Published in final edited form as:

Trauma Violence Abuse. 2015 January ; 16(1): 3–15. doi:10.1177/1524838013515761.

Using Cognitive Theory and Methodology to Inform the Study of Sexual Victimization

Jenny K. Rinehart¹ and Elizabeth A. Yeater²

¹Bloomberg School of Public Health, Johns Hopkins University, Baltimore, MD, USA

²University of New Mexico, Albuquerque, NM, USA

Abstract

Sexual victimization is a prevalent problem among college-aged women. In order to investigate the mechanisms underlying sexual victimization, researchers have focused on the role of cognitive processes such as perception of sexual victimization risk, positing that difficulties with risk perception heighten women's risk for victimization. However, researchers generally have not conceptualized risk perception in the context of a comprehensive cognitive model or utilized tasks and stimuli that allow them to examine specific cognitive processes linked to increased risk for sexual victimization. This review examines the research on sexual victimization risk perception, citing benefits and limitations to the extant literature, and discusses how a promising hybrid approach using cognitive theory and methodology can be applied to this area to better understand women's risk for sexual victimization.

Keywords

sexual victimization; cognitive methods; risk perception; cognitive science

Research has continually shown that sexual victimization is a common problem for college women (Fisher, Cullen, & Turner, 2000; Koss Gidycz, & Wisniewski, 1987). In fact, college women are at higher risk for victimization than women of the same age in the general population (Fisher et al., 2000; Krebs, Lindquist, Warner, Fisher, & Martin, 2007), with 25% of college women reporting an attempted or completed rape (Fisher et al., 2000). Additionally, once a woman has been victimized, she is at a much higher risk of being revictimized (Gidycz, Coble, Latham, & Layman, 1993; Gidycz, Hanson, & Layman, 1995), with research suggesting that previously victimized women are twice as likely to be raped as women without a history of sexual assault (Gidycz et al., 1993).

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Corresponding Author: Jenny K. Rinehart, Bloomberg School of Public Health, 624 N. Broadway, Hampton House, Baltimore, MD 21205, USA. jrinehar@jhsph.edu.

Authors' Note

Parts of this article were written while the first author was in the Department of Psychology at the University of New Mexico.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

While research has identified factors contributing to men's sexual aggression (e.g., Malamuth, 1986; Malamuth, Linz, Heavey, Barnes, & Acker, 1995), prevention programs have failed to produce clinically significant reductions in rates of sexual aggression (Anderson & Whiston, 2005; Yeater & O'Donohue, 1999). Thus, while perpetrators ultimately are responsible for sexual victimization, there has been limited success in preventing men from engaging in sexually aggressive behavior. Therefore, in order to protect women from harm, researchers must continue to identify factors that increase women's risk of sexual victimization.

To date, much of this research has focused on situational or behavioral factors that may place women at risk of victimization (e.g., Abbey, Ross, McDuffey, & McAuslan, 1996; Muehlenhard & Linton, 1987; Yeater, Lenberg, Avina, Rinehart, & O'Donohue, 2008). While this research has been important in understanding factors associated with risk for victimization, rates of victimization remain high (Krebs et al., 2007). In order to better understand and prevent sexual victimization, researchers have focused on the role of sexual victimization risk perception, positing that women at high risk for sexual victimization (i.e., previously victimized women), relative to women at low risk for victimization (i.e., women who have not been victimized), demonstrate difficulties recognizing cues that signal risk for sexual victimization (e.g., Breitenbecher, 1999; Naugle, 2000; Soler-Baillo, Marx, & Sloan, 2005; Wilson, Calhoun, & Bernat, 1999). As a consequence of failing to recognize these cues, they are thought to remain longer in sexually risky situations, thereby increasing the probability that they will be sexually victimized.

The emphasis on the role of risk perception in sexual victimization reflects a larger trend in clinical psychology; that is, the integration of cognitive theory and methodology in examining the mechanisms underlying various clinical problems (e.g., Treat, McFall, Viken, & Kruschke, 2001; Viken, Treat, Nosofsky, McFall, & Palmeri, 2002). However, this approach has been problematic in the sexual victimization risk perception literature. Though there are some exceptions (e.g., Nurius & Norris, 1995; Nurius, Norris, Young, Graham, & Gaylord, 2000), most researchers have not conceptualized risk perception in the context of a comprehensive cognitive model or utilized tasks that allow them to investigate specific cognitive processes, such as attention, learning, or decision making. Identifying specific cognitive processes related to individual differences in women's risk perception could help researchers clarify why such differences exist, and as a result, target those specific processes in preventative interventions.

In the current article, we will review the sexual victimization risk perception literature, discussing the present role of cognitive theory and methodology in this literature and highlighting some of the limitations. We then will discuss a promising hybrid model of cognitive and clinical psychology, emphasizing studies that have used such an approach to investigate clinically relevant problems. Finally, we will discuss how the study of sexual victimization can benefit from the use of cognitive theory and methodology and suggest future directions for sexual victimization research that are in keeping with a hybrid model.

Sexual Victimization Risk Perception Research

Researchers have investigated several aspects of risk perception, including women's estimates of their own risk of being sexually victimized compared to that of other women (e.g., Brown, Messman-Moore, Miller, & Stasser, 2005; Cue, George, & Norris, 1996; Norris, Nurius, & Dimeff, 1996), and the effects of alcohol intoxication on risk perception (e.g., Gidycz, et al., 2007; Testa, Livingston, & Collins, 2000). While each of these areas has merit, this review will focus primarily on studies of sexual victimization risk perception in specific situations (rather than global estimates of risk), as well as studies that do not specifically look at the effects of alcohol on risk perception (for a comprehensive review of these issues, see Gidycz, McNamara, & Edwards, 2006). The following risk perception studies have used a variety of methodologies (see Table 1 for a summary of these studies). We will review each of these methodologies separately, highlighting their benefits and limitations.

Audiotaped Vignettes

One stimulus utilized by several researchers as a measure of risk perception is an audiotape in which a man and woman act out a hypothetical sexual scenario in which the man's behavior becomes increasingly coercive, and the woman's verbal resistance becomes increasingly forceful until the scenario ends in date rape (Marx & Gross, 1995). The tape was used initially in a study investigating men's reactions to women's token resistance (i.e., saying no, but meaning yes) to sex. Undergraduate men were told that the couple in the scenario had previous sexual activity during which the women either consented or initially objected and then acquiesced. They were then asked to indicate, by pushing a button, "if and when the man should refrain from making further sexual advances" (Marx & Gross, 1995; p. 457). Participants' response latency was thought to reflect their judgments of the appropriateness of the man's actions (Marx & Gross, 1995).

In a subsequent study, Wilson Calhoun, and Bernat (1999) used the audiotaped vignette with 330 undergraduate women to measure the associations among a prior history of victimization, posttraumatic stress disorder (PTSD)-related symptoms such as arousal and dissociation, and risk perception. The women were asked to listen to the tape and indicate when the man had "gone too far." In this study, response latency was thought to reflect women's risk perception. Wilson and colleagues (1999) found that revictimized women showed longer response latencies than nonvictimized or singly victimized women; thus, they concluded that revictimized women had more difficulties perceiving risk than the other two groups. While dissociation was unrelated to response latency, revictimized women with more arousal symptoms of PTSD responded similarly to nonvictimized women, while revictimized women with fewer arousal symptoms demonstrated increased response latencies (Wilson et al., 1999). These findings suggest that factors such as arousal symptoms may account for some of the variance in response latency among revictimized women. The authors posited that women with low levels of arousal symptoms may have deficits in information processing (e.g., attentional biases) that may cause them to fail to leave potentially dangerous situations.

In a different study using the audiotape designed by Marx and Gross (1995), Soler-Baillo, Marx, and Sloan (2005) examined the relationship between victimization history, risk perception, and physiological response among 97 undergraduate women. The section of the audiotape with information relevant to risk for sexual victimization (i.e., the man was coercive and/or the woman pled or refused) was divided into eight equal segments, with those segments later in the vignette considered higher risk than earlier segments. Results indicated that victimized women took longer to say that the man had “gone too far” than nonvictimized women. Victimized and nonvictimized women also differed in their physiological responses to the vignette. Nonvictimized women had higher heart rates than victimized women heart during the second and third segments of the tape; however, the groups’ heart rates did not differ during the highest risk segments (Soler-Baillo et al., 2005). The authors concluded that the earlier, most ambiguous segments of the tape were the most important in risk perception, and these were the segments where nonvictimized women showed increased physiological responses, suggesting increased attention to risk cues relative to victimized women.

The Marx and Gross (1995) audiotape also has been used in a study evaluating the effectiveness of a sexual assault prevention program in altering women’s risk perception. Marx, Calhoun, Wilson, and Meyerson (2001) administered a twosession sexual assault prevention program with several elements, including assertiveness and communication skills training and risk perception training, to 66 previously victimized undergraduate women. After participating in the prevention program, participants listened to the audiotape and indicated when the man had “gone too far.” The treatment and control groups did not differ in their response latencies, suggesting that the program did not affect their risk perception (Marx, Calhoun, Wilson, & Meyerson, 2001). One major caveat is that the design of the study did not allow for risk perception assessments in the beginning of the study (if the participants listened to the audiotape twice, they would know how it ends the second time), making it impossible to determine whether the groups had preexisting differences in risk perception.

Written Vignettes

Other studies examining women’s risk perception using written vignettes have conceptualized risk perception somewhat differently than researchers utilizing Marx and Gross’ (1995) audiotape. Meadows, Jaycox, Orsillo, and Foa (1997) created vignettes with various levels of risk and ambiguous outcomes (i.e., they did not end in sexual assault). Rather than asking when the man had gone too far, they asked participants to read the vignettes and indicate when they felt uncomfortable and when they would leave the situation. Victimized women took longer to say they would leave the situation than nonvictimized women but did not report feeling more uncomfortable. In this case, two distinct procedures were used to distinguish between risk perception and behavioral response or decision making, providing a more comprehensive examination of the various elements involved in these processes (Messman-Moore & Brown, 2006).

Cue, George, and Norris (1996) also utilized written stimuli to evaluate sexual victimization risk perception among 165 undergraduate women. They used one scenario in which they

manipulated three variables: (a) whether the man displayed rape-congruent attitudes, (b) whether the beverage consumed was coffee or beer, and (c) whether the perspective was third or first person (Cue et al., 1996). After reading one of the eight versions of the vignette, participants were asked several questions regarding how the woman in the vignette felt, including her feelings of vulnerability. They were also asked how likely the man in the situation was to engage in a variety of sexually coercive behaviors. Women were more likely to predict rape in the situation when the man displayed rape-congruent attitudes and when the perspective of the scenario was third person, though they did not predict rape more often when alcohol was involved. Participants' victimization history was unrelated to predictions of the likelihood of coercive events (Cue et al., 1996).

Norris, Nurius, and Graham (1999) asked 152 undergraduate women to either read one of two written vignettes describing dates or to write a description of a typical date for themselves. The vignettes were identical except that one described the situation as a first date, and the other described it as a fifth date. After reading the vignettes provided or writing about a typical date, the women were asked to imagine how they would react to nine different scenarios representing various risk factors, such as the man paying for the date or the man drinking. Each risk factor was presented on a 7-point continuum, and women were asked to say at what point in the continuum they would feel "on guard," "really uncomfortable," and "seriously at risk." The authors divided the nine risk factors into either clear (e.g., verbal persuasion) or ambiguous (e.g., being alone with the man). They found that overall, low and high severity victimized women needed higher levels of ambiguous risk factors than nonvictimized women to report feeling on guard. Interestingly, for women with lower severity victimization, higher levels of clear risk factors were needed before they indicated feeling "uncomfortable" or "seriously at risk." The authors suggested that risk perception in ambiguous situations may be more difficult for victimized women than nonvictimized women and that severity of past victimization differentially affects risk perception in situations with clear risk factors (Norris, Nurius, & Graham, 1999).

In a prospective study, Messman-Moore and Brown (2006) created two written vignettes based on those created by Meadows et al. (1997) but manipulated the scenarios so that they depicted either an acquaintance in a social situation (i.e., a party), or a stranger in a nonsocial situation (i.e., at an airport). The vignettes also differed from Meadows et al.'s vignettes in that they both clearly ended in rape, rather than ending ambiguously. Participants were 262 women who were asked to read the vignettes and indicate when they would feel uncomfortable and when they would leave the situation. A delayed response for either of these questions was hypothesized to indicate impaired risk perception. At Time 1, victims of adult rape only reported leaving both situations later than nonvictims and leaving acquaintance situations later than women victimized only as children. In addition, participants who reported leaving the acquaintance scenario later at the beginning of the study were more likely to report being raped at Time 2. However, the prospective portion of the results were more strongly related to when the participants said they would leave the situation than when they first felt uncomfortable, leading the authors to conclude that it was the decision-making component (i.e., deciding to leave) rather than the act of identifying risk that predicted subsequent victimization (Messman-Moore & Brown, 2006). Although Messman-Moore and Brown initially described women's reports of when they would leave a

situation as a behavioral response, they acknowledged later that asking when one would leave a situation may measure a process more akin to decision making than behavioral response.

Researchers also have used written vignettes in an attempt to gauge whether victimized women have more difficulty perceiving risk than nonvictimized women following a sexual assault prevention program. Yeater and O'Donohue (2002) designed a program to train participants to criterion on a number of skills, including identifying risk factors and learning behavioral strategies for responding to sexually risky situations. The authors created two written vignettes, one depicting a stranger situation and one depicting an acquaintance situation, and asked women write down all of the risk factors they found in the scenarios. Participants were 300 undergraduate women assigned randomly to either the experimental condition, where they received the sexual assault prevention program, or the control condition, where they completed only the dependent measures. In the experimental group, women with a single victimization experience took longer to learn to identify risk factors in the date rape vignette than nonvictimized or revictimized women. These findings are contrary to Wilson et al.'s (1999) findings, which suggested that revictimized women were worse at perceiving risk than women who had been victimized once.

VanZile-Tamsen, Testa, and Livingston (2005) created a written scenario where a woman is isolated at a party and a man approaches her. The man in the scenario was manipulated to be either a man she had just met at a party, a friend, a date, or her boyfriend. Participants were 318 women from the community who completed the Sexual Refusal Assertiveness subscale of the Sexual Assertiveness Scale (Morokoff et al., 1997) and were asked (a) to rate how risky the situation was in terms of the man engaging in a variety of sexually coercive behaviors (e.g., using physical force to have intercourse with a woman against her will) and (b) to predict how they would react in the situation using a 20-item measure with items ranging from direct resistance to passivity. Results indicated no differences in risk perception between victimization groups, though victimized women were more likely to report lower sexual refusal assertiveness, which in turn led to less direct forms of resistance. The authors concluded that revictimization may be due more to the way women respond to these situations than to impaired risk perception (VanZile-Tamsen, Testa, & Livingston, 2005; Yeater, Viken, McFall, & Wagner, 2006).

Videotaped Vignettes

Other researchers have used videotaped vignettes to assess women's ability to perceive risk. Naugle (2000) depicted several different scenarios: one with a student-teacher interaction, one with a woman and man who recently met and have a drink together before the man offers her a ride home, and one with acquaintances at a party where the man asks the woman to go into a bedroom with him. All of the scenarios were ambiguous with respect to whether the interaction would end in sexual assault. Previously victimized women rated each of the scenarios as riskier than nonvictimized women. However, victimized women were more likely to respond passively, supporting the theory that victimized women may not have problems with risk perception, but instead may have difficulty acting assertively in risky situations, thereby increasing their risk for future victimization (Naugle, 2000).

Breitenbecher (1999) also used videotaped vignettes to assess risk perception. She presented 224 college women with a segment from either a romantic movie (control condition) or an educational film depicting events leading up to an acquaintance rape (experimental condition). In each condition, participants were asked to imagine that they were the woman in the video and to list anything in the video that would make them feel uncomfortable. Participants were required to respond as they watched the videos and were not permitted to stop the video or go back. Women in general saw more risk in the date rape video than in the romantic movie; victimization history was unrelated to risk perception. Five-month follow-up data failed to find a relationship between sexual victimization risk perception and subsequent victimization. Breitenbecher concluded that revictimization was more likely due to difficulties responding to situations than to risk perception difficulties and suggested that future studies utilize other methods to assess risk perception, such as asking women to rate risk explicitly or evaluating women's ability to recall risk-related cues after reading written vignettes.

Summary and Limitations

Although several researchers have examined the relationship between sexual victimization and risk perception, the findings have been mixed. Some researchers have found that victimization history is linked to impaired risk perception (e.g., Marx & Gross, 1995; Soler-Baillo et al., 2005; Wilson et al., 1999), while others have failed to find such a relationship (e.g., Breitenbecher, 1999; Messman-Moore & Brown, 2006; Naugle, 2000). This inconsistency in findings is most likely due to a number of factors, including differences in the way risk perception is conceptualized and measured.

While researchers generally agree that risk perception is a cognitive construct of some sort, they disagree about how to define it, and how to investigate the specific underlying cognitive processes to which it is related. Moreover, there is a paucity of cognitive theory in the current literature, as sexual victimization risk perception has not often been placed within the context of a comprehensive cognitive theoretical model. There have been calls in the sexual victimization literature, however, to integrate models of individual and contextual influences on women's cognitive processing of sexually risky situations (e.g., Nurius & Norris, 1995). Such models may allow researchers to investigate individual differences in cognitive processes in a broader context and to more readily generalize findings to real-world situations.

This lack of comprehensive cognitive models has resulted in conceptual confusion regarding how to measure women's risk perception. For example, some studies have asked women when she would feel on guard or uncomfortable in a situation (e.g., Breitenbecher, 1999; Meadows Jaycox, Orsillo, & Foa, 1997; Messman-Moore & Brown, 2006; Norris et al., 1999) or when she would leave a situation (e.g., Norris et al., 1999), while others have asked when the man has gone too far (Soler-Baillo et al., 2005; Wilson et al., 1999). Still others have asked women to explicitly identify risk factors depicted in vignettes (Yeater & O'Donohue, 2002) or to explicitly rate the degree of risk depicted in vignettes (Rinehart & Yeater, 2012; Yeater, Viken, Hoyt, & Dolan, 2009; Yeater, et al., 2006). Each of these methods has limitations.

For example, asking women to explicitly rate risk may influence their natural attentional processes, drawing their attention to elements of stimuli that they might not normally notice in real-world situations (Gidycz et al., 2006). Additionally, asking a woman when she is uncomfortable may not measure her interpretation of risk, but rather some other factor in the situation that is eliciting discomfort. Moreover, asking women when they would leave a situation also may not measure risk perception adequately, as women could be sensitive to risk cues but still decide not to leave the situation. For example, women may choose to remain in risky situations because of competing goals and concerns, such as worries over damaging the relationship with the man or being seen poorly by others if something untoward were to occur (Nurius & Norris, 1995). This cost-benefit analysis may be especially salient in ambiguous situations (Meadows, Jaycox, Webb, & Foa, 1996). There are also important limitations to the use of response latency as a measure of risk perception. Increased response latency could be the result of cognitive processes other than impaired risk perception. The task requires women to assess the situation, which involves processes such as perception and interpretation, and to make a judgment about her future behavior, which involves processes such as decision making.

Accurately perceiving risk likely involves multiple specific cognitive processes, but the methodologies used to date have been too imprecise to differentiate among them (Yeater, Treat, Viken, & McFall, 2010). In order to investigate these cognitive processes more precisely, researchers must use more sophisticated methods. For example, response differences observed in previous research between victimized and nonvictimized women could be due to difficulty perceiving risk in certain situations or to an overall tendency to view situations as less risky (or to both processes). One way to distinguish between these processes is through the use of signal detection theory (Green & Swets, 1966). Signal detection theory enables researcher to distinguish between two distinct processes: perceptual sensitivity and decisional bias. Perceptual sensitivity is the ability to distinguish categories of stimuli, while bias is the point at which one separates two categories (Treat et al., 2001). In the case of judgments regarding sexual victimization risk, sensitivity is the ability to distinguish between levels of risk, and decisional bias was the threshold at which women determined situations to be high risk (Yeater et al., 2010).

The current sexual victimization literature also has been limited by the use of stimuli and measures that may not best identify and investigate specific cognitive processes. For example, some researchers have used only one or two high-risk stimuli to assess women's risk perception (e.g., Norris et al., 1999; Soler-Baillo, et al., 2005; Wilson et al., 1999). Consequently, it is unknown whether difficulties with risk perception, if present, are specific to high risk sexual situations, or whether they occur across situations that differ with respect to sexual risk. Indeed, researchers have called for the use of low-risk scenarios in risk perception studies to assess whether women at risk for sexual victimization evidence similar responses to low-risk and high-risk situations (Gidycz, et al., 2006). A similar approach, termed "stimulus sampling," also has been advocated in social psychological research. Stimulus sampling involves the use of multiple examples of a stimulus category to assess a construct of interest, a method thought to be necessary when instances in the category may vary in ways that are likely to affect the dependent variable (Wells & Windschitl, 1999). While some researchers in the area have utilized high and low-risk situations (e.g., Rinehart

& Yeater, 2012; Yeater et al., 2010; Yeater et al., 2009; Yeater et al., 2006), it is still a relatively infrequent approach in the literature. One way to improve the study of sexual victimization is the incorporation of strong cognitive theory and the development of stimuli and methodology in keeping with that theory. A discussion of such an approach is presented in the following section.

Hybrid Model

Hybrid models of cognitive and clinical psychology may be one way to increase the use of cognitive theory and methodology in studying sexual victimization (e.g., MacLeod, 1993; McFall & Townsend, 1998; McFall, Treat, & Viken, 1997, 1998; Treat & Dirks, 2007; Treat et al., 2001; Treat et al., 2007; Viken et al., 2002). This review provides only a brief overview of how hybrid models have been developed and utilized in order to illustrate how such approaches may prove useful in the study of sexual victimization, as there are several excellent comprehensive reviews of the integration of clinical and cognitive science available (McFall & Townsend, 1998; McFall et al., 1998; Treat & Dirks, 2007). The guidelines presented below are not the only appropriate guidelines, but they are comprehensive, flexible, and grounded in scientific theory. Applying a sound hybrid model of cognitive and clinical psychology benefits both clinical and cognitive psychologists; clinical psychologists can benefit from the methods and theoretical models of cognitive psychologists and cognitive psychologists can benefit from the application of models and methods to real-world clinical problems (McFall et al., 1998).

For example, clinical researchers have utilized cognitive science methods to better understand the attentional processes of women with bulimic symptoms, providing insights not necessarily attainable thorough the use of traditional clinical methods (Viken et al., 2002). Clinical researchers also have used these methods to better understand cognitive processes associated with men's sexually aggressive behavior (Farris, Viken, Treat, & McFall, 2006; Farris, Treat, & Viken, 2010; Treat et al., 2001). Two of the major components of a hybrid model include using theory to conceptualize cognitive processes underlying clinical problems in the context of a larger cognitive model and developing and utilizing tasks appropriate for answering clinical questions (McFall et al., 1998).

Developing a Theory

First, it is important for researchers to focus on understanding and formulating cognitive theories (MacLeod, 1993; McFall & Townsend, 1998; McFall et al., 1998). A good cognitive theory (like all good theoretical models) must be constructed based on sound data with good construct validity, and it must make specific predictions and be falsifiable (MacLeod, 1993). Theories should also be able to make specific predictions about behavior more accurately than existing models and provide predictive value (MacLeod, 1993; McFall et al., 1997; McFall et al., 1998). When clinical psychologists choose cognitive models to conceptualize a clinical behavior of interest, it is also important that they understand how their construct of interest is defined and how it fits into a model before applying it to their own research. The theoretical model then should drive the choice of methodology.

McFall's (1976, 1982) social information processing (SIP) model is one theoretical model that has been used successfully to conceptualize cognitive processes underlying several clinical problems and to generate novel hypotheses regarding the role of these cognitive processes in clinical problems (e.g., Farris, Treat, Viken, & McFall, 2008; Farris et al., 2010; Treat et al., 2001; Viken et al., 2002). This model is comprehensive, because it describes the processes at every stage of information processing from reception of sensory information to performance and self-evaluation of specific behaviors. This allows researchers to understand why and how a person behaves in specific situations, as well as to predict how they might behave in similar situations in the future. The model has three main stages: (a) a decoding skills stage, (b) a decision skills stage, and (c) an enactment skills stage. These stages often occur automatically and rather quickly (McFall, 1982).

The first stage, the decoding stage, occurs when one receives, perceives, and interprets information from the environment. The decoding stage includes many processes familiar to cognitive psychologists, such as sensory perception, attention, and short-term memory (McFall, 1982). The decoding stage also includes interpretation, in which one interprets the information they have received from the environment. In a sexually risky situation, processes related to risk perception would be expected to map onto the decoding stage of the SIP. In the second stage, the decision skills stage, one uses information from the decoding stage to inform a decision about how to behave in the situation. In this stage, one searches for possible responses, tests whether each response is appropriate, chooses the best response, decides whether she is capable of the executing the response, and weighs the costs and benefits of the chosen response to determine whether she will carry it out (McFall, 1982).

The final stage is the enactment skills stage, in which one executes the chosen behavior and monitors whether the response has been successful at solving the social task. These three main stages are not mutually exclusive; one could be engaged simultaneously in multiple stages. However, a problem at any stage of the model may impair one's ability to behave in a socially effective way (McFall, 1982). For example, a woman may perceive and interpret risk in a situation but be unable to generate an effective response to the situation, thereby increasing her risk for sexual victimization. She also may perceive and interpret risk in a situation, be able to generate an effective response to the situation, but be unable to effectively perform the chosen response. This also would presumably increase her risk for sexual victimization.

Developing Methods

It is also important to choose appropriate measures to test a model, and the selection of methods should follow from the underlying theory (McFall & Townsend, 1998, McFall et al., 1998; Meehl, 1973). In order to investigate the cognitive processes underlying women's risk for sexual victimization, it may be necessary to develop new stimuli and cognitive tasks. While cognitive psychologists often rely on a small set of simple, experimentally controlled stimuli, clinical psychologists often prefer more complex stimuli with increased ecological validity for their population of interest (Treat et al., 2007). Both experimental control and ecological validity are important when studying clinical problems such as sexual victimization; thus, researchers should ensure that stimulus sets are relevant to the

population of interest but still answer the experimental question with as little ambiguity as possible.

Toward this end, Treat and colleagues (2007) have provided guidelines for the development of stimulus sets for use in clinical cognitive studies. First, the stimulus set should vary on dimensions theoretically related to the behavior of interest while controlling for extraneous dimensions. Stimulus sets should be limited to no more than three or four dimensions, as any more make creating the stimulus set and analyzing the task results overly complicated. Researchers must also choose the best medium for presenting the dimensions of interest. For example, in a study of attention in sexually aggressive men, the stimulus set was a series of photographs of women, and the dimensions of interest were the exposure (whether her dress was modest or revealing) and what emotion she was expressing (e.g., friendly or angry; Treat et al., 2001). While Treat et al. usually use photographs, they suggested that words, vignettes, audiotapes, or videotapes may also prove useful. However, it is important to consider the balance of ecological validity and experimental control when choosing a medium; for example, while photographs provide much ecological validity, researchers must take extra care to control the photos for the dimensions of potential interest (e.g., emotion) and eliminate the presence of irrelevant dimensions as much as possible.

Next, it is important to gather normative ratings of several dimensions for the set. For example, Treat, McFall, Viken, and Kruschke (2001) had undergraduate men rate the photographs of women on a number of dimensions, such as attractiveness, mood, and activity level. These data also allow researchers to determine whether these dimensions are independent of one another and whether the stimuli represent a wide range of these dimensions. While this can be tedious, it is important in determining the construct validity of the stimulus set and in creating standards against which later ratings of the stimulus set can be compared (Treat et al., 2007). Normative ratings may also help researchers determine whether stimulus sets are appropriate for use with culturally diverse populations.

Studies of cognitive processes underlying women's sexual victimization could benefit from the rigor of developing stimulus sets that represent a balance of ecological validity and experimental control, and which vary along the dimensions of interest and limit extraneous dimensions. By developing appropriate stimulus sets, researchers may be able to determine whether women's processing of risk in situations is influenced by other aspects of stimuli, such as the attractiveness of a man in a situation. These stimulus sets then may allow for a more hybrid approach to studying clinical problems.

Studies Utilizing a Hybrid Approach

A hybrid, or cognitive clinical science, approach has been used to address a variety of clinical problems (e.g., Farris et al., 2010; Farris et al., 2006; Treat et al., 2001; Viken et al., 2002), often yielding insights unique from those gained through the use of traditional clinical methods. One area related to sexual victimization in which a cognitive clinical science approach has been successfully utilized is the study of SIP and men's sexual aggression (Farris, et al., 2010; Farris et al., 2008; Farris et al., 2006; Treat et al., 2001). Each of these studies utilized sophisticated approaches borrowed from cognitive science, such as signal detection theory (Green & Swets, 1966). In one excellent example of this

approach, Treat et al. (2001) examined the relationship between men's self-reported history of sexually coercive behavior and their perceptions of women's affect and physical exposure. The stimulus set used in the study consisted of 26 photographs of women that varied on affect (positive and negative) and exposure (whether dress was modest or revealing), dimensions hypothesized to be related to sexual aggression (Treat et al., 2001). Undergraduate men completed a perceptual organization task in which they were presented with all possible pairs of 14 of the photographs and asked to rate the similarity of each pair. Men who rated women as similar to each other based more on affect than exposure were identified as having an affect-oriented (AO) processing style, while men who rated women as similar to each other based more on exposure than affect were identified as having an exposure-oriented (EO) processing style.

Then, they completed an implicit categorization task in which they were asked to view photographs of women and judge whether each woman had an unnamed characteristic. Participants were given random feedback about their performance following each block of photographs in order to evaluate their spontaneous responses to the stimuli. Finally, participants completed learning tasks designed to evaluate how accurately men were able to learn a category structure (i.e., whether they could learn to categorize photographs based on affect or exposure) and determine whether they were able to learn categories that were either congruent or incongruent with their processing styles (i.e., AO or EO). In these tasks, men again viewed the photographs and were asked to indicate whether the woman had an unknown characteristic. This time, however, they were given accurate feedback following each photograph (i.e., whether the category had been accurately identified). Half of the men were provided with feedback based on affect, and half were provided with feedback based on exposure (Treat et al., 2001).

All of the men, regardless of their attentional style, learned the exposure category structure more quickly than the affect category structure. However, learning was faster for each group in the condition that was congruent with their attentional style (i.e., AO participants performed better on the affect category structure, and EO participants performed better on the exposure category structure). These results suggested that men who attend more to exposure than to affect may have difficulty interpreting women's negative reactions to their advances and thus have difficulty understanding when they should discontinue these advances (Treat et al., 2001).

Farris, Viken, Treat, and McFall (2006) used a similar approach to study the relationship between men's perception of women's affect and propensity for sexual aggression. The authors utilized a set of 70 photographs of undergraduate women that varied in affect (sexually interested, friendly, rejected, and sad) and clothing style (provocative or conservative). Men were asked explicitly to identify each photograph as belonging to one of the affective categories and to complete measures of rape myth acceptance and sexual aggression. The authors examined participants' sensitivity to affect (ability to discriminate between women's sexual interest and friendliness), positive affect bias (tendency to categorize positive affect as sexual interest rather than friendliness), and negative affect bias (tendency to categorize negative affect as rejection rather than sadness or withdrawal). Results indicated that men with a higher propensity for sexual aggression were less sensitive

to women's affect than men with a lower propensity for sexual aggression. This was particularly true when the women's affect was incongruent with their style of dress, such as when a provocatively dressed woman was expressing rejection, or a conservatively dressed woman was expressing sexual interest. These findings are particularly interesting, given that previous research (Abbey, McAuslan, & Ross, 1998) positing the importance of sexual misperception in sexual violence was unable to identify which specific cognitive processes might be responsible for such misperception (Farris et al., 2006).

The cognitive science methods used in each of these studies allowed these researchers to investigate specific cognitive processes in depth, and in doing so, identify deficits that could potentially inform the development of preventative interventions. This would not have been possible using commonly utilized methodologies such as self-report questionnaires, as it is unlikely that participants would be able to identify the cognitive processes underlying their own perception and action. The unique stimulus sets developed in these studies also allowed researchers to investigate cognitive processes in ways not possible with existing stimuli.

Using a Hybrid Approach to Study Cognitive Processes Underlying Risk for Sexual Victimization

There are several elements of the cognitive theories and methodologies used by Treat et al. (2001) and Farris et al. (2006, 2010) that could be applied to the study of sexual victimization. First, the research was grounded within a strong theoretical framework. This allows researchers to formulate specific, falsifiable hypotheses and derive appropriate methods for testing these hypotheses. Second, the stimulus sets have normative ratings, something not often seen in the study of sexual victimization. This allows researchers to determine whether stimuli vary along dimensions of interest and have strong construct validity and to examine whether individuals' ratings of stimuli differ from normative ratings. Third, the tasks had an implicit component that reduces experimental influence on natural cognitive processes. Thus far, researchers in the sexual victimization literature primarily have utilized explicit tasks, which are appropriate for answering some research questions, but potentially limit the applicability of some findings to real-life situations by influencing attentional processes. Finally, the tasks allowed researchers to investigate specific cognitive processes (e.g., perceptual organization), allowing for more precise and accurate conclusions regarding where potential problems in processing might occur. Identifying these specific processes may allow researchers to tailor prevention programs to target individuals who demonstrate problems with these processes.

One study of cognitive processes in sexually victimized and nonvictimized women utilized many methods similar to those used in the above-mentioned studies (Yeater et al., 2010). The authors used vignettes designed to depict a variety of problem situations that undergraduate women are likely to face when dating or interacting socially with men (Yeater, McFall, & Viken, 2011; Yeater et al., 2009; Yeater et al., 2006). The situations are all ambiguous, meaning that each of the vignettes ends before sexual victimization occurs. The vignettes also were designed to represent the full range of two separate dimensions: *sexual victimization risk* (the likelihood of the woman in the situation having an unwanted

sexual experience) and *popularity impact* (how likely the woman's behavior in the situation is to affect her social acceptance or popularity). These factors were chosen because both risk perception and a heightened emphasis on social acceptance are thought to be related to risk for sexual victimization (e.g., Messman-Moore & Brown, 2006; Norris et al., 1996; Turchik, Probst, Chau, Nigoff, & Gidycz, 2007; Wilson et al., 1999; Yeater et al., 2010). Specifically, researchers have posited that aspects of a potentially risky situation, such as the fear of losing a relationship with the man, may prevent women from accurately perceiving risk in that situation or lead them to respond less effectively (Norris et al., 1996; Nurius & Norris, 1995; Turchik et al., 2007; Yeater et al., 2010).

These vignettes improve upon stimulus sets used in previous studies on women's risk perception in a variety of ways. First, the stimuli represent a spectrum of events, rather than the one or two vignettes often utilized in previous studies, providing a better sample of situations from which to draw inferences about women's information processing. Additionally, these stimuli have well-established norms for sexual victimization risk and popularity impact. These normative ratings are important because they allow researchers to ensure that the vignettes vary along the dimensions of interest and they provide a standard by which to compare participants' judgments of and responses to the stimuli.

Yeater, Treat, Viken, and McFall (2010) used these vignettes to investigate cognitive processes underlying women's sexual victimization risk judgments. One hundred and ninety-four undergraduate women completed three tasks: (a) an implicit prototype classification task assessing their relative attention to victimization risk versus popularity impact; (b) a category learning task assessing their ability to implicitly learn to categorize situations based on risk-relevant or popularity impact-relevant information; and (c) an explicit risk classification task in which women judged the situations as either high or low risk.

In the prototype classification task, participants read two of the four prototype vignettes representing the dimensions of interest (i.e., high victimization risk, low popularity impact and low victimization risk, and high popularity impact). They then viewed a series of 24 vignettes and classified each one as more like one of the two prototypes, without being provided with explicit instructions regarding the basis on which they should make their classifications. Participants then read the other two prototype vignettes (i.e., high victimization risk, high popularity impact and low victimization risk, and low popularity impact) and repeated the task with a unique set of 24 vignettes. In the category learning task, participants were assigned randomly to learn, without their knowledge, either the sexual victimization risk or popularity impact category structure. Participants classified 16 vignettes as either more like Category V or Category N (the letters were assigned arbitrarily). After each choice, participants received feedback about whether their classification was correct or incorrect. Feedback was based on the norms for either sexual victimization risk or popularity impact. Participants completed four blocks of the categorization task.

In the explicit categorization task, participants were asked to classify each of 71 vignettes as either high or low risk in terms of having an unwanted sexual experience (i.e., one the woman would feel bad about, be hurt by, or regret later). Applying a signal detection theory approach (Green & Swets, 1966), Yeater et al. (2010) used these explicit ratings to

differentiate between sensitivity and decisional bias for each participant. Sensitivity was the ability to distinguish between levels of risk, and decisional bias was the threshold at which women determined situations to be high risk. After finishing the three tasks, participants completed the Sexual Experiences Survey (Koss et al., 1987) to assess their history of sexual victimization, and the Rape Myth Acceptance Scale (; Burt, 1980) to assess the degree to which they agree with common misconceptions about rape.

Results revealed that women with more severe victimization histories, relative to women with less severe victimization histories, had a higher threshold for judging situations as risky and were less sensitive to victimization risk information and more sensitive to popularity impact information when making explicit risk judgments. Women with more severe victimization histories also relied more on popularity impact information when explicitly judging risk. Additionally, women higher in rape myth acceptance relied less on victimization risk information when making risk judgments than women lower in rape myth acceptance.

Performance on the two implicit tasks also influenced information processing. Women who spontaneously attended more to risk information in the prototype classification task were more sensitive to risk information in the explicit judging task. Additionally, women assigned to learn the risk category in the learning task were more likely to rely on risk information in the explicit rating task, while women who were assigned to learn the popularity impact category were more likely to rely on popularity information when explicitly judging risk. Thus, women were more sensitive to information congruent with the category they were assigned to learn.

By using methods that distinguish between sensitivity and bias, this study improves upon past research by providing a more thorough understanding of the cognitive processes that may explain observed differences in risk judgments between victimized and nonvictimized women. These findings suggest that researchers might consider both of these processes (i.e., sensitivity and decisional bias) when developing prevention programs and interventions for previously victimized women. For example, women's thresholds for risk might be changed by providing them with feedback about their risk based on their current dating and social behaviors. Additionally, evidence suggests that women's sensitivity to risk-relevant information can be increased through learning tasks, such as the ones utilized by Yeater and colleagues (2010). Such specific and individually tailored intervention programs could prove useful in helping women decrease their risk of victimization.

Conclusions and Future Directions

While researchers have begun to highlight the role of cognitive processes within the sexual risk perception literature, they have not always incorporated these processes into a comprehensive cognitive model or investigated them with enough precision or depth. In keeping with cognitive science studies of clinically relevant problems (e.g., Treat et al., 2001; Farris et al., 2010; Farris et al., 2006), researchers might consider using cognitive models as a framework for explaining and predicting women's risk for victimization. One model that has shown promise in the sexual victimization literature is the SIP model

(McFall, 1982). This model is not the only one that could be used to study sexual victimization; it is simply one theoretical approach that has been used successfully to conceptualize and evaluate cognitive processes underlying a number of clinical problems (e.g., Treat et al., 2001; Viken et al., 2002). There are conceivably other models that might illuminate specific cognitive processes underling women's risk for sexual victimization. In addition, other factors, such as problems with emotion regulation, may provide another perspective for understanding women's risk. Indeed, research has shown that difficulty regulating emotions is linked to women's evaluations of and reactions to risky situations (e.g., Walsh, DiLillo, & Messman-Moore, 2012). Although the SIP considers cognitive processes upstream from and antecedent to emotions, emotions are not considered unimportant, as they feed back into the construal processes in the model, and consequently influence subsequent cognitive processes.

Selection of a comprehensive cognitive model may then drive the development of stimuli and tasks appropriate for answering the research question of interest. Such stimulus sets should be carefully constructed and include a variety of stimuli that represent dimensions of interest in order to strengthen both construct and ecological validity (Wells & Windschitl, 1999). For example, using the SIP as a theoretical framework, researchers have developed a variety of stimulus sets including photographs and written vignettes (e.g., Farris et al., 2008; Treat et al., 2001; Yeater et al., 2010). Other types of stimuli, such as words, audiotapes, or videotapes, may also be applied to the study of clinical problems (Treat et al., 2001). One stimulus set that has been used in the sexual victimization research area that has attempted to meet such criteria are the vignettes used by Yeater and colleagues (e.g., Rinehart, 2012; Rinehart & Yeater, 2012; Yeater et al., 2006; Yeater et al., 2009). These stimulus sets have also been used in a variety of different tasks that measure processes such as perceptual organization, implicit categorization, category learning, or explicit rating tasks to investigate clinical problems. Other tasks also may prove useful in evaluating the cognitive processes underlying women's risk for sexual victimization.

An example of using photographic stimuli comes from a recent study by Rinehart and Yeater (2012), in which researchers utilized photographs of undergraduate men to determine whether the attractiveness of the man in a situation affected women's sexual risk perception (Rinehart & Yeater, 2012). Although the dimensions relevant to sexual victimization are likely varied and somewhat ambiguous, attractiveness of the man was chosen because previous research indicated that women overrely on physical attractiveness when evaluating the coerciveness of a man's behavior (Carter, Hicks, & Slane, 1996). The attractiveness of the man was not thought to be an indicator of his propensity for sexual aggression, but rather a factor that might compete with women's ability to evaluate risk. Women were asked to read high and low-risk vignettes paired with photographs of attractive or unattractive men and rate the risk of sexual victimization in each situation. Results indicated that the relationship between attractiveness and risk perception varied across high and low-risk situations and that women with more liberal sexual attitudes rated vignettes overall as less risky than women with more conservative sexual attitudes (Rinehart & Yeater, 2012).

Risk perception is one of the most cognitively influenced areas of sexual victimization research, but previous results generally have been inconclusive due to difficulties

conceptualizing and measuring risk perception; problems that may be ameliorated by the implementation of cognitive theory and methodology. In fact, research that has targeted specific cognitive processes underlying sexual victimization using sound cognitive theory and methodology has identified clear deficits in elements of risk judgments (Yeater et al., 2010). Other processes, such as memory or decision making also may add to the integration of cognitive theory and methodology in the study of sexual victimization.

In one example of research that examines other cognitive processes in the context of sexual victimization, women read vignettes and chose the response they felt they would give in each scenario. Responses varied in degree of response refusal or acquiescence (Yeater & Viken, 2010). Results indicated that women with severe victimization histories chose more acquiescent responses than nonvictimized women (Yeater & Viken, 2010). If women respond similarly in real-life situations, then their risk of being sexually victimized may likely increase (Yeater et al., 2011). Factors that may influence these cognitive processes, such as perspective, sexual attitudes and beliefs, and alcohol use, may also provide useful avenues for future investigation. It also may be useful in future research to determine how long specific cognitive processes take by measuring response latency.

While the integration of cognitive theory and methodology in clinical psychology, particularly in the study of sexual victimization, is still relatively recent, there already have been advances in the understanding of many types of clinical problems. Collaboration between clinical psychologists and cognitive psychologists creates an intellectual synergy that allows us to create a shared understanding of cognition and the processes of interest to both cognitive and clinical psychologists, such as attention, category learning, and memory. This collaboration should be characterized by a commitment to utilizing theories and methods with sound scientific merit. Such collaboration promises to illuminate the processes underlying clinical problems such as sexual victimization.

Acknowledgments

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship and/or publication of this article: Parts of this manuscript were supported by grants from the National Institute of Mental Health (T-32MH018834 to Nicholas S. Ialongo).

Author Biographies

Jenny K. Rinehart, Ph.D. is a postdoctoral fellow in the Department of Mental Health at the Bloomberg School of Public Health at Johns Hopkins University. Her research focuses primarily on the prevention of sexual harm across the lifespan, examining the cognitive and affective factors underlying victimization and the social and contextual features surrounding sexual victimization.

Elizabeth A. Yeater, PhD is an associate professor of psychology at the University of New Mexico. Her research focuses on understanding the processes involved in the sexual victimization and revictimization of women using a social information processing model as a general framework and methods borrowed from cognitive science.

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Implications for Practice, Policy, and Research

- Research examining cognitive processes underlying sexual victimization has been limited by a lack of comprehensive cognitive models and the use of stimuli and tasks that do not allow for a detailed examination of specific cognitive processes.
- A hybrid cognitive clinical approach to the study of cognitive processes underlying sexual victimization such as risk perception may allow researchers to identify and understand specific cognitive processes with more depth than previous research. This hybrid approach calls for the utilization of comprehensive cognitive models, the development of well-normed stimuli, and the application of cognitive tasks.
- Identification of specific cognitive processes underlying sexual victimization through the use of a cognitive clinical approach may allow researchers to address deficits in such processes in interventions, aiding in more effective prevention of sexual victimization and associated negative outcomes.

Table 1.

Summary of Sexual Risk Perception Study Findings.

Stimulus type	Study	Stimulus description	Measure of risk perception	Outcome
Audiotaped vignette	Wilson, Calhoun, and Bernat (1999)	The man's behavior becomes increasingly coercive, and the woman's verbal resistance becomes increasingly forceful (Marx & Gross, 1995)	Indicated when the man had "gone too far"	Revictimized women showed longer response latencies than nonvictimized or singly victimized women
	Soler-Baillo, Marx, and Sloan (2005)	Marx and Gross (1995) audiotaped vignette	Indicated when the man had "gone too far"	Victimized women had longer response latencies than nonvictimized women
Written vignettes	Marx, Calhoun, Wilson, and Meyerson (2001)	Marx and Gross (1995) audiotaped vignette	Indicated when the man had "gone too far"	Treatment and control groups did not differ in their response latencies
	Meadows, Jaycox, Orsillo, and Foa (1997)	Ambiguous scenarios varying in degree of threat	Women indicated when they felt uncomfortable and when they would leave the situation	Victimized women took longer to say they would leave the situation than nonvictimized women but weren't more uncomfortable
	Cue, George, and Norris (1996)	Scenario varying in the man's attitudes, the beverage consumed, and the perspective	Women rated how likely the man was to engage in various sexually aggressive behaviors	Women were more likely to predict rape when the man displayed rape-congruent attitudes and when the scenario was third person. No effect of victimization history
	Norris, Nurius, and Graham (1999)	Two identical scenarios varying in whether it was a first date or a fifth date.	Women rated how they would react to nine different risk factors	Victimized women needed higher levels of ambiguous risk factors than nonvictimized women to report feeling "on guard"
	Messman-Moore and Brown (2006)	Two scenarios based on Meadows et al. (1997) ending in forced sexual intercourse, with different perpetrators and settings	Women indicated when they felt uncomfortable and when they would leave the situation	Adult-only victims reported leaving both situations later than nonvictims and leaving acquaintance situations later than child-only victims
Videotaped vignettes	Yeater and O'Donohue (2002)	One stranger and one acquaintance situation	Women wrote down each of the risk factors in the scenarios	Singly victimized women took longer to learn to identify risk than nonvictimized or revictimized women
	VanZile-Tamsen, Testa, and Livingston (2005)	Four identical scenarios with four different male relationships	Women explicitly rated how risky each situation was in terms of the man engaging in sexually coercive behaviors	No differences in risk ratings among victimization groups
	Naugle (2000)	Three different ambiguous scenarios		Victimized women rated scenarios as riskier than nonvictimized women
	Breitenbecher (1999)	A segment from either a romantic movie or an educational film	Women listed anything in the video that would make them feel uncomfortable	Victimization history was unrelated to number of uncomfortable factors named