected to skip the sexual victimization questions. These cases were dropped from the rest of the analyses reported here.

Responses on these items were combined to form both categorical and continuous victimization variables. First, responses on the sexual victimization items were used to categorize participants according to the victimization they had experienced. Of interest here was if and when (i.e., what developmental period(s) in their lives) participants had survived sexual violence. If none of the screen items were endorsed, the participant was coded as a *nonvictim*. If one or more of the sexual violence screen items *in a single developmental period* (e.g., childhood) was endorsed, the participant was coded as a *single victim*. If at least one of the items in *two or more developmental periods* (e.g., childhood and adolescence) were endorsed, the participant was coded as a *repeat victim*. This variable was used as the grouping variable in bivariate chi-squares and analyses of variance (ANOVAs). Of the 491 participants who answered the sexual victimization questions, 78.6% reported no history of sexual violence (n=386); 16.9% were classified as single victims (n=83); and 4.5% were coded as repeat victims (n=22).

The sexual victimization items were also scored to reflect the *number* of violations committed against participants in each of the developmental periods (i.e., childhood, adolescence or adulthood). The responses (*yes*=1 and *no*=0) to the five types of sexual victimization were summed at childhood, adolescence and adulthood to create three continuous victimization history variables that ranged, theoretically, from 0 to 5: *child victimization* ( $M=0.09$ ;  $SD=0.41$ ; range: 0-4), *adolescent victimization* ( $M=0.16$ ;  $SD=0.49$ ; range: 0-4), and *adult victimization* ( $M=0.13$ ;  $SD=0.44$ ; range: 0-3). An additional variable, *adolescent/adult victimization*, was created by summing the adolescent and adult victimization variables. These variables were used in each of the path models associated with the first research question: *child victimization* as the independent variable, and *adolescent/adult victimization* as the dependent variable.

*Repeated sexual victimization.* Repeated sexual victimization was defined as having a history of sexual victimization in at least two separate developmental stages (i.e., childhood, adolescence, adulthood). Twenty-two women – approximately 5% of the overall sample and about 22% of survivors – reported experiences that met this criterion. Frequencies of each combination of repeat victimization experience (child and adolescent, child and adult, adolescent and adult) are summarized at the bottom of Table 2. For the multivariate analyses, the grouping variable described above was also used as a continuous measure of repeated sexual victimization (i.e., the number of developmental periods in which a participant experienced sexual violence).

*Family context.* Based on work by Mandoki and Burhart (1989), several aspects of the family of origin were assessed using questions with open-ended or dichotomous (*yes/no*) answer choices. Participants were asked about number of siblings, the adults they lived with growing up, their parents' marital status, if they had ever lived with an adult male that was not their biological father (i.e., mother's boyfriend, stepfather, adoptive father, foster father), and if there was ever a time that they lived away from their mother before age 18. Participants were also asked to rate their relationship with each of their parents from *not close at all* (0) to *very close* (4). On average, participants were closer to their mothers ( $M=3.03$ ;  $SD=1.19$ ; range: 0-4) than their fathers ( $M=2.19$ ;  $SD=1.49$ ; range: 0-4). Descriptives for family variables are summarized in Table 3.

*Posttraumatic stress.* The Crime-Related Post-Traumatic Stress Disorder (CR-PTSD) Scale was used to measure posttraumatic stress symptoms (Saunders, Arata & Kilpatrick, 1990). This well-validated scale consists of 28 items from the Symptom Checklist-90-Revised (SCL-90-R; Derogotis, 1977) that were found to differentiate crime victims from nonvictims (e.g., *repeated thoughts that won't leave your mind, having to check and double-check what you do,*

and *sleep that is restless or disturbed*).<sup>xiv</sup> Participants rated the extent to which they have been bothered by each item in the past seven days using a five point Likert-type scale (0=*not at all*, 4=*extremely*), and an average scale score was computed for each participant. The average score on this scale was fairly low ( $M=0.85$ ;  $SD=0.57$ ), indicating a highly functional sample. Additional analyses suggest that this scale was quite reliable with the current sample:  $\alpha=.92$ ; range of corrected item-total correlations (CITC) = .30-.67. Reliability information is reported in Table 4.

*Risky behavior.* To assess individual behaviors that have been theorized to increase risk of sexual victimization, the Risky Behavior Summary Score (RBSS) was included in participants' surveys (Davis, Combs-Lane & Jackson, 2002).<sup>xv</sup> These 33 items measure the frequency of behaviors including general risk (e.g., *going to bars alone*), sexual risk (e.g., *having sex without a condom*), substance abuse behaviors (e.g., *mixing drugs and alcohol*), and a combination of sexual and substance abuse behaviors (e.g., *drinking alcohol prior to sex*). Participants reported how often they engaged in each behavior in the previous three months on a Likert-type scale ranging from 0 (*never*) to 4 (*often*). Item scores were averaged to yield a risky behavior scale score. This 33-item scale was modified for use in the current study. Post-hoc reliability analyses indicated that the original range of corrected item-total correlations (CITC) was beyond the acceptable range (see Table 4), and there were several items with CITC scores below .30. Therefore, seven items with corrected item-total correlations below .30 were dropped from the scale.<sup>xvi</sup> Similar to the measure of posttraumatic stress, scores on the 26-item modified version of the RSS were quite low ( $M=0.35$ ;  $SD=0.39$ ), and the final reliability statistics suggest the revised scale was quite reliable:  $\alpha=.91$ ; CITC range=.34-.63.

*Self-blame.* Two subscales of the Rape Attribution Questionnaire (RAQ) were used to assess the degree to which participants blamed themselves for the sexual violence that had occurred (P.A. Frazier, personal communication, May 8, 2002). The RAQ contains five 5-item subscales assessing two types of self-blame (*behavioral* and *characterological*) and three types of external blame (*chance*, *rapist*, and *society*). For this study, the items from the two self-blame subscales were combined into a single composite scale of self-blame. Sample items included: *I should have been more cautious* (behavioral self-blame) and *I am too trusting* (characterological self-blame). Only participants who reported some history of sexual violence answered these questions. They indicated how often they thought each attribution in the past 30 days on a five-point Likert-type scale ranging from 0 (*never*) to 4 (*always*). The average score on this scale was 1.15 ( $SD=.96$ ). The measure was quite reliable with an alpha of .90 (see Table 4 for more details).

*Interpersonal relationships.* This study conceptualized interpersonal relationships as the microsystem, or immediate context within which repeated sexual victimization takes place. To measure interpersonal relationships, participants estimated number of dating partners (*How many different people did you go on dates with in the last 30 days?*), consensual sexual partners (i.e., *How many romantic partners did you willingly engage in any type of sexual activity with in the last 30 days?*), and friendships (i.e., *Of your current close friends, how many are men? How many are women?*). Participants were directed to estimate current relationships (within the past 30 days); and answers were open-ended. To reduce the number of variables included in the multivariate analyses, and because of moderate correlation between the dating partner and sexual partner items ( $r=.40$ ), responses to these two items were summed to create a single variable:

*romantic partners*. Means, standard deviations and ranges for the interpersonal relationship variables are presented in Table 5.

*Gender context and rape-supportive climate*. Conceptualization of sexual victimization risk at the level of the exosystem was adapted from the work of Fitzgerald and colleagues (1997) as a function of two conditions in a given organization or setting. The first condition is the gendered nature of the setting, which determines the proportion of potential perpetrators to which women are exposed. The second condition is the *climate* of various settings that participants travel through as part of their day-to-day activities. Social norms that influence the propensity of males to act aggressively, or messages that communicate tolerance of sexual victimization are conceptualized as two characteristics of a *rape supportive climate*.

To measure the gendered nature of participants' exosystem settings, this study adapted a measure of gender context from previous sexual harassment research (U.S. Merit Systems Protection Board, 1981; 1987). Specifically, participants estimated the ratio of men in each of five settings: household, residence/neighborhood, school, workplace, and social gatherings (e.g., *How many of your household members besides yourself have been men?*). Responses to each question were rated on a Likert-type scale ranging from 0 (*almost all women*) to 4 (*almost all men*). Items were summed across the five social settings to create an index of *gender context*, where higher values represent higher ratios of men. Items were summed rather than averaged because not all participants rated all five settings. For example, students who did not work skipped the ratings of the workplace setting. The average gender context ( $M=7.79$ ;  $SD=2.15$ ; range: 0-15) was below the midpoint of the index, which ranged theoretically from 0 to 20. Low corrected item total correlations (see Table 4) and a low alpha (.30) reflect the fact that

participants report very different gender contexts across the diverse settings that make up their exosystem.

Two additional dimensions of climate in each of the five settings were hypothesized to encourage sexual violence against women: gender harassment and exposure to violence in general. These dimensions were included because of their relevance to theories about sexual violence. For example, rape is thought to thrive in cultures that support the use of violence to gain power (e.g., military, prison, or street gang cultures). Similarly, the degree to which gender harassment, or the sexual objectification of women, is a cultural norm is thought to contribute to higher levels of sexual violence against women. As proxy measures for climate, participants reported their perceptions of gender harassment and violence in each of five daily round settings.

Two items were written based on previous sexual harassment research (Fitzgerald et al., 1988) to measure gender harassment in each of the five settings: (e.g., *How often did you experience unwanted staring, leering, ogling or crudely sexual remarks when you were in your home? Over the past 30 days, how often were you treated “differently” because you were female when you were at your job?*). An item measuring violence in each of the five settings was written for this study: *How often did any type of physical violence or attack occur in your neighborhood?* Participants rated their responses on a five-point Likert-type scale ranging from 0 (*never*) to 4 (*always*). As with the gender context item, responses to each of these three items were summed across all five settings. Because the two gender harassment items (*staring/ogling* and *treat differently*) were moderately correlated ( $r=.60$ ), the ten questions were summed to create a single harassment item to avoid multicollinearity in the multivariate analyses. This 10-item harassment index was then divided by two in order to keep it on the same scale as the indices of gender context and exposure to violence.

Reliability analyses (see Table 4) suggest that, similar to the gender context variable, participants did not give similar answers for the exposure to violence questions across the five different settings (e.g., home, school, work). In other words, each question seemed to tap a very different experience, reflecting the uniqueness of each setting. In contrast, the alpha for the harassment items is fairly high, .76. This may indicate that a stable perceptual trait among the participants was measured. In other words, if a participant felt any harassment at all, she was likely to perceive it across all of her daily round settings. Descriptive statistics for *gender context*, *harassment*, and *violence* variables are presented in Table 5.

### *Analytic Strategy*

#### *Pre-Analysis*

Variables were assessed to make sure that the assumptions of quantitative data analyses were not violated. None of the variables reached the 10% missing data level that would be a concern for most quantitative analyses. However, the *household income* variable had 43 missing cases (8.8%); and due to concerns that this was an unstable estimator of income, this variable was dropped from the multivariate analyses. To avoid losing additional cases due to missing data on important conceptual variables, the mean was imputed for two cases on the *relationship with father* variable, and for one case on the *number of male friends* variable. For the analyses conducted using version 11 of SPSS, missing data for all other variables was deleted listwise, meaning that cases that did not have valid values in them were omitted from the specific statistical test being conducted. In all analyses using AMOS version 5.0, which cannot run with any missing data, the software used maximum likelihood techniques to estimate a value for each missing data point. All continuous variables were screened for normality and extreme values. Although many variables exhibited some skew, kurtosis and/or outliers, because violations were

not extreme, no cases were dropped nor corrections (e.g., converting to a categorical variable, log transformations) made.

Predictor variables were examined for multicollinearity. To assess bivariate collinearity, the correlation matrix was examined. The two variables assessing gender harassment had the highest bivariate correlation (Pearson's  $r=.60$ ) and were combined into a single harassment variable. In addition, the *tolerance* of each variable was examined to diagnose multivariate multicollinearity. Tolerance is a statistic used to determine how much the independent variables are linearly related to one another, and represents the proportion of a variable's variance not accounted for by the other independent variables. A variable with very low tolerance contributes little and can cause computational problems in multivariate applications. The measures with the two lowest tolerances were the *risky behavior scale* (tolerance =  $.60$ ) and whether the parent's were divorced or separated (tolerance =  $.64$ ). These two variables were dropped from the multivariate analyses. All other tolerances were above  $.65$ .

### *Analyses*

*Association among sexual victimization variables.* Because the victimization items were scaled as both categorical variables (e.g., as the grouping variable in analyses of variance) and as continuous variables (e.g., as the independent and dependent variables in the path analyses), two measures of association were conducted: Pearson chi-squares and Pearson correlation coefficients. For all tests of association, alpha was set at  $.05$ .

*Bivariate difference tests.* One-way analyses of variance (ANOVA) and Pearson chi-squares were conducted to see if there were significant differences between participants who reported no victimization history at all ( $n=386$  nonvictims), those who reported victimization in one developmental period ( $n=83$  single victims), and those who reported victimization in two or

more developmental periods (n=22 repeat victims). For all continuous variables, the Levene's test for equality of variances was used to test the homogeneity of variance assumption made by the ANOVA technique. Based on the results of the Levene's test, Tukey (equal variances assumed) or Dunnett T3 (equal variances not assumed) tests were used for post hoc pairwise comparisons. Additionally, because there were three post hoc comparisons for each significant *F* test (nonvictim vs. single victim, nonvictim vs. repeat victim, and single victim vs. repeat victim), alpha for the pairwise comparisons was set at  $p < .02$  ( $.05/3$ ).

To interpret significant chi-square tests of the categorical variables, the cell with the highest adjusted residual was identified. Then, within that level, the group representing the highest adjusted residual (either nonvictim, single victim or repeat victim) was compared to the other two groups using percentages. Due to the large number of bivariate tests being conducted, the probability cut-off values were adjusted to control for the family-wise Type I error rate. Alpha was set at .003 for ANOVAs ( $.05/15$  tests), and at .005 for chi-squares ( $.05/10$  tests).

*Model testing.* Three models that were identified through a review of the literature – the *psychological* (Figure 1), the *behavioral* (Figure 2), and the *psycho-behavioral* (Figure 3) – were tested in this study. Previous research has used regression (*psychological* and *behavioral* models) and path model (*psycho-behavioral* model) techniques to test these theories of sexual revictimization individually. No published research has yet examined more than one of these models in the same study. In this study, however, AMOS software was used to conduct path analyses on all three models. By default, AMOS imputes values for any missing data (instead of deleting cases with missing data as SPSS does). This means that each of the three path models was tested using the exact same sample of participants (n=491). In addition, each model contained the same independent variable, a continuous measure of the number of sexual

violations experienced in childhood, and the same dependent variable, the number of sexual violations experienced after age 14. Only the mediators were different. Because the exact same cases were used in each model, results of the path analyses can be compared to determine which mediators accounted for the most variance in adult sexual victimization.

*Ecological prediction of repeated sexual victimization.* The ecological approach differed from the other theories in that no mediation was hypothesized. Therefore, another analytic strategy was used to determine which predictors representing various levels of analyses were associated with repeated sexual victimization. Variables were grouped into five blocks according to the ecological framework proposed by Grauerholz (2000) and entered consecutively into a hierarchical logistic regression equation predicting a continuous measure of sexual victimization. The outcome variable was coded to indicate whether a participant had endured sexual assault in zero, one, or two developmental life phases, so that a two on this measure represents repeated victimization. Demographic variables were entered in the first step; followed by family factors in the second step, individual differences in the third step, interpersonal relationships (i.e., the microsystem) in the fourth step, and gender context and rape supportive climate (characteristics across five exosystem settings: home, neighborhood, work, school, social milieu) in the fifth and final step. This approach allows assessment of the various ecological levels (a test of the change in R squared is computed for each block of variables), as well as each individual predictor (a test of the regression coefficient is computed for each variable).

## Results

### *Bivariate Group Difference Tests*

*Association among sexual victimization variables.* All relationships between sexual victimization experiences in various developmental periods, whether coded as continuous

variables (number of rapes sustained) or dichotomous variables (sustained rape: *yes, no*), were significant. Tables 6 and 7 display the results of the correlation and chi-square analyses. Both sets of bivariate tests indicate that the strongest relationship among sexual victimization experiences is between rape in childhood and rape in adolescence. The bivariate correlation ( $r=.45$ ) suggests that as the number of attempted or completed rapes sustained in childhood increases, so does the number of sexual assaults in adolescence; and childhood rape accounts for about 20% of the variance in adolescent rapes. Almost half (46.7%) of women who reported a history of child sexual abuse reported experiences of rape in adolescence, compared to 9.1% of the women who did not report child sexual abuse. The relationship between child sexual victimization and adult rape, though significant and positive, is weaker ( $r=.14$ ); with only 2% shared variance. Still, a higher proportion of child sexual assault survivors (26.7%) reported subsequent experiences of rape as adults than did women who had not sustained childhood victimization (8.2%). The combined variable, victimization after age 14 falls in between these two, with a Pearson correlation coefficient of .39, accounting for approximately 15% shared variance. Half of women with a history of sexual abuse before the age of 14 were also raped after the age of 14; while 15.8% of women without a history of childhood rape were sexually assaulted as adolescents or adults.

*Individual level variables.* There were significant demographic differences by victimization status in terms of ethnicity, such that there were more multi-racial participants in the repeat victim group (22.7%) than in the single victim (1.2%) or nonvictim group (2.8%). Significantly fewer nonvictims reported a bisexual orientation (0.5%) than single victims (6%) or repeat victims (4.5%). There were more nonvictims who had not yet had children (97.7%) than single victims (88%) or repeat victims (90.9%). At the Bonferroni-corrected alpha rates, there

were no significant differences between the three groups in terms of relationship status, current employment, living arrangement, yearly income, or age. Refer to Table 8 for more information on these comparisons.

The results for family context, posttraumatic stress and risky behavior are presented in Table 9. In terms of family context, more than twice as many single victims (47%) and repeat victims (45.5%) than nonvictims (20.1%) came from families with divorced or separated parents. Approximately 41% of repeat victims had lived with a mother's boyfriend, stepfather, adopted or foster father, compared to only 16.9% of single victims and 10.6% of nonvictims. Single victims rated their relationship with their father significantly lower ( $M=1.65$ ;  $SD=1.51$ ) than nonvictims ( $M=2.31$ ;  $SD=1.46$ ) indicating that they were less emotionally close to their fathers. There were no significant differences between single victims and repeat victims on this variable. There were also no significant differences between the three groups in terms of having lived away from mother prior to age 18 and the ratings of their relationship with mom. Repeat victims had significantly more siblings ( $M=4.00$ ;  $SD=0.85$ ) than single victims ( $M=2.65$ ;  $SD=2.14$ ) or nonvictims ( $M=2.34$ ;  $SD=1.75$ ). While the groups were similar in terms of the number of sisters, repeat victims had significantly more brothers ( $M=2.14$ ;  $SD=2.47$ ) than nonvictims ( $M=1.17$ ;  $SD=1.12$ ).

Although the ratings for current posttraumatic stress symptoms and risky behavior were generally low, there were statistically significant differences by group for both of these variables. For both of these variables, the assumption of homogeneity of variance was violated, meaning that the variance associated with respondents' answers differed across the three groups. Despite the violation of this key assumption, the omnibus  $F$  tests for both variables were significant at adjusted alpha rates of .003 (to account for multiple tests). Accordingly, the Dunnett T3 test

(which does not assume equal variances between the groups) was used for post hoc comparisons when interpreting the direction of the main effects.

According to the post hoc tests, repeat victims reported higher levels of risky behavior ( $M=0.83$ ;  $SD=0.45$ ) than single victims ( $M=0.50$ ;  $SD=0.50$ ) or nonvictims ( $M=0.29$ ;  $SD=0.33$ ). The difference between nonvictims and victims was also significant. In the case of posttraumatic stress, single victims reported significantly more symptoms ( $M=1.08$ ;  $SD=0.66$ ) than nonvictims ( $M=0.79$ ;  $SD=0.53$ ). However, there were no significant differences between repeat victims and the other two groups despite their higher average ratings on the scale ( $M=1.13$ ;  $SD=.62$ ).

The nonsignificant comparison between nonvictims and repeat victims on the posttraumatic stress scale is due to 1) the heteroscedasticity reported earlier, and 2) the more stringent alpha level. The heteroscedasticity is most likely a statistical artifact of unequal sample sizes rather than because the range of posttraumatic stress responses in the two groups were truly disparate. This conclusion can be drawn after examining the standard deviations in comparison to the standard errors. The standard deviations, which measure the variability around the mean, are similar across all three groups (e.g., .53 vs. .66 vs. .62). However, the standard errors, which are the quotients of the standard deviations by the square root of sample size, are quite different. The standard error for the repeat victims group, .13, (.62 divided by the square root of 22) is more than four times as big as the standard error for the nonvictims, .03 (.53 divided by the square root of 386). Because of the larger standard error, the Dunnett T3 test is unable to detect a significant difference at the  $p<.02$  level. Nonvictims' levels of posttraumatic stress were significantly lower than repeat victims' scores at the  $p<.05$  level. Even at the more liberal alpha level, there were no differences between single victims and repeat victims in terms of posttraumatic stress.

*Extra-individual variables.* Compared to nonvictims ( $M=1.34$ ;  $SD=1.28$ ), single victims ( $M=1.98$ ;  $SD=1.47$ ) and repeat victims ( $M=2.50$ ;  $SD=1.63$ ) had significantly more romantic partners. Although the numbers indicate that nonvictims might have more female friends than single victims, who might have more than repeat victims, these means are not statistically significant. Likewise, nonvictims, single victims and repeat victims report similar numbers of male friends. Self-report perceptions of the climate in home, neighborhood, school, work and social settings also varied by victimization status. On average, women who reported any history of sexual victimization rated the gender harassment items significantly higher (single victims  $M=4.07$ ;  $SD=2.86$ ; repeat victims  $M=4.89$ ;  $SD=2.67$ ) than women who did not report victimization experiences ( $M=2.71$ ;  $SD=2.17$ ). There were no significant differences in gender context or violence ratings between the three groups. Statistics related to these results are presented in Table 10.

### *Model Testing*

The psychological and behavioral models presented here are *saturated* or *just-identified* models. This means that the chi-square test of the overall model fit and its corresponding probability level cannot be computed because there are zero degrees of freedom. In structural equation modeling, degrees of freedom are calculated by subtracting the *parameters to be estimated* (the regression paths, variances and covariances specified by the model) from the *sample moments* (variances and covariances observed in the collected data). In saturated models, the parameters to be estimated are exactly equal to the sample moments, leaving no degrees of freedom for the chi-square goodness-of-fit test (Arbuckle & Wothke, 1999).

Although it is not ideal to create saturated models, these models were taken from previously published theories, which specified the variables and relationships tested here.

Previous work with these theories used standard regression techniques to test the relationships among variables, and thus, did not consider issues of model identification. Path models with few observed variables can quickly become saturated because they account for the effect of unmeasured variables by modeling “error” as latent variables. Including these error terms in the models increases the number of *parameters to be estimated* (one variance and one regression coefficient per error term) without contributing any *sample moments*, thus reducing the degrees of freedom available.

Including these latent error variables for each proposed mediator as well as the dependent variable in the models is one of the major differences between the path model approach and conventional linear regression approach. Each error term represents an composite score for all the possible constructs that might affect posttraumatic stress, number of sexual partners, self-blame (the mediators) or number of sexual violations after age 18 (the dependent variable), but were not measured in this study. While it makes sense conceptually to account for unmeasured variables by including the error variables, it does raise some computational problems when the statistical program tries to estimate parameters related to the error variables. Error is an unobservable variable, and there is no natural way to specify the unit of measurement. Because there is not enough information to estimate both the variance and regression weight for an unobserved error, the researcher must arbitrarily assign a number to one of the parameters to set a unit of measurement for error. In the current analyses, convention was followed by assigning a value of 1.0 to each path leading from an error to an observed variable.

Fixing the path coefficients for the error terms to 1.0 will yield the same estimates for path analysis as for conventional linear regression. Each single-headed arrow in the path diagram corresponds to a regression weight. A variable’s squared multiple correlation is the proportion of

variance that is accounted for by its predictors. There are measures besides the chi-square test that can be used to estimate model fit. Because it is not uncommon to have a saturated model in path analyses, experts have recognized the root mean square error approximation (RMSEA) statistic as an appropriate criterion for evaluating overall model fit (Byrne, 2001). With RMSEA, the discrepancy between the specified model and the population covariance matrix is expressed per degree of freedom, thus making this measure sensitive to the complexity of the model. Lower values indicate smaller discrepancies, and thus, a better fitting model. According to Byrne (2001), RMSEA values less than .05 indicate good fit; .08 through .10 indicate mediocre fit; and values above .10 indicate poor fit.

*Psychological model.* The psychological model has number of childhood sexual assaults as the independent variable, posttraumatic stress as the mediator, and number of adolescent/adult assaults as the dependent variable. Means, standard deviations, and intercorrelations of the variable included in this model are displayed in Table 11. As explained above, the psychological model was saturated; therefore, no maximum likelihood chi-square test of model fit was calculated. RMSEA in this model was .18, with a  $p$  value of .000. According to Byrne (2001), a  $p$  value above .50 indicates a good model fit. The pathways were also tested, providing statistics similar to those generated by a standard multiple regression approach. The tests of regression weights for all of the paths included in the model were significant, and the direction of the relationships between all variables were as expected according to the psychological theories (all positive); however, the relationships were not very strong. Figure 5 displays the standardized direct effects (beta weights) between the three variables in this model.

The path analysis technique is able to model both the direct effect (0.40) and indirect effect (0.02) between child victimization and revictimization. These results indicate that,

although there is a significant association between sexual victimization before and after age 14, these experiences are *not* mediated by posttraumatic stress symptoms. The size of the effect is quite small. Child victimization history accounted for 2% of the variance in posttraumatic stress symptoms; and child victimization history and posttraumatic stress symptoms combined accounted for 19% of the variance in adolescent or adult victimization. This model accounts for little more variance than the bivariate correlation between child victimization and rape after the age of 14.

*Behavioral model.* The behavioral model specifies that the relationship between the number of childhood rapes and number of subsequent rapes is mediated by the number of sexual partners. Similar to the psychological model, the behavioral model was saturated (i.e., there were not enough degrees of freedom to test the overall fit of the model). The RMSEA was .18, with a *p* value of .000, indicating a poor fit of this model as well. Victimization in childhood was not significantly associated with the number of sexual partners. The other two regression weights in this model, the direct path between childhood victimization history and adolescent/adult victimization and the path between number of sexual partner and rape after 14, were significant. Again, although the direction of these relationships were as predicted by the model, the magnitude of the association was small (see Figure 6). Childhood victimization experiences and number of sexual partners combined accounted for 19% of the variance in adolescent/adult sexual victimization experiences. Because the first path between the independent variable and the mediator was not significant, the mediation explanation was not supported.

*Psycho-Behavioral model.* This combined model specifies that number of attempted or completed rapes in childhood and after age 14 are mediated by a set of psychological and behavioral variables. Specifically, childhood rape leads to self-blame and posttraumatic stress,

which influence the number of sexual partners, which in turn predicts adolescent/adult victimization. Unlike the previous two models, this model was not saturated, and a chi-square could be calculated. However, as with the psychological and behavioral models, there was little support for the adequacy of this combined theoretical model. The overall chi-square for this model was highly significant,  $\chi^2(4)=320.22; p<.00$  (a nonsignificant result is desired). Other fit indices also suggested a poor fit (e.g., RMSEA = .40;  $p<.00$ ).

Similar to the psychological model, childhood victimization experiences were significantly and positively related to posttraumatic stress symptoms, but only accounted for 2% of the variance in participants' reports of symptoms. Number of childhood rapes was also significantly and positively associated with self-blame, and accounted for 9% of the variance in participants' responses on the RAQ-Self Blame scale. As with the results of the behavioral model, there was no direct relationship between child victimization and number of sexual partners. In addition, the path between self-blame and number of sexual partners was not supported. However, there was a significant positive relationship between posttraumatic stress and number of sexual partners, explaining about 3% of the variance in the latter variable. In turn, number of sexual partners was positively associated with number of completed or attempted rapes after age 14. In all, the supported paths – child victimization leads to posttraumatic stress, which leads to number of sexual partners, which leads to adolescent/adult rape – only accounted for 3% of the variance in the outcome variable (see Figure 7). This is markedly less than is accounted for by the bivariate relationship between child and adolescent/adult victimization.

#### *Multivariate Prediction of Repeated Sexual Victimization*

A hierarchical multiple regression was conducted to assess which variables included in the ecological framework would predict the degree of victimization among participants. In

standard multiple regression techniques, the effects of the predictor variables are considered simultaneously as all predictors are entered into the equation at the same time. Sometimes called *sequential* multiple regression, hierarchical multiple regression allows the researcher to specify the sequence in which variables are tested. Blocks of variables are entered in iterative steps, and *change statistics* are calculated to see whether the addition of each new block of variables helps the model to account for a significantly larger proportion of the variance in the dependent variable. Often researchers enter the most theoretically important variables last, after all “control” variables have accounted for their share of the variance. In this case, personal history and individual-level predictors were entered first, followed by interpersonal and then environmental predictors.

The final model – with all predictors included – accounted for about 13% of the variance in the number of developmental periods in which participants survived sexually victimization (Adjusted  $R^2 = .133$ ). Statistical results of the hierarchical multiple regression analyses (after all five blocks had been entered) are presented in Table 12. Standardized regression coefficients (betas) are presented in the following text so that the effects of the different variables can be compared on the same scale. However, in explaining the significant relationships, unstandardized regression coefficients (B weights) are used to interpret the direction of the effect on the original metric of measurement, which differs for each variable.

*Ontogenic development/personal history (i.e., demographics, family context).* The personal history factors that were relevant in this study, which included demographic variables and family factors, were entered as two separate blocks into the regression equation. The block of demographic variables was significant,  $F(7, 460) = 2.37; p < .05$ ; and number of children was positively associated ( $\beta = .13$ ) with sexual victimization. Controlling for all other variables in the

equation, each additional child was associated with .26 increase in the number of developmental periods a participant was sexually victimized.

The block of family variables was also significant,  $F(5, 455) = 5.31; p < .01$ . Two family factors were positively associated with sexual victimization: number of siblings ( $\beta = .09$ ), and having lived with a nonbiological father figure such as mother's boyfriend, foster father, stepfather or adoptive father ( $\beta = .09$ ). Each additional sibling was associated with .02 increase in the dependent variable. On average, participants that had lived with a nonbiological father figure reported victimization in .14 more developmental stages of their lives.

*Individual differences (i.e., posttraumatic stress symptoms)*. This block contained a single variable, posttraumatic stress. Both the block,  $F(1, 454) = 13.37; p < .01$ , and the individual predictor ( $\beta = .10$ ) were statistically significant. A one unit increase on the posttraumatic stress scale was associated with .10 additional sexual victimizations.

*Microsystem (i.e., interpersonal relationships)*. The block of microsystem variables was significant,  $F(3, 451) = 6.23; p < .01$ . Each romantic partner reported by a participant increased the number of life phases that she experienced sexual victimization by .06 ( $\beta = .15$ ).

*Exosystem (i.e., gender context, rape supportive climate)*. This block was significant,  $F(3, 448) = 3.29; p < .05$ , indicating that even after accounting for personal history, psychological well-being, and interpersonal relationships, the environmental variables accounted for additional variance in the number of lifetime victimizations. Specifically, as ratings of sexual harassment in a participant's daily round settings went up, so did her reports of sexual victimization ( $\beta = .14$ ).

## Discussion

Results of this study validate much of what has been reported in individual studies and summarized in previously published reviews of the existing literature. For example, these data

confirm the finding that sexual assault is common among college-aged women, and that early victimization experiences appear to function as a risk factor for subsequent victimization. Over twenty percent of participants in this study, or one in five women, reported at least one incident of completed or attempted sexual assault by force. In addition, a history of sexual assault before the age of 14 was positively and significantly associated with experiences of sexual violence later in life. However, at the conclusion of this study, the processes by which one case of sexual victimization is related to a subsequent victimization are still unclear.

This study is one of the first to put an ecological approach to understanding repeated sexual victimization to the empirical test. Findings suggest that, in addition to personal history, family context and individual differences, interpersonal (microsystem) and environmental (exosystem) risk factors are significantly associated with experiences of repeated sexual victimization among college women. Previously published literature on this topic has focused largely on individual level variables. The current study suggests that attention to extra-individual factors will be important in the future study of repeated sexual victimization. Implications of these findings are interpreted through a community psychology perspective and targeted towards practitioners and researchers in the fields of victimology and sexual violence prevention.

#### *Prevalence of Sexual Victimization across the Lifetime*

Rates of sexual victimization history reported in this study are higher than a study that used the same measures with a national sample of college women. Fisher et al. (2000) found that approximately 10% of college women had a *history of completed rape* (compared to 15.7% in this sample) and 10.9% had *history of attempted rape* (compared to 16.5% in this sample). However, many studies of college women have documented even higher prevalence rates (Combs-Lane & Smith, 2002; Davis et al., 2002; Gidycz et al., 1993; Gidycz et al., 1995;

Humphrey & White, 2000; Kessler & Bieschke, 1999; Koverola et al., 1996; Maker et al., 2001; Mandoki & Burkhart, 1989; Mayall & Gold, 1995; Messman-Moore et al., 2000; Sandberg et al., 1999; Wilson et al., 1999). This study found a 5.8% prevalence rate for rape/attempted rape prior to age 14. Other studies that have measured completed or attempted sexual abuse involving penetration in childhood (upper age cutoff for childhood is sometimes set at age 15 or 16) have found rates ranging from 5% (Sandberg et al., 1999) to 13% (Mandoki & Burkhart, 1989). Whereas this study found nearly 18% of participants reported rape or attempted rape experiences after the age of 14, other research has documented adult rape rates ranging from 11.5% (Mayall & Gold, 1995) to 33% (Gidycz et al., 1995). The current study only included forcible sexual assault (rape by force) and not rape by coercion, abuse of authority, or use of alcohol. Rape by coercion and use of alcohol also fit the legal definition of rape in most states. Use of the more restrictive definition in this study probably underestimated the occurrence of sexual assault by using a more restrictive definition.

Rates of repeated victimization in the current study (4.6% of entire sample, 22.4% of victims) were compared to studies of college students that calculated comparable rates of repeated sexual victimization (i.e., reports that differentiated rape and attempted rape from other types of sexual assault). Similar to the history of child and adult sexual victimization rates, those found in the current study are often quite lower than other rates reported in the literature (Davis et al., 2002; Kessler & Bieschke, 1999; Koverola et al., 1996; Mandoki & Burkhart, 1989; Mayall & Gold, 1995; Wilson et al., 1999). The rates of repeated sexual victimization among samples of college students recruited from psychology subject pool range from 5.6% (Mandoki & Burkhart, 1989) to 24% (Wilson et al., 1999). Experts in the field who have reviewed this literature extensively suggest that the wide range in rates may reflect several issues in the study

of revictimization. The most frequently cited problem is the use of multiple definitions and measurement techniques (Arata, 2002; Breitenbecher, 2001; Messman & Long, 1996; Roodman & Clum, 2001). Because revictimization is often defined as childhood sexual abuse followed by sexual assault in adulthood, another explanation for variability in rates may be differences in accounting for adolescent (between ages 14 and 18) sexual victimization (Arata, 2002; Messman & Long, 1996). Lastly, experts have hypothesized that diversity in the demographic characteristics such as age (Arata, 2002; Messman & Long, 1996) or racial/ethnic background (Arata, 2002) among participants in different studies may account for varying rates of sexual victimization.

*Rates within ethnic groups.* Because the sample in this study is ethnically diverse, and most previous work has been done with predominantly White samples, in-depth analyses of rates of victimization within ethnic groups can contribute to a more inclusive understanding of violence across women's lifetimes. While no ethnic group appears to be free of sexual violence, sexual victimization may be more or less prevalent among certain ethnic groups. Across all ethnic groups, about one of every five women who participated in this study reported at least one incident of sexual victimization. A different pattern emerges if rates *within* ethnic groups are examined. White (25%) and Black (26.9%) women reported rates of victimization that mirror the "one in four women" accepted prevalence estimate (Koss, 1993). But closer to one of every three Latina (29.8%) or multi-racial (35.3%) women reported sexual victimization. And notably fewer (10.4%) Asian American women – one of every 10 – report victimization experiences. More multi-racial (29.4%) and Black (7.9%) women reported repeated victimization than Latina (5.3%), white (3.3%), or Asian American (1.4%) women. Because nearly a third of this sample

(n=147) reported an Asian ethnic background, the lower reporting rates in this group might account for the overall lower victimization rates in the current study.

These rates were compared to two other studies that included rates of repeated sexual victimization by ethnicity. Merrill and colleagues (1999) studied childhood abuse and revictimization among White (63%), Black (22%), Hispanic (8%) and Asian (3%) female Navy recruits. Urquiza and Goodlin-Jones (1994) studied child sexual abuse and adult rape among white (56.4%), African American (11.9%), Latina (16%), and Asian American (15.6%) community college students. Overall, both studies found higher rates of sexual victimization than results presented here, which is likely due to this study's more limited focus on rape or attempted rape by force in all three life phases. Merrill et al (1999) reported that 43% of their sample experienced rape or attempted rape in adulthood, compared to 23.5% in Urquiza and Goodlin-Jones's (1994) study, and 9.3% in the current study. Using a much broader definition of victimization in childhood that included noncontact abuse as well as fondling, Merrill et al (1999) reported that 39.2% of their total sample had a history of child sexual abuse, compared to 34.2% of Urquiza and Goodlin-Jones sample, and 5.8% child rape survivors in the current study.

Variability in method (i.e., which ethnic groups were included and how victimization was defined, measured, and/or reported) precludes a direct comparison of the three studies. For example, Merrill et al. (1999) only included the three best-represented ethnic groups in their analyses, and did not calculate separate statistics for revictimization. However, general *patterns* of victimization rates can be evaluated. The current study found that, with the exception of Asian-American women, all ethnic minorities experienced higher rates of sexual victimization, including repeated victimization, than white women. This pattern of results is consistent with Urquiza and Goodlin-Jones (1994) study, in which Black women reported the highest rates of

sexual revictimization (27.6%), and Asian Americans were victimized at relatively lower rates (5.2%) than all other groups. In contrast to current findings, however, is their finding that Latinas reported *less* victimization (10.3%) than White women (16.8%) (Urquiza & Goodlin-Jones, 1994). The finding that large proportions of women of Color are revictimized is consistent with those of two additional community samples of ( $n=113$ ) African-American (West et al., 2000) and ( $n=300$ ) Latina women (Romero, Wyatt, Loeb, Carmona & Solis, 1999). Both studies reported that close to one-third of participants experienced sexual victimization as children *and* as adults.

Merrill and colleagues (1999) share somewhat contradictory results: less Black women report both child sexual abuse (34.7%) and adult rape/attempted rape (38.5%) than either White or Hispanic women. In their study a similar proportion of White (46.1%) and Hispanic women (41.9%) reported a history of adult sexual victimization, but slightly more Hispanic women (46.6%) than White women (39.8%) revealed experiences of child sexual abuse (Merrill et al., 1999). An important contribution of the work done by Merrill and colleagues is their finding that even though *rates* of sexual revictimization within ethnic groups may differ, *predictors* of sexual revictimization do not. Given the lack of consistency in findings, as well as the general dearth of work with ethnically diverse samples, more research looking within and across diverse racial, ethnic and cultural groups is warranted.

#### *Modeling Mediator Theories of Sexual Revictimization.*

The first goal of this study was to compare three simplified models for sexual revictimization that have been described in the literature. Like other published research, the findings of this study provide minimal support for the mediation processes suggested by the psychological (see Sandberg et al., 1999 for another example of nonsignificant tests of posttraumatic stress as a mediator) and/or behavioral (see Gidycz, 1995; Merrill et al, 1999 for

other examples of nonsignificant tests of sexual partners as a mediator) models of revictimization. Self-blame, posttraumatic stress and number of sexual partners do *not* appear to act as mediators between sexual abuse sustained in childhood and the number of adult sexual violations reported. Rather, the results of path analyses reported here suggest that while child victimization may be moderately to weakly correlated with posttraumatic stress and number of sexual partners, the association between child victimization and victimization after the age of 14 is a direct effect. Furthermore, none of the three models performs markedly better than the others.

These findings, however, are in direct contrast to other research studies that explicitly tested the role of these variables as mediators. For example, Arata (2000) found support for number of sexual partners and posttraumatic stress (as well as self-blame) in her test of the psycho-behavioral model. However, the proposed link between psychological (posttraumatic stress and self-blame) and behavioral (number of sexual partners) variables was not supported, suggesting that the two kinds of mediators are distinct and independent of one another. The prospective work of Gidycz and colleagues provides evidence that psychological functioning (in the form of depression and anxiety) *partially* mediates multiple victimization experiences (Gidycz et al., 1993; Gidycz et al., 1995). Similarly, a study of German adolescents found support of *partial* mediation of child sexual abuse and subsequent victimization using the number of romantic partners as an intervening variable (Krahe et al., 1999).

Given the fact that mixed findings regarding mediational theories already existed in the literature, it was expected that this study's findings would support some published studies while remaining different from others. A salient point remains that more complex models may be necessary to understand the repeated victimization phenomenon. Perhaps more variance would

be explained with the addition of variables that were not measured in these simple path models, for example family functioning or substance abuse (Arata, 2002). Other findings reported here allude to the importance of extra-individual factors in explaining repeated violence among victims. Certain environment risks (for example, exposure to sexual predators) might account for both the initial and subsequent sexual violence among the sizeable minority of child sexual assault victims (22.4% of women in the current study) who are also raped in adulthood. Such factors should be considered in future conceptual models of sexual revictimization.

#### *Predicting Risk of Repeated Victimization across Ecological Levels*

The second objective of this study was to analyze a number of risk factors associated with repeated sexual victimization experiences among college women. Grauerholz's (2000) ecological model for sexual revictimization was used as a conceptual starting point for identifying several "blocks" of variables, which were then entered hierarchically into a regression equation to predict number of victimization experiences. In general, the multivariate findings mirror a pattern of results found in bivariate group difference tests with the individual predictors.

*Demographic characteristics.* There were several demographic variables, including ethnicity, that were significant in the bivariate analyses. Similar to the finding of Combs-Lane and Smith (2002), the dummy-coded ethnicity variable (White versus non-White) was not significant in the multiple regression. In this study, the nonsignificant effect of ethnicity at the multivariate level may be an artifact of coding. Sexual orientation and mothering status were also significant when considered individually, such that more victims (single and repeat) were mothers or identified as homosexual, bisexual or not sure. These variables were also dummy-coded when entered into the regression, and the relatively small numbers of women with

children or alternative sexual orientations may have caused the effect to disappear. Even still, an implication for future research is to avoid, when possible, grouping people into too broad of demographic categories. However, based on their finding that single and multiple-incident victims did not differ on a range of variable including demographics, Sorenson, Siegel, Golding and Stein (1993) concluded that “once an initial victimization occurred, personal characteristics of the victim were not related to risk for subsequent sexual assault” (p. 299).

It turns out that a single variable in this block, number of children, significantly predicted more experiences of sexual violence at the multivariate level. Given the young age of the current sample, it is likely that some of participants’ children were born of teenaged pregnancies. This would be consistent with findings that early pregnancy (Romans, Martin, Anderson, O’Shea & Mullen, 1995) and early onset of sexual activity (Fergusson et al., 1997) among women with a history of child sexual abuse are associated with other negative outcomes (in previous work, psychiatric morbidity, self-esteem, and sexual risk-taking behavior; in the current work, repeated victimization). In terms of prevention and treatment, a host of critical life experiences may be implicated for women who sustain sexual violence at a young age. Helping professionals and interventions should attend to these contextual details in ways that are health promoting and not victim-blaming. For example, in the work cited above, Romans et al (1995) found that girls’ involvement in sports in adolescence aided good psychological outcomes.

*Family context.* The pattern of bivariate results supports previous findings that a college woman’s relationship with her parents – particularly her father – might be associated with her experiences of sexual violence over her lifetime (Romans et al., 1995; Fergusson et al., 1997). First, proportionally more victims (both single and repeat victims) than nonvictims reported that their parents were divorced or separated. Accordingly, the two victim groups also rated their

relationships with their fathers as less close than the nonvictims. This is consistent with previous work that found family differences differentiated victims from nonvictims (Koverola et al., 1996), but did not differentiate revictimized women from single victims (Gidycz et al., 1995; Koverola et al., 1996; Mayall & Gold, 1995). In the multivariate equation, these variables were no longer significant (the divorce variable was dropped due to its high correlations with other variables in the equation).

Far more of the repeat victims in this study (almost 41%) than either single victims (16.9%) or nonvictims (10.6%) reported living with their mother's boyfriend, stepfather, foster father, or adoptive father. The other family context variable that remained significant in the multivariate equation was the number of siblings reported. More siblings were positively associated with increased victimization.

Post hoc analyses were conducted to further understand the family context variables. In the survey, participants specified their relationship to each person who committed an act of sexual violence against them. Frequency analysis of these open-ended responses provides a tentative *exposure* explanation for the association of number of siblings and living with a father figure and increased instances of victimization. One of 13 relationship "codes" was assigned to each response, and the number of responses within each code was summed. Of the 158 different acts of sexual violence reported in this study, almost a third (32.9%) of them were committed by people with access into the woman's home. Two were committed by brothers, eight by a sibling's friend (e.g., "my older sister's boyfriend"), 19 by extended family members or close family friends (e.g., "my dad's friend"), 11 by a grandfather, 9 by a stepfather, and 3 by a father. Because women are most likely to be victimized by someone they know, any person that comes into the home – such as friends of a sibling or father figure – might potentially harm them

sexually. If a family member's friend is predisposed to sexual aggression, and finds out that the young woman is not a "real" daughter or finds out that she has already been abused, these factors may further disinhibit him from revictimizing her. Detailed information about the assaults and disclosure experiences (e.g., did the revictimizing perpetrator know the woman was previously abused) would be necessary to explore this theory in future research.

*Individual differences.* Whether conceptualized as long-term effects of child sexual abuse, or simply as individual differences in psychological well being and behavior, measures of both posttraumatic stress symptoms and the risky behavior were significantly associated with repeated sexual victimization in this study. However, there were statistical anomalies with these items. For example, the tolerance score of the risky behavior variable was the lowest in the entire set of variables, indicating that its correlation with several of other variables, including romantic partners and posttraumatic stress, was problematic. Because of this, unfortunately, it could not be included in the multivariate analyses. However, the bivariate findings that all three sexual assault groups differed significantly from each other on the risky behavior summary score, with the repeat victim group scoring highest, followed by the single victim, and then the nonvictims, exactly replicate the findings of Davis et al. (2002). Based on these consistent findings, one might conclude that among college women, a history of repeated sexual assault is associated with greater risk-taking.

However, a prospective study by this same group found that a history of sexual victimization at baseline was *not* associated with either greater involvement in risky activities or experiences of rape or attempted rape at the second time point (Combs-Lane & Smith, 2002). The same study also found that alcohol use and measures of *expected involvement* in heavy drinking, risky sex and exposure to potential perpetrators at time one did discriminate women

who were victimized in the five month time period of the study from those who were not. Given these findings, it is difficult to interpret the nature of the relationship between the two variables. Is risky behavior an effect of prior abuse, a risk factor for future abuse, or both – as would be suggested by a mediational model? Or is the relationship between risky behavior and victimization spurious, in that both are actually caused by a third variable? Additional research is needed to unravel these associations.

The measure of posttraumatic stress symptoms, the other individual-level variable included in this study, was significant in both the bivariate and multivariate analyses. This findings suggest that “more is worse,” in that repeat victims report the highest levels of symptoms, with single victims reporting more than nonvictims. Similar to the risky behavior variable, when interpreting this finding, it is inappropriate to conclude more than there is a positive linear relationship between posttraumatic stress and number of victimizations. Other research has been inconsistent in clarifying whether posttraumatic stress mediates the relationship between repeated assaults (e.g., Arata, 2000), moderates the relationship such that there is a stronger link between multiple victimizations in the context of high levels of posttraumatic stress (Sandberg et al., 1999), or moderates the relationship such that higher arousal symptoms serve a buffering effect against additional assault (e.g., Wilson et al., 1999). In a review of these disparate findings, Arata (2002) encourages future studies that distinguish between the different symptom types (i.e., intrusive thoughts, numbing, and hyperarousal) in order to better understand this effect.

*Interpersonal relationships.* At the bivariate level, the number of romantic partners that participants reported differed by group such that repeat victims had the most, and nonvictims reported the least. This effect held up even after controlling for personal history, family context,

individual differences and setting climate. Similar to the interpretation of the family context findings, the easy answer is one of simple exposure to more potential perpetrators. The descriptive data on victim-perpetrator relationships again provides some support as 24.6% of the assaults reported in this study were committed by dates, boyfriends, or husbands. In contrast to this theory, a full 20% of the attacks were perpetrated by individuals identified as “friends” (with an additional 13.9% as acquaintances or “a friend of a friend”); yet the male friendship variable was not significant. Although the direction of increasing means was consistent with the exposure theory, the number of friends reported by the three groups did not differ statistically.

Previous research has traditionally used number of sexual or dating partners as a variable operationalized from the construct of risky sexual behavior. Indeed, the risky behavior scale and the romantic partners scale did exhibit high levels of collinearity in this sample, suggesting that this exosystem variable may be simply another measure of risky behavior. Regardless, there are at least two reasons why future work should strive to move beyond quantity to consider qualities and hallmarks of college women’s romantic relationships. First, in her paper, Grauerholz (2000) theorized several factors that increase the likelihood that potential perpetrators with whom child abuse survivors come into contact with (i.e., friends, intimate partners, “average guys”) will act aggressively; and none of them were examined in the current work. Second, anecdotal evidence from this work suggests that thinking about young people going on dates may be “dated,” as several women asked for clarification on what the word “date” meant. Qualitative interviews with adolescents or college women may be needed to up”date” and clarify how intimate relationships unfold among various ages and ethnic groups. In addition, researchers should be careful in defining these relationships in ways that are inclusive of same-sex relationships and

relevant to relationships that consist of non-intercourse sexual activity or sex play (e.g., Krahe et al., 1999).

*Gender context and rape supportive climate in daily round settings.* This study conceptualized three aspects of participants' social settings that might constitute risk at the environmental level: respondents' perceptions of the gender context (proportion of men), gender harassment, and exposure to violence more generally. Mean ratings increased from nonvictims to single victims to repeat victims on all three measures; however, only the harassment variable reached statistical significance. Harassment was measured as how much women reported being stared at, ogled or leered at as well as how much they felt they were treated differently. The effect of harassment on number of victimizations sustained remained significant even after controlling for the four other blocks of variables. Various problems with these measures that limit the conclusions that can be made about environmental risk factors are described in the limitations section of this paper. It does appear that women who have sustained victimizations across more developmental periods also feel more strongly than nonvictimized women that they are treated differently as females or sexually objectified. Whether the higher ratings reflect social norms and climates that encourage rape, elsewhere termed a "rape culture" (Buchwald, Fletcher & Roth, 1994), in their daily round settings is a question that warrants additional investigation.

A somewhat surprising finding, given the wide range of communities represented by University of Illinois at Chicago's student body, was the lack of variance in the exposure to violence ratings, which were universally low. It might be useful to examine additional data provided in this survey to further explore related issues. First, it would be interesting to triangulate participants' ratings of violence in their neighborhoods, for example, with various indices of violence that may be tracked by zip codes (which were obtained in this survey) and

available in archival records (e.g., reported cases of domestic violence). Second, it would be interesting to aggregate women based on a grouping variable to see if the aggregate ratings are better able to predict various outcomes. For example, students could be grouped by academic major, and aggregated ratings of gender context in school settings could be used to predict perceived harassment at school. This strategy has been reported to have some success within the field of community psychology (Linney, 2000). Finally, although the various social settings explored in this study (e.g., home, work, social venues) are likely to be very different in climate, ratings on each of the constructs (e.g., gender context) were summed across the disparate settings to measure an overall exposure factor. It may be useful to explore climate variables within specific settings to determine if women's perceive different climates in their daily rounds.

*Summary.* The results of this study suggest that there is value to considering individuals in context. This study suggests that not only is the quantity of potential perpetrators that a woman is exposed to through her routine social activities important; qualities of her social settings, as well as individual differences in trauma symptoms and risk-taking, play a role too. Results have identified a number of variables that might be important, thus "earmarking" them for future attempts at elucidating the various relationships and interactions among individuals, relationships, settings, and cultural norms. While Grauerholz's (2000) model offers a useful conceptual framework, additional research is needed to generate specific, perhaps transactional, theories about how women change as a result of their victimization experiences, how their social networks influence reactions to the violence, and how they interact with their environments and within their interpersonal relationships. Finally, after using conventional psychological methodologies to generate one more set of findings that raises more questions than it provides

answers, it is impossible not to encourage future researchers to embrace alternative methods for studying this phenomenon.

### *Limitations of this Work*

This study is limited by its cross-sectional design. Causation can best be estimated using an experimental design with a control group. However, for obvious ethical reasons, it is not possible to study sexual victimization or perpetration using experimental methods. A prospective design can strengthen cross-sectional research on sexual victimization by determining the sequencing of events. If prospective design is not practical or feasible, the questions in the survey can be written in a way that helps to determine the temporal order of events. The current study employs neither an experimental or prospective design. In addition, the temporal order determined by the wording of the survey questions suggests that past victimization experiences “predict” current risk factors (not vice versa). Specifically, the survey asked about experiences with sexual violence, the outcome variables, *in the past* (before age of 14, between 14 and 18, and after 18); but asked about relatively *recent* ratings of the risk factors (e.g., past 7 days for posttraumatic stress; past 30 days for gender context). So, even when language of prediction is used (i.e., variables are referred to as predictors or outcomes), significant results reported here must be interpreted solely as associations.

Another weakness of the current study that, again, is a common problem with the psychological study of sexual violence, is the use of retrospective self-report data. As participants think back over their life in order to answer the survey questions, their recall process may be subject to memory biases. For example, women who experience assault in adulthood may be better able remember or identify abusive experiences in their younger years than women who only experienced abuse in childhood. Research that examines recall of sexual victimization

suggests there may be other problems with memories of this nature. At least two independent studies have ascertained that about one-third of women with documented cases of child sexual abuse do not later remember or report the documented incidents (Widom, 1997; Williams, Siegel & Pomeroy, 1994). Another set of studies found that memories of adult rape are less vivid, less well remembered, less likely to occur in a meaningful order, and less likely to be talked about or voluntarily recalled than other unpleasant or pleasant memories (Koss, Figueredo, Bell, Tharan & Tromp, 1996; Tromp, Koss, Figueredo & Tharan, 1996). Based on these types of findings, researchers in the field of sexual revictimization have concluded that retrospective studies of abuse experiences may be especially susceptible to underreporting (Arata, 2002).

However, there are a host of practical and ethical issues associated with getting research data from survivors immediately following incidents of sexual violence, especially from children or adolescents. Most Institutional Review Boards place special restrictions when doing research with vulnerable populations such as victims and/or participants under the age of 18. Research with victims of abuse may threaten their well being as it may take years, if ever, for survivors to be able to comfortably talk about their experiences. Recruiting survivors of abuse who are still in states of crisis for participation in research activities may not be ideal. Research interventions must be timed so as not to interfere with survivors' coping strategies or recovery processes. It is equally problematic, due to privacy and confidentiality considerations, to seek third party reports of individuals' sexual abuse histories. For these reasons, most research on sexual victimization, including this study, relies on retrospective reports of the abuse.

Another issue to consider when interpreting and applying these findings is the characteristics of the sample. Participants in this study were quite young; the average age is approximately 19 years old. As many researchers in this field have noted (e.g., Arata, 2002;

Messman & Long, 1996) work with this age group leaves lots of opportunity for sexual violence in the future. In fact, in a multivariate regression equation predicting adult victimization in the current sample, every year of age is associated with increased sexual assault experience in adulthood. An older sample may have reported more instances of adult sexual victimization, which may have produced different results regarding the processes by which child and adult victimization are related. In addition, as is the case in other studies using college students, these participants were very functional; mean ratings of both posttraumatic stress and risky behavior are between 0 (*not at all/never*) and 1 (*a little bit/rarely*). Therefore, the pattern of results reported here may not apply to clinical or community populations. However, because many rape prevention programs are targeted towards women in adolescence (e.g., health classes in high school settings) or early adulthood (e.g., new student orientations at university settings), college women may be a theoretically and practically relevant population for studying this topic.

An additional challenge posed by the ecological approach of this study was the measurement of extra-individual level variables. A primary goal of the study was to move beyond individual-level analysis to uncover risk factors for repeated sexual victimization in participants' environments. Elements of a "rape supportive climate" in households, workplaces, or recreational settings like parties were proposed as such risk factors. However, participants were asked to assess the climate of their own environments on a self-report survey, resulting in subjective assessments of risk factors. In other words, all the measures of environmental risk have been filtered through the individual participants' perceptions, which introduce personal biases based on worldviews, social status, and life experiences. For example, it may be possible that if a woman has already experienced some victimization, she may be more likely to recognize sexual harassment in her daily round settings.

Community psychologists have, for years, risen to the challenges posed by analyzing community context and have utilized multiple methods for assessing ecological constructs. Linney (2000) noted several problems with the “participants’ perceptions of their environment” approach used in the current study. First, as suggested above, there are questions about what is actually being measured by items that solicit participants’ ratings of various qualities (in this case, the rape supportive climate) of their social environments. Are these ratings merely measures of individuals’ satisfaction with settings? Might they be measuring the level of consciousness that young women have about gender disparity? Another concern is that environmental ratings depend heavily on participants’ membership level and/or role in the settings they are rating. In studies that use participants’ ratings of classroom climate, researchers have found differences between students and teachers (Raviv, Raviv, & Reisel, 1990) as well as low correlations between students and independent observers’ scores (Trickett, Trickett, Castro, & Schaffner, 1982) Finally, not only does the self-report method potentially introduce biases such as social desirability bias, shared method variance between the environmental climate scales and other self-report measures may account for statistical correlations such as those found between the harassment scale and other variables in this study (Linney, 2000). Aggregating participants’ perceptions of a common workplace was found to more successfully predict individual job satisfaction than an individual’s own rating of the workplace (Repetti, 1987; Repetti & Cosmas, 1991); and may be one way to improve the self-report rating approach used in this study.

The current study also used demographic indicators to measure objective qualities of participants’ social environments. For example, whether or not a participant’s parents were divorced and number of siblings were used as “family context” variables. Linney (2000)

emphasizes the “quick and dirty” nature of these easily acquired measures and reminds us that demographic indicators must be interpreted as proxy variables or covariates of other contextual processes in the setting. She describes a third approach to measuring ecological constructs that might be particularly well suited to the study of sexual revictimization: transactional perspectives of context. This perspective requires that behavior and situational factors be considered together, and not as separate or sequential entities. Other hallmarks of this approach are an explicit focus on development of individuals and settings over time, accounting for the dynamic relationships between persons and contexts, and a reliance primarily on naturalistic or qualitative methodologies (Linney, 2000). As victimization occurs in at least two separate life phases (usually childhood and adulthood), change over time is critical facet of sexual revictimization that could be better accounted using this type of perspective. Also, given the lack of progress in validating *a priori* theories of revictimization using the quantitative paradigm, large samples and inferential statistics, perhaps alternative methods consistent with the transactional perspective on context, such as case studies or interviews of repeat victims, should be explored. Such methods might strive to generate contextually grounded theory on repeated sexual revictimization.

#### *Implications for Research and Intervention*

The work of advocates, activists and researchers over the past thirty years has resulted in a fairly widespread recognition that sexual violence is both a criminal justice and public health issue. Therefore, many have shifted focus from designing research to document the scope of problem towards designing prevention programs aimed at reducing the incidence of sexual violence. In fact, a significant amount of resources have gone into designing and evaluating “prevention programs” aimed at changing the behavior of would-be victims (e.g., Breitenbecher & Gidycz, 1998; Hanson & Gidycz, 1993; Marx et al., 2001). However, because perpetrators are

ultimately responsible for their acts of sexual aggression, the bulk of resources slated for *prevention* should target males or mixed gender groups to try and reduce acts of sexual aggression and coercion. This focus on preventing the situations that result in rape *perpetration*, as opposed to rape victimization, can be thought of as a *primary prevention* approach.

Current results suggest that characteristics of a sexual assault survivor's environment may be related to the likelihood that a subsequent rape is perpetrated against her. Specifically, settings with climates that tolerate sexual harassment (unwanted staring, leering, ogling, or crude sexual remarks) might be a situational factor associated with repeated sexual victimization. Perhaps prevention practitioners can best make the world safer for potential victims of child sexual assault with programs that adjust cultural beliefs and social norms so that men do not feel privileged to objectify or physically intimidate women. This type of social change would require broad-based primary prevention messages aimed at transforming beliefs and behaviors exhibited by entire generations of males *and* females; and, as such, is no small order.

There may also be some value in working with groups of women to try and reduce repeated incidents of sexual violence. As the most common victims of sexual violence, it is important that women are informed about their risk for sexual violence. In a single gender forum, women may be especially motivated to discuss practical preventative strategies that can be used to try to avoid situations where men may become sexually aggressive. These programs, however, are technically *secondary prevention*. An evaluation of this type of sexual assault prevention program for college women found that messages that worked for women who have never experienced sexual assault were not effective with women who have a history of sexual victimization (Hanson & Gidycz, 1993).

Since previously victimized women do seem to be at a high risk of subsequent victimization, it may make sense to target them for special services to address the effects of the victimization and *tertiary prevention* programming to reduce the likelihood of subsequent violence. Some approaches to working with sexually victimized women have focused on reducing victims' risky behavior in order to reduce risk of subsequent attacks. Since each and every risky behaviors included on the scale probably increases the likelihood of a host of other negative outcomes including sexually transmitted diseases, substance abuse, and unwanted pregnancy, there are many good reasons to discourage *all college students* from these types of behaviors. Furthermore, primary prevention approaches that were effective at reducing these behaviors among *men* may very likely also reduce sexual violence.

Targeting females with a history of sexual abuse and focusing on risky behaviors alone may not be sufficient to protect women. Using prospective design, Combs-Lane and Smith (2001) found that a history of sexual victimization at time 1 was not associated with greater risky behavior at time 2. In the current study, even though the mean scores in the various groups are statistically different, the modal response – even among repeat victims – was between *never* and *rarely* (0.54); and the highest score was between *rarely* and *sometimes* (1.85). This finding would suggest that programs that target victims might rather focus on health and recovery. If individual-level behaviors are targeted, a growing body of work indicates that the training/intervention with women be targeted specifically at behavior within the context of relationships with the opposite gender (e.g, Combs-Lane & Smith, 2001; Greene & Navarro, 1998).

Of course, prior to investing resources into any one (or more) model of sexual victimization or revictimization prevention program, additional research needs to be done to

support the results of this study. Because mediation models have not been consistently able to account for repeated sexual victimization, some authors have already suggested the need to test moderation models. The lack of support for three mediation processes tested here confirms the need to move away from purely linear explanations and to conceptualize and test interaction effects in new ways. Ecological frameworks have posited that individual behavior is best explained as the interaction between individuals and their social and physical environments, but researchers have yet to figure out effective techniques for empirically testing such ideas. The results of this study indicate that ecological approaches produce significant results, but could benefit from better conceptual applications and more precise measurement of extra-individual factors. Though likely to involve more complicated methodological techniques, improved ecological approaches to understanding repeated sexual victimization can lead to explanations that are grounded in the complexity of women's lives.

## References

- Abbey, A., McAuslan, P., Zawacki, T., Clinton, A.M., & Buck, P.O. (2001). Attitudinal, experimental, and situational predictors of sexual assault perpetration. *Journal of Interpersonal Violence, 16* (8), 784-807.
- Arata, C.M. (2002). Child sexual abuse and sexual revictimization. *Clinical Psychology: Science and Practice, 9* (2), 135-164.
- Arata, C.M. (2000). From child victim to adult victim: A model for predicting sexual revictimization. *Child Maltreatment, 5*(1), 28-38.
- Arata, C.M. (1999a). Repeated sexual victimization and mental disorders in women. *Journal of Child Sexual Abuse, 7*(3), 1-17.
- Arata, C.M. (1999b). Sexual revictimization and PTSD: An exploratory study. *Journal of Child Sexual Abuse, 8*(1), 49-65.
- Arata, C.M., Saunders, B.E., & Kilpatrick, D.G. (1991). Concurrent validity of a Crime-Related Post-Traumatic Stress Disorder Scale for women within the Symptom Checklist-90-Revised. *Violence and Victims, 6* (3), 191-199.
- Arbuckle, J.L. & Wothke, W. (1999). *Amos 4.0 User's Guide*. Chicago, IL: Smallwaters, Corporation.
- Baron, R.M., & Kenny, D.A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173-1182.
- Belsky, J. (1980). Child maltreatment: An ecological integration. *American Psychologist, 35*, 320-335.

Breitenbecher, K.H. (2001). Sexual revictimization among women: A review of the literature focusing on empirical investigations. *Aggression and Violent Behavior, 6*, 415-432.

Breitenbecher, K.H. & Gidycz, C.A. (1998). An empirical evaluation of a program designed to reduce the risk of multiple sexual victimization. *Journal of Interpersonal Violence, 13*(4), 472-488.

Briere, J. (1995). *The trauma symptom inventory*. Odessa, FL: Psychological Assessment Resources.

Briere, J., & Runtz, M. (1987). Post sexual abuse trauma: Data and implications for clinical practice. *Journal of Interpersonal Violence, 2*(4), 367-379.

Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. *American Psychologist, 32*, 513-531.

Bronfenbrenner, U. (1979). *The ecology of human development: Experiment by nature and design*. Cambridge, MA: Harvard University Press.

Buchwald, E., Fletcher, P.R., & Roth, M. (1993). Are we really living in a rape culture? In E. Buchwald, P.R. Fletcher, & M. Roth (Eds.). *Transforming a rape culture*. Minneapolis, MN: Milkweed.

Chu, J.A. (1992). The revictimization of adult women with histories of childhood abuse. *Journal of Psychotherapy Practice and Research, 1*(3), 259-269.

Cohen, J. (1977). *Statistical power analysis for the behavioral sciences (rev. ed.)*. New York: Academic Press.

Combs-Lane, A. M., & Smith, D.W. (2002). Risk of sexual victimization in college women: The role of behavioral intentions and risk-taking behaviors. *Journal of Interpersonal Violence, 17* (2), 165-183.

Davis, J.L., Combs-Lane, A.M. & Jackson, T.L. (2002). Risky behaviors associated with interpersonal victimization: Comparisons based on type, number, and characteristics of assault incidents. *Journal of Interpersonal Violence, 17* (6), 611-629.

Davis, R.C., & Smith, B. (1994). Teaching victims crime prevention skills: Can individuals lower their risk of crime? *Criminal Justice Review, 19* (1), 56-68.

Derogotis, L.R. (1977). *SCL-90: Administration, scoring, & procedure manual-I for the R (revised) version*. Baltimore: Johns Hopkins University School of Medicine.

Ellis, E., Atkeson, B., & Calhoun, K. (1982). An examination of differences between multiple and single-incident victims of sexual assault. *Journal of Abnormal Psychology, 91*, 221-224.

Fergusson, D.M., Horwood, L.J., & Lynskey, M.T. (1997). Childhood sexual abuse, adolescent sexual behaviors and sexual revictimization. *Child Abuse and Neglect, 21* (8), 789-803.

Fisher, B.S., Cullen, F.T., & Turner, M.G. (2000). *The sexual victimization of college women*. Washington, D.C.: National Institute of Justice.

Fitzgerald, L.F., Drasgow, F., Hulin, C.L., Gelfand, M.L. & Magley, V.J. (1997). Antecedents and consequences of sexual harassment in organizations: A test of an integrated model. *Journal of Applied Psychology, 82* (4), 578-589.

Follette, V.M., Polusny, M.A., Bechtle, A.E., & Naugle, A.E. (1996). Cumulative trauma: The impact of child sexual abuse, adult sexual assault, and spouse abuse. *Journal of Traumatic Stress, 9* (1), 25-35.

Frazier, P.A. (1991). Self-blame as a mediator or posttrauma depressive symptoms. *Journal of Social and Clinical Psychology, 10* (1), 47-57.

Gidycz, C.A., Coble, C.N., Latham, L., & Layman, M.J. (1993). Sexual assault experience in adulthood and prior victimization experiences: A prospective analysis. *Psychology of Women Quarterly*, *17*, 151-168.

Gidycz, C.A., Hanson, K., Layman, M.J. (1995). A prospective analysis of the relationships among sexual assault experiences: An extension of previous findings. *Psychology of Women Quarterly*, *19*, 5-29.

Gold, S.R., Sinclair, B.B., & Balge, K.A. (1999). Risk of sexual revictimization: A theoretical model. *Aggression and Violent Behavior*, *4*(4), 457-470.

Golding, J. (1996). Sexual assault history and women's reproductive and sexual health. *Psychology of Women Quarterly*, *20*, 101-121.

Gottfredson, M.R. (1981). On the etiology of criminal victimization. In United States Department of Justice (Ed.), *Victims of crime: a review of research issues and methods*. Washington, DC: Author.

Grauerholz, L. (2001). An ecological approach to understanding sexual revictimization: Linking personal, interpersonal, and sociocultural factors and processes. *Child Maltreatment*, *5*(1), 5-17.

Greene, D.M., & Navarro, R.L. (1998). Situation-specific assertiveness in the epidemiology of sexual victimization among college women. *Psychology of Women Quarterly*, *22* (4), 589-604.

Gutek, B.A., Cohen, A.G., & Konrad, A.M. (1990). Predicting social-sexual behavior at work: A contact hypothesis. *Academy of Management Journal*, *33*, 560-577.

Hanson, K.A., & Gidycz, C.A. (1993). An evaluation of a sexual assault prevention program. *Journal of Consulting and Clinical Psychology*, *61*, 1046-1052.

- Heise, L. (1998). Violence against women: An integrated, ecological framework. *Violence Against Women, 4*, 262-290.
- Hindelang, M., Gottfredson, M., & Garofalo, J. (1978). *Victims of personal crime: an empirical foundation for a theory of personal victimization*. Cambridge, MA: Ballinger.
- Horowitz, M.J., Wilner, N. & Alvarez, W. (1979). Impact of Event Scale: Measure of subjective stress. *Psychosomatic Medicine, 41*, 209-218.
- Humphrey, J.A., & White, J.W. (2000). Women's vulnerability to sexual assault from adolescence to young adulthood. *Journal of Adolescent Health, 27*, 419-424.
- Irwin, H.J. (1999). Violent and nonviolent revictimization of women abused in childhood. *Journal of Interpersonal Violence, 14(10)*, 1095-1110.
- Kellogg, N.D., & Hoffman, T.J. (1997). Child sexual revictimization by multiple perpetrators. *Child Abuse & Neglect, 21(10)*, 953-964. -- not really applicable.
- Keppel, G. (1997). *Design and analysis: A researcher's handbook (third edition)*. Upper Saddle River, New Jersey: Prentice Hall.
- Kessler, B.L., & Bieschke, K.J. (1999). A retrospective analysis of shame, dissociation, and adult victimization in survivors of childhood sexual abuse. *Journal of Consulting and Clinical Psychology, 46 (3)*, 335-341.
- Kimerling, R., & Calhoun, K.S. (1994). Somatic symptoms, social support, and treatment seeking among sexual assault victims. *Journal of Consulting and Clinical Psychology, 62*, 333-340.
- Koss, M.P. (1993). Detecting the scope of rape: A review of prevalence research methods. *Journal of Interpersonal Violence, 8*, 198-222.

Koss, M.P. (1985). The hidden rape victims: Personality, attitudinal, and situational characteristics. *Psychology of Women Quarterly*, 9, 193-212.

Koss, M.P., Dinero, T.E., Siebel, C.A., & Cox, S.L. (1988). Stranger and acquaintance rape: Are there differences in the victim's experience? *Psychology of Women Quarterly*, 12, 1-12.

Koss, M.P., Figueredo, A.J., Bell, I., Tharan, M. & Tromp, S. (1996). Rape, traumatic memory, and physical symptoms among employed women: A cross-validated structural model. *Journal of Abnormal Psychology*, 105, 1-12.

Koss, M.P., Goodman, L.A., Browne, A., Fitzgerald, L.F., Keita, G.P., & Russo, N.F. (1994). *No safe haven: Male violence against women at home, at work, and in the community*. Washington DC: American Psychological Association.

Koss, M.P., Woodruff, W.J., & Koss, P.G. (1990). Relation of criminal victimization to health perceptions among women medical patients. *Journal of Consulting and Clinical Psychology*, 58, 147-152.

Koverola, C., Proulx, J., Battle, P., Hanna, C. (1996). Family functioning as predictors of distress in revictimized sexual abuse survivors. *Journal of Interpersonal Violence*, 11(2), 263-280.

Krahe, B., Scheinberger-Olwig, Waizenhofer, E., & Kolpin, S. (1999). Childhood sexual abuse and revictimization in adolescence. *Child Abuse and Neglect*, 23 (4), 383-394.

Linney, J.A. (2000). Assessing ecological constructs and community contexts. In J.Rappaport and E. Seidman (Eds.). *Handbook of community psychology*. New York: Plenum Publishers.

Lofland, L.H.(1975). The “thereness” of women: A selective review of urban sociology. In M. Millman & R. M. Kanter (Eds.) *Another voice: Feminist perspectives on social life and social science* (pp. 144-170). New York: Octagon Books.

Maker, A.H., Kimmelmeier, M., & Peterson, C. (2001). Child sexual abuse, peer sexual abuse, and sexual assault in adulthood: A multi-risk model of revictimization. *Journal of Traumatic Stress, 14*(2), 351-368.

Mandoki, C.A., & Burkhart, B.R. (1989). Sexual victimization: Is there a vicious cycle? *Violence and Victims, 4*(3), 179-190.

Marx, B.P., Calhoun, K.S., Wilson, A.E., & Meyerson, L.A. (2001). Sexual revictimization prevention: An outcome evaluation. *Journal of Consulting and Clinical Psychology, 69* (1), 25-32.

Mayall, A., & Gold, S.R. (1995). Definitional issues and mediating variables in the sexual revictimization of women sexually abused as children. *Journal of Interpersonal Violence, 10*(1), 26-42.

Merrill, L.L., Newell, C.E., Thomsen, C.J., Gold, S.R., Milner, J.S., Koss, M.P., Rosswork, S.G. (1999). Childhood abuse and sexual revictimization in a female Navy recruit sample. *Journal of Traumatic Stress, 12* (2), 211- 225

Messman, T.L., & Long, P.J. (1996). Child sexual abuse and its relationship to revictimization in adult women: A review. *Clinical Psychology Review, 16* (5), 397-420.

Messman-Moore, T.L., Long, P.J., & Siegfried, N.J. (2000). The revictimization of child sexual abuse survivors: An examination of college women with child sexual abuse, adult sexual assault, and adult physical abuse. *Child Maltreatment, 5*(1), 18-27.

Miranne, K.B., & Young, A.H. (2000). *Gendering the city: Women, boundaries, and visions of urban life*. Lanham, MA: Rowman & Littlefield.

Mustaine, E.E., & Tewksbury, R. (1998). Victimization risks at leisure: A gender-specific analysis. *Violence and Victims, 13* (3), 231-249.

Outlaw, M., Ruback, B., & Britt, C. (2002). Repeat and multiple victimizations: The role of individual and contextual factors. *Violence and Victims, 17*(2), 187-204.

Proulz, J., Koverola, C., Fedorowicz, A., & Kral, M. (1995). Coping strategies as predictors of distress in survivors of single and multiple sexual victimization and nonvictimized controls. *Journal of Applied Social Psychology, 25* (16), 1464-1483.

Raviv, A., Raviv, A., & Reisel, E. (1990). Teachers and students: Two different perspectives?—Measuring social climate in the classroom. *American Educational Research Journal, 27*, 141-157.

Repetti, R.L. (1987). Individual and common components of the social environment at work and psychological well-being. *Journal of Personality and Social Psychology, 52*, 710-720.

Repetti, R.L., & Cosmas, K.A. (1991). The quality of the social environment at work and job satisfaction. *Applied Social Psychology, 21*, 840-854.

Resick, P.A. (1993). The psychological impact of rape. *Journal of Interpersonal Violence, 8*, 223-255.

Romans, S.E., Martin, J.L., Anderson, J.C., O'Shea, M.L. & Mullen P.E. (1995). Factors that mediate between child abuse and adult psychological outcome. *Psychological Medicine, 25*(1), 127-142.

Romero, G.J., Wyatt, G.E., Loeb, T.B., Carmona, J.V., & Solis, B.M. (1999). The prevalence and circumstances of child sexual abuse among Latina women. *Hispanic Journal of Behavioral Sciences*, 21(3), 351-365.

Roodman, A.A., & Clum, G.A. (2001) Revictimization rates and method variance: A meta-analysis. *Clinical Psychology Review*, 21(2), 183-204.

Roth, S., Wayland, K., & Woolsey, M. (1990). Victimization history and victim-assailant relationship as factors in recovery from sexual assault. *Journal of Traumatic Stress*, 3(1), 169-180.

Russell, D.E.H. (1986). *The secret trauma: Incest in the lives of girls and women*. New York: Basic Books.

Ryan, W. (1976). *Blaming the victim*. New York: Random House.

Sandberg, D.A., Matorin, A.I., Lynn, S.J. (1999). Dissociation, posttraumatic symptomatology, and sexual revictimization: A prospective examination of mediator and moderator effects. *Journal of Traumatic Stress*, 12 (1), 127-138.

Saunders, B.E., Arata, C.M., & Kilpatrick, D.G. (1990). Development of a Crime-Related Post-Traumatic Stress Disorder Scale for women within the Symptom Checklist-90-Revised. *Journal of Traumatic Stress*, 3 (3), 439-448.

Sorenson, S.B., Siegel, J.M., Golding, J.M., & Stein, J.A. (1993). Repeated sexual victimization. *Violence & Victims*, 6(4), 299-308.

Stevenson, M.R., & Gajarsky, W.M. (1992). Unwanted childhood sexual experiences relate to later revictimization and male perpetration. *Journal of Psychology & Human Sexuality*, 4(4), 57-70.

Tjaden, P. & Thoennes, N. (2000). *Full report of the prevalence, incidence, and consequences of violence against women: Findings from the National Violence Against Women Survey*. Washington, DC: National Institute of Justice.

Trickett, E.J., Trickett, P.J., Castro, J.J., & Schaffner, P. (1982). The independent school experience: Aspects of the normative environments of single sex and coed secondary schools. *Journal of Educational Psychology, 74*, 374-381.

Tromp, S., Koss, M.P., Figueredo, A.J., & Tharan, M. (1996). Are rape memories different? A comparison of rape, other unpleasant, and pleasant memories among employed women. *Journal of Traumatic Stress, 8*(4), 607-627.

Urquiza, A.J., & Goodlin-Jones, B.L. (1994). Child sexual abuse and adult revictimization with women of color. *Violence and Victims, 9* (3), 223-232.

U.S. Merit Systems Protection Board (1981). *Sexual harassment of federal workers: Is it a problem?* Washington, DC: U.S. Government Printing Office.

U.S. Merit Systems Protection Board (1987). *Sexual harassment of federal workers: An update*. Washington, DC: U.S. Government Printing Office.

van der Kolk, B.A. (1989). The compulsion to repeat the trauma: Re-enactment, revictimization, and masochism. *Psychiatric Clinics of North America, 12*(2), 389-411.

Walker, E.A., Newman, E., Koss, M.P. & Bernstein, D. (1997). Does the study of victimization revictimize the victims? *General Hospital Psychiatry, 19*, 403-410.

West, C.M., Williams, L.M., & Siegel, J.A. (2000). Adult sexual revictimization among Black women sexually abused in childhood: A prospective examination of serious consequences of abuse. *Child Maltreatment, 5* (1), 49-57.

Widom, C.S. (1997). *Accuracy of adult recollections of early childhood abuse*. New York: Plenum Press.

Williams, L.M., Siegel, J.A., & Pomeroy, J.J. (2000). Validity of women's self-reports of documented child sexual abuse. In A.A. Stone, J.S. Turkkan, C.A. Bachrach, J.B. Jobe, H.S. Kurtzman, & V.S. Cain (Eds.). *The science of self-report: Implications for research and practice*. New Jersey: Lawrence Erlbaum Associates, Inc.

Wilson, A.E., Calhoun, K.S., & Bernat, J. (1999). Risk recognition and trauma-related symptoms among sexually revictimized women. *Journal of Consulting and Clinical Psychology*, *67*(5), 705-710.

Wyatt, G.E., Guthrie, D., & Notgrass, C.M. (1992). Differential effects of women's child sexual abuse and subsequent sexual revictimization. *Journal of Consulting and Clinical Psychology*, *60* (2), 167-173.

## Footnotes

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<sup>1</sup> In this paper, sexual assault is referred to interchangeably as rape.

<sup>2</sup> Not all studies reviewed published revictimization rates; some simply reported significant correlations between the experiences. The rates are averaged across the studies that did calculate actual rates.

<sup>3</sup> These revictimization rates do not include multiple victimizations in adulthood.

<sup>4</sup> The meta-analysis included studies of physical and sexual revictimization.

<sup>5</sup> Small effect = .01; medium effect = .06; large effect = .15 (Cohen, 1977 as cited in Keppel, 1991)

<sup>6</sup> However, Koverola et al (1996) also found that the revictimized group reported the most severe forms of sexual assault relative to other victimized group. This study cannot determine whether the revictimization or the severity of abuse leads to the higher PTSD scores.

<sup>7</sup> Wyatt et al (1992) used a measure of general well being and not a measure of posttraumatic stress, which may be the most consistent mental health effect of revictimization (e.g., Arata, 1999a).

<sup>8</sup> The limited effectiveness of interventions aimed at teaching victims to prevent subsequent victimization (Breitenbecher and Gidycz, 1998; Davis & Smith, 1994; Hanson & Gidycz, 1993; Marx, Calhoun, Wilson & Meyerson, 2001) highlights the importance of continued research and new conceptualizations of sexual revictimization.

<sup>9</sup> Because of the problems with retrospective accounts, prospective evidence will be favored in these sections. Retrospective studies will be cited where they are consistent with the prospective findings.

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<sup>10</sup> Retrospective accounts cannot determine order of events. Therefore, it is unclear in these studies whether poor psychological functioning preceded or followed sexual revictimization. Arata's 1999b study, which established child-onset versus adult-onset of symptoms using retrospective self-reports, supports Gidycz et al.'s (1993) findings that the psychological distress precedes the revictimization.

<sup>11</sup> These authors did find that poor risk detection (longer decision latencies) did differentiate repeated sexual victims from nonvictims. However, among revictimized women, dissociation was not at all related to risk detection, and posttraumatic stress was related in the opposite way than predicted.

<sup>12</sup> Since over 90% of sexual violence is perpetrated by men (Tjaden & Thoennes, 2000), for the purposes of this study, potential perpetrators will refer to men.

<sup>13</sup> Includes women of Indian descent.

<sup>14</sup> Using a criterion group classification approach, the CR-PTSD Scale successfully discriminated between women with and without lifetime history of criminal victimization and between women assessed to have or not have CR-PTSD according to diagnostic interviews (Saunders et al., 1990). Saunders et al (1990) reported a high degree of internal consistency reliability, with an alpha of .93. Subsequently, the scale was assessed for concurrent validity and found to be as effective as the Impact of Events Scale (IES; Horowitz, Wilner & Alvarez, 1979) in detecting symptoms of posttraumatic stress (Arata, Saunders & Kilpatrick, 1991).

<sup>15</sup> Davis et al (2002) developed this scale by borrowing nine items of sexual risk from the Trauma Symptom Inventory (Briere, 1995) and creating an additional 24 items, and reported a Cronbach's alpha of .90.

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<sup>16</sup> Items were “taking part in group sex,” “going to bars alone,” “walking alone late at night,” “engaging in sex without a partner’s consent,” “picking up people at bars,” “using drugs other than marijuana,” and “drinking before noon.”