

Journal of Interpersonal Violence

<http://jiv.sagepub.com/>

Lifetime Sexual Victimization and Poor Risk Perception: Does Emotion Dysregulation Account for the Links?

Kate Walsh, David DiLillo and Terri L. Messman-Moore

J Interpers Violence published online 30 April 2012

DOI: 10.1177/0886260512441081

The online version of this article can be found at:

<http://jiv.sagepub.com/content/early/2012/04/09/0886260512441081>

Published by:



<http://www.sagepublications.com>

On behalf of:

[American Professional Society on the Abuse of Children](#)

Additional services and information for *Journal of Interpersonal Violence* can be found at:

Email Alerts: <http://jiv.sagepub.com/cgi/alerts>

Subscriptions: <http://jiv.sagepub.com/subscriptions>

Reprints: <http://www.sagepub.com/journalsReprints.nav>

Permissions: <http://www.sagepub.com/journalsPermissions.nav>

>> [OnlineFirst Version of Record](#) - Apr 30, 2012

[What is This?](#)

Lifetime Sexual Victimization and Poor Risk Perception: Does Emotion Dysregulation Account for the Links?

Journal of Interpersonal Violence

XX(X) 1–18

© The Author(s) 2012

Reprints and permission:

sagepub.com/journalsPermissions.nav

DOI: 10.1177/0886260512441081

http://jiv.sagepub.com



Kate Walsh,¹ David DiLillo,¹
and Terri L. Messman-Moore²

Abstract

The present study examined whether and which facets of emotion dysregulation serve an intervening role in the association between prior victimization and risk perception in an analogue sexual assault vignette. Participants were 714 university women who completed self-report measures of sexual victimization, emotion dysregulation, and a computer-administered written vignette of a college party scene that culminates in acquaintance rape. Approximately 42% of the sample reported lifetime sexual victimization during childhood, adolescence, or adulthood. Two individual aspects of emotion dysregulation, limited access to emotion regulation strategies and impulse control difficulties, mediated the association between lifetime victimization and leaving the scenario later. Findings suggest the importance of emotion dysregulation in predicting risk perception among victims and of improving victims' emotion regulation skills in revictimization risk reduction interventions.

Keywords

sexual abuse, sexual risk recognition, emotion dysregulation

¹University of Nebraska–Lincoln, Lincoln, NE, USA

²Miami University, Oxford, OH, USA

Corresponding Author:

Kate Walsh, PhD, NIH Postdoctoral Fellow & Research Associate, Medical University of South Carolina, 67 President St., Charleston, SC 29412, USA

Email: walsk@musc.edu

Sexual assault is an endemic societal problem associated with sequelae such as anxiety, depression, posttraumatic stress disorder (PTSD), substance abuse, interpersonal difficulties, and serious health problems, including HIV (Filipas & Ullman, 2006). University women represent an important population in which to study sexual assault as approximately 15% to 20% of college women report experiencing a rape or attempted rape during childhood, adolescence, or adulthood (Brener, McMahon, Warren, & Douglas, 1999). Given these high prevalence rates, researchers have begun to explore factors that may increase risk for sexual victimization. Although the responsibility for an assault is the perpetrator's alone, understanding how victim variables might contribute to sexual assault risk may illuminate important avenues for prevention work. One such variable is the inability to recognize risk cues in dangerous interpersonal situations (Soler-Baillo, Marx, & Sloan, 2005; Wilson, Calhoun, & Bernat, 1999). Often referred to as "risk recognition," prospective data suggest that women who are poor at recognizing sexual risk are more likely to experience subsequent sexual victimization (Marx, Calhoun, Wilson, & Meyerson, 2001). In addition to identifying risk, self-protection also hinges on *responding* to perceived threat in a way that will help avert assault (e.g., by attempting to leave the situation). Prospective studies indicate that women who report they would stay longer in a risky sexual situation are more likely to actually experience a later sexual assault (Messman-Moore & Brown, 2006).

Sexual Victimization and Poor Risk Perception

Although factors that contribute to poor risk perception have not been fully delineated, some studies suggest that a history of sexual victimization may hinder later risk detection. For example, college women with prior sexual victimization experiences take longer to detect risk during analogue sexual victimization scenarios (Soler-Baillo et al., 2005; Wilson et al., 1999). At the same time, a number of researchers have found that women with sexual victimization histories do not take longer to detect sexual risk but rather engage in less adaptive defensive responses once risk has been identified (i.e., leaving a risky situation later; VanZile-Tamsen, Testa, & Livingston, 2005). In light of these findings, researchers have examined mechanisms that may account for the associations between prior sexual victimization and later risk detection and responses. Psychopathology stemming from the early abuse, such as PTSD, has been the most commonly studied factor associated with risk detection difficulties (e.g., Wilson et al., 1999). However, a relatively

small proportion (only 10%-15%) of undergraduate women meet the diagnostic criteria for PTSD (Borsari, Read, & Campbell, 2008). Furthermore, although PTSD symptoms are related to risk recognition problems, they do not explain links between past victimization and risk detection difficulties (Wilson et al., 1999).

Emotion Dysregulation and Poor Risk Perception

Emotional difficulties emanating from early trauma exposure may hinder subsequent risk perception. Conceptualized as a multifaceted construct, emotion dysregulation involves problems identifying, labeling, and expressing one's emotional experiences (Feldman Barrett, Gross, Christensen, & Benvenuto, 2001), pursuing goal-directed behaviors in the face of emotional distress (Linehan, 1993), accepting one's own emotional responses (Gratz & Roemer, 2004), and using adaptive regulatory strategies for a specific situation (Gross & Thompson, 2007). Researchers theorize that uncontrollable and unpredictable child sexual abuse (CSA) experiences may undermine the development of adaptive emotion regulation by triggering conditioned and unconditioned emotions such as fear and arousal (Marx, Heidt, & Gold, 2005). Furthermore, abusive caregivers may not always model appropriate regulation of negative affect (Wenzlaff & Eisenberg, 1998), imparting CSA survivors with few available skills to manage their own distress. Researchers also have theorized that victims rely on emotionally avoidant strategies (e.g., numbing) and behaviors (e.g., substance abuse) to manage abuse-related distress (Polusny & Follette, 1995). Indeed, sexually abused children appear to have less understanding of emotion and more inhibition of negative emotions, use fewer emotion words when describing negative experiences, and display greater affective lability when compared to nonabused children (Shields & Cicchetti, 1998). These difficulties have been shown to extend into adulthood as well. Specifically, adult women with a history of CSA report greater difficulty identifying and regulating emotional states, more problems accepting their emotions, and increased experiential avoidance (i.e., chronic attempts to avoid unpleasant internal states) when compared to nonvictimized women (e.g., Batten, Follette, & Aban, 2001; Cloitre, Miranda, Stovall-McClough, & Han, 2005). Adult sexual assault also is associated with emotion-related difficulties such as heightened experiential avoidance (Boesch, Koss, Figueredo, & Coan, 2001) and alexithymia (i.e., the inability to identify and label emotional states; Zeitlin, McNally, &

Cassiday, 1993). Despite evidence that sexual victimization may increase difficulties with emotion regulation, few studies have considered how emotion dysregulation might contribute to risk for subsequent victimization through poor risk responding.

Emotion Dysregulation as a Mechanism Relating Victimization to Poor Risk Perception

Emotion dysregulation not only has been associated with past victimization but also has been linked theoretically to poor sexual risk recognition (Marx et al., 2005), which supports its role as a possible mediator in this association. Specifically, women who are focused internally on managing emotional distress may have fewer resources available to recognize and respond adaptively to environmental risk cues. Marx and colleagues hypothesize that heightened negative affect coupled with poor emotion regulation abilities may signal vulnerability to perpetrators, impair accurate risk detection, and impede effective defensive behavior. For instance, those who have difficulty understanding and distinguishing between emotional states may be less able to identify feelings of discomfort that could signal a need to escape the situation. Similarly, women who endorse negative secondary appraisals of emotions (e.g., feeling angry, guilty, or ashamed) while distressed may be less willing to acknowledge and use primary emotions (i.e., fear and distress) as cues that signal a need to escape. These difficulties may lead women to stay in a risky situation, increasing risk for sexual assault through prolonged contact with a perpetrator. Although researchers have yet to explore the role of various facets of emotion dysregulation in sexual risk detection specifically, recent findings suggest that poor emotion regulation is associated with increased general risk taking (Magar, Phillips, & Hosie, 2008) and sexual revictimization (Walsh, DiLillo, & Scalora, 2011).

The Present Study

In light of considerable evidence linking sexual victimization and emotion dysregulation, and theory supporting the role of emotion dysregulation in hindering risk detection, the goal of the present study was to examine emotion dysregulation as a mechanism accounting for the relationship between sexual victimization and sexual risk perception. Consistent with this notion, we formulated the following hypotheses:

Hypothesis 1: Positive associations will emerge between lifetime sexual victimization (during childhood, adolescence, and/or adulthood), several dimensions of emotion dysregulation (nonacceptance, clarity, and limited access to emotion regulation strategies), and poor risk perception (i.e., leaving an analogue sexual risk scenario later).

Hypothesis 2: Given that emotion dysregulation has yet to be examined in relation to risk perception, several aspects of emotion dysregulation were examined as potential independent mediators of the association between lifetime victimization and poor risk perception (i.e., leaving the scenario later).

Method

Participants

Participants were 714 undergraduate women recruited from a large public university in the Midwest. The mean age reported was 19.7 years ($SD = 1.9$, range = 17-30). The ethnic composition of the sample was as follows: 75.5% European American, 5.2% African American, 7.4% Hispanic/Latina, 7.8% Asian, 1.0% Native American, 0.6% Hawaiian/Pacific Islander, and 4.5% Other. Most participants (92.6%) had never been married, but 2.4% were married, 4.5% were cohabitating, and 0.5% were divorced or separated. Regarding average household income while growing up, 11% reported US\$20,000 or less, 27% reported between US\$20,000 and US\$50,000, 28% reported US\$50,000 to US\$80,000, and 24% reported earning more than US\$80,000.

Measures

Lifetime sexual victimization. To maximize identification of sexually victimized women, two measures were used to assess sexual victimization occurring during childhood or adolescence (prior to age 18). First, the sexual abuse subscale of the Childhood Trauma Questionnaire (CTQ; Bernstein & Fink, 1998), which contains five Likert-type questions designed to assess sexual victimization experiences while growing up, was administered. Numerous investigations attest to the reliability and validity of scores on this measure (e.g., Bernstein, Fink, Handelsman, & Foote, 1994). The dichotomous victimization score (obtained via cutoff scores from the manual) was used to identify abuse victims in the present study (Bernstein & Fink, 1998). Alpha for the sexual abuse subscale in the present sample was .91.

Second, the sexual abuse subscale of the Computer-Assisted Maltreatment Inventory (DiLillo et al., 2010) was administered. In contrast to the CTQ, which uses factor-analytically derived subscales, the CAMI consists of three behaviorally specific screener questions followed by more detailed items that assess various dimensions of the victimization experience, including age at the time of abuse, specific acts that occurred, frequency and duration of the abuse, relationship to the perpetrator (e.g., family vs. nonfamily), and number of perpetrators involved. The CAMI employs a definition of CSA that includes sexual contact (excluding sex play/exploration) occurring before age 14 that involved force, occurred with an individual at least 5 years older, or occurred with a family member. Adolescent sexual abuse was defined as sexual contact (e.g., fondling or sexual touching, oral, anal, or vaginal sex) occurring between the ages of 14 and 18 that either involved force or occurred with an individual at least 10 years older. Because the CAMI consists of relatively independent sexual abuse severity indicators, coefficient alpha was not computed for this scale.

Women were classified as victims of child or adolescent sexual abuse if they endorsed victimization on either the CTQ or CAMI. Although the CTQ and CAMI overlap substantially, each measure also detects slightly different cases of victimization (DiLillo et al., 2006). Some participants may be more likely to endorse less ambiguous, behaviorally specific items on the CAMI, whereas others may feel uncomfortable acknowledging graphic details. Conversely, CTQ items require participants to label their experiences as “abusive,” which may be more or less difficult for participants. Thus, using both maximizes sensitivity in identifying victimization.

Finally, the Modified Sexual Experiences Survey (MSES; Messman-Moore & Brown, 2004), an expanded version of the Sexual Experiences Survey (SES; Koss & Gidycz, 1985), was used to assess rape since the age of 18. The MSES consists of 18 items assessing three types of unwanted sexual acts: sexual contact (kissing, fondling), oral–genital contact, and sexual intercourse (vaginal or anal). For each type of unwanted sexual act, participants were asked about different perpetrator tactics: arguments and pressure, misuse of authority, alcohol or drug intoxication, and physical force. Participants who reported oral sex, vaginal penetration, or anal sex when unable to consent or resist due to the use of alcohol or drugs or when a man threatened or used some degree of physical force were considered adult rape victims.

Emotion dysregulation. The Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004) is a 36-item self-report instrument that assesses overall emotion dysregulation as well as six factor-analytically-derived facets of emotion regulation: nonacceptance of emotional responses,

difficulties engaging in goal-directed behavior, impulse control difficulties, lack of emotional awareness, limited access to emotion regulation strategies, and lack of emotional clarity. The continuous subscale scores for each dimension of emotion regulation were used as mediators in the present study. *Non-acceptance* of emotional responses refers to the tendency to have negative secondary reactions to negative emotions (e.g., feeling angry about being sad). *Difficulties engaging in goal-directed behavior* encompasses problems concentrating on and completing tasks when experiencing distress. *Impulse control* problems refer to difficulties remaining in control of behavior when upset. *Lack of emotional awareness* reflects problems attending to and acknowledging emotions. *Limited access to emotion regulation strategies* refers to the belief that little can be done to effectively change emotions once upset. *Lack of emotional clarity* reflects to the ability to clearly identify the emotions one is experiencing. Participants respond to items on a 5-point scale anchored from 1 = *almost never* to 5 = *almost always*. Higher scores reflect greater emotion regulation difficulties. Construct validity is supported by findings that DERS scores are positively associated with measures of experiential avoidance and negatively correlated with measures of emotional expressivity (Gratz & Roemer, 2004). Prior studies also show the DERS to have good internal consistency and test-retest reliability for the subscales (Gratz & Roemer, 2004). In the current sample, alpha ranged from .83 to .90 for the subscales.

Risk perception. The Risk Perception Survey (RPS; Messman-Moore & Brown, 2006) is a written vignette describing a college party scene that culminates in forced rape by an acquaintance. The vignette includes both clear (sexual comments, verbal persuasion, and male persistence) and ambiguous (female and male alcohol consumption, physical isolation) risk factors for sexual victimization (see Appendix). The vignette contains 25 statements that become progressively riskier. Respondents were instructed to imagine that they were participating in each activity as it was described. Each statement was presented sequentially on a computer, and participants were instructed to press a button indicating one of four possible responses: continue in the scenario, uncomfortable and continue, leave, or uncomfortable and leave. A “leave” score served as the primary variable of analysis. This variable reflected the statement (screen) in the scenario at which the participant indicated she would leave or felt uncomfortable and would leave. For women who chose to “continue” all the way through the scenario, a leave score of 26 was assigned. Leave scores have been shown to predict rape and revictimization among college women during an 8-month follow-up period (Messman-Moore & Brown, 2006).

Procedures

Data were collected as part of a larger study of sexual victimization among female college students. Participants were recruited from undergraduate psychology classes using an online tool, *Experimetrix.com*, and received course credit for participating in a single laboratory session. After obtaining written informed consent, groups of three to six participants completed several computer-based questionnaires as part of a larger study of risk for sexual victimization. Individual computers were separated with cubicle dividers to ensure privacy for the completion of sensitive measures. The emotion dysregulation instrument was completed prior to the abuse-related measures and the risk perception vignette. All procedures were approved by the university's Institutional Review Board.

Results

Victimization Rates and Characteristics

Lifetime sexual victimization was assessed as a dichotomous variable. Specifically, participants who reported experiencing victimization during childhood/adolescence or adulthood (on the CAMI, CTQ, or SES, respectively), were classified as having experienced victimization; participants reporting no victimization on these measures were classified as nonvictims. Approximately 42% of the sample ($n = 302$) reported lifetime sexual victimization during childhood, adolescence, or adulthood. Of those individuals, 20.9% ($n = 63$) reported CSA only, 33.1% ($n = 100$) reported adolescent sexual victimization only, 22.8% ($n = 69$) reported adult sexual victimization only, and 23.2% ($n = 70$) reported revictimization (victimization during two or more of these developmental time periods). For women reporting lifetime sexual victimization, the mean CTQ sexual abuse score was 6.8 ($SD = 3.7$), which is considered in the moderate range of sexual abuse severity. Of the 196 women identified as victims on the CAMI, the majority (68%) reported one perpetrator, 16% reported 2, 7% reported 3, 5% reported 4, and 4% reported 5. Most perpetrators (76.4%) were not family members; however, 19% were nonparent family members, and 4.6% were parents. Approximately, 52% of CAMI victims reported sexual contact (but no penetration) as the most severe abusive act experienced, whereas 48% reported penetration. Forty-three percent of victims reported that their abuse lasted less than 1 year, 36% reported that it lasted 1 to 2 years, and 21% reported that it lasted more than 2 years. Approximately 36% of victims reported that the most severe act occurred once, 28% reported that it occurred between 2 and 10

times, and 36% reported it happened 11 or more times. In terms of level of force involved in the abuse, 73.4% of victims indicated that verbal tactics were used, 4% said threats of physical harm were used, and 23% reported that they were physically held down.

The mean number of alcohol/drug-related or forced adult sexual assault experiences, as assessed by the MSES, was 2.0 ($SD = 9.6$). For those reporting alcohol/drug-related rape ($n = 130$), 46.5% ($n = 60$) involved vaginal intercourse, 42.6% ($n = 55$) anal intercourse, and 41.9% ($n = 54$) oral sex. Percentages do not sum to 100 because acts were not mutually exclusive. For those reporting a forcible rape experience ($n = 55$), 54.5% ($n = 30$) involved anal intercourse, 51% ($n = 28$) vaginal intercourse, and 25.5% ($n = 14$) reported oral sex. Approximately 20% of alcohol/drug-related rape victims ($n = 26$) also reported at least one forcible rape.

Mean scores for each of the DERS subscales ranged from 10.3 ($SD = 4.4$) for impulse control problems to 14.8 ($SD = 6.0$) for limited access to emotion regulation strategies. These subscale scores as well as the overall DERS mean of 74.5 are consistent with mean scores observed on this measure among other undergraduate female samples (Gratz & Roemer, 2004).

On average, participants reported that they would leave the scenario at the 15th screen ($SD = 5.7$), which corresponds to the portion of the vignette when the woman goes to the man's apartment in an unfamiliar part of town. The modal screen that participants left on was 9, which corresponds to the portion of the vignette when one of the participants' friends got sick at the party and the rest of the friends decided to take her home.

Bivariate Associations Between Victimization, Emotion Dysregulation, and Risk Perception

As shown in Table 1, lifetime sexual victimization was positively associated with longer latency to leave the analogue vignette as well as with every facet of emotion dysregulation, except difficulties with emotional awareness. Similarly, with the exception of difficulties engaging in goal-directed behavior, statistically significant but low-level positive associations emerged between the DERS subscale scores and the "leave" score.

Mediational Effects of Specific Aspects of Emotion Dysregulation

Analyses were conducted to test which aspects of emotion dysregulation serve to mediate associations between prior victimization and leaving later. Consistent with MacKinnon, Lockwood, and Hoffman's (1998) product of

Table 1. Correlations Between Lifetime Victimization, Emotion Dysregulation, and Leave Score

	LV	EN	GDB	ICP	EAP	STRAT	ECP	Leave
LV	1.0	.08*	.03	.13*	.11**	.12**	.07	.09*
EN		1.0	.47**	.56**	.25**	.63**	.49**	.11**
GDB			1.0	.59**	.20**	.65**	.44**	.13**
IC				1.0	.24**	.75**	.46**	.09*
EA					1.0	.27**	.53**	.05
STRAT						1.0	.50**	.11**
EC							1.0	.15**
Leave								1.0

Note: LV = lifetime victimization; EN = emotional nonacceptance; GDB = goal-directed behavior problems; IC = impulse control problems; EA = lack of emotional awareness; STRAT = limited access to ER strategies; EC = lack of emotional clarity; Leave = RPS leave score.

* $p < .05$. ** $p < .01$.

coefficients framework, analyses were conducted in two steps: (a) direct models, indicated by τ in Table 2, were analyzed to assess the relationship between prior sexual victimization and leaving later, and (b) indirect models, indicated by α , β , and τ in Table 2, were analyzed to assess the relationship between prior sexual victimization and leaving later in the presence of the DERS total and subscale scores as intervening variables. All indirect paths were tested for significance using Sobel's (1982) test of the indirect effect. Mediation was established if the paths α and β were significant and the Sobel test was significant. If τ was reduced to nonsignificance, full mediation was established; if τ remained significant, partial mediation was established.

As shown in Table 2, the direct model analysis revealed a significant positive association between sexual victimization and leaving the vignette later. Analyses also revealed indirect effects for two of the six subscales of the DERS—impulse control problems (Sobel = 2.03, $p < .05$) and limited access to emotion regulation strategies (Sobel = 2.00, $p < .05$). Although the link between victimization and risk perception was reduced, it remained statistically significant in the presence of both facets of emotion dysregulation, suggesting that limited access to emotion regulation strategies and impulse control problems each partially mediate this relationship. Despite significant associations between lack of emotional awareness and nonacceptance of emotions and leaving the scenario later, Sobel tests for these mediators were not significant. Lack of emotional clarity and difficulties engaging in

Table 2. Independent Facets of Emotion Dysregulation as Intervening Variables in the Relationship Between Victimization and Leaving Later

Models	<i>B</i>	<i>SE</i>	β	Sobel
Direct: Prior victimization → Leaving later τ	1.07	0.47	0.09*	
Indirect: Nonacceptance				0.10
Prior victimization—Nonacceptance α	1.20	0.40	0.11**	
Nonacceptance—leaving later β	0.08	0.04	0.07*	
Prior victimization—leaving later τ	0.95	0.44	0.08*	
Indirect: Goals				.39
Prior victimization—goals α	1.25	0.36	0.13**	
Goals—leaving later β	0.02	0.05	0.02	
Prior victimization—leaving later τ	1.02	0.44	0.09*	
Indirect: Impulse				2.03*
Prior Victimization—impulse α	0.78	0.33	0.09*	
Impulse—leaving later β	0.16	0.04	0.12**	
Prior victimization—leaving later τ	0.92	0.43	0.08*	
Indirect: Awareness				1.18
Prior victimization—awareness α	0.43	0.33	0.05	
Awareness—leaving later β	0.14	0.05	0.10**	
Prior victimization—leaving later τ	0.98	0.43	0.09*	
Indirect: Strategies				2.00*
Prior victimization—strategies α	1.31	0.45	0.11**	
Strategies—leaving later β	0.11	0.04	0.11**	
Prior victimization—leaving later τ	0.90	0.43	0.08*	
Indirect: Clarity				1.41
Prior victimization—clarity α	1.05	0.26	0.15***	
Clarity—leaving later β	0.09	0.06	0.06	
Prior victimization—leaving later τ	0.95	0.43	0.08*	

* $p < .05$. ** $p < .01$.

goal-directed behavior when distressed did not predict leaving the scenario later when examined in relation to prior sexual victimization.

Discussion

The present study examined college women's risk responding and emotion regulation abilities in relation to lifetime sexual victimization experiences.

Consistent with earlier work with college women (e.g., Gidycz, Hanson, & Layman, 1995), approximately 42% of participants reported lifetime history of sexual victimization, which highlights the ongoing problem of sexual assault in this population. Also, congruent with previous research using the same analogue risk vignette depicting a college party scene (Messman-Moore & Brown, 2006), victimized women reported leaving the risk scenario later than nonvictimized women. This suggests that sexual victimization may significantly distort critical risk-responding abilities that may help women evade assault. In addition to difficulties with risk perception, the present findings suggest that victimization is associated with difficulties in multiple dimensions of emotion regulation, including problems with clarity and nonacceptance, difficulties engaging in goal-directed behavior when upset, impulse control problems, and limited access to emotion regulation strategies. These results add to a rapidly growing body of research showing that women reporting prior sexual victimization have difficulties with multiple aspects of emotion dysregulation (Boesch et al., 2001; Cloitre et al., 2005; Walsh et al., 2011) and point to emotion regulation deficits that may serve as important points of intervention among previously victimized women (e.g., Cloitre, Koenen, Cohen, & Han, 2002).

Although fairly low in magnitude, nearly every facet of emotion dysregulation (except difficulties engaging in goal-directed behavior) was positively associated with leaving the scenario later. In particular, problems with awareness and differentiation of emotions, negative secondary appraisals of emotions, impulsivity, and limited access to regulation strategies may each play a role in delaying risk perception. Although difficulties engaging in goal-directed behavior were not associated with risk perception when examined in isolation, such problems may be important to assess in an actual risky scenario, particularly if the participant is invested in maintaining a relationship with the potential perpetrator or has other important situational goals that conflict with recognizing risk.

Only limited access to emotion regulation strategies and impulse control problems partially mediated links between lifetime victimization and leaving the scenario later. These facets of emotion regulation also were highly correlated, suggesting that victims who have difficulty modulating their emotional experiences and inhibiting impulsive behaviors when they are upset appear to have greater difficulty extricating themselves from risky scenarios when compared to women without such problems. These two facets of emotion regulation appear to serve as a pathway from early sexual victimization

to delayed risk perception in that victims who feel less able to improve their emotional state and control their behaviors when upset may be so focused on these internal cues that they fail to detect environmental cues that signal risk.

Future research might extend the present work through the use of more diverse, community-based samples to ascertain the generalizability of findings. Furthermore, although analogue risk scenarios have frequently been used to assess sexual risk perception (e.g., Messman-Moore & Brown, 2006; Soler-Baillo et al., 2005), and responses to vignettes show predicted links to later sexual assault (Marx et al., 2001), it is difficult to know whether vignette responses correspond to actions taken in an actual assault situation (Gidycz, McNamara, & Edwards, 2006). More research is needed to validate vignette responses relative to actual responding under stressful conditions. In addition, although results from the present study are consistent with the hypothesized temporal links among variables, the cross-sectional design limits our ability to draw such conclusions. Emotion dysregulation and risk recognition deficits may precede lifetime victimization rather than result from it. Longitudinal research is needed to better understand the temporal sequencing of these processes. It also will be important for future studies to assess defensive behavior beyond simply staying or leaving, as emotion dysregulation certainly could influence other verbal or physical resistance strategies.

The present study has several clinical implications. To date, interventions focused on improving risk perception have met with only modest success (Breitenbecher & Gidycz, 1998; Marx et al., 2001; Yeater & O'Donahue, 2002). Because these programs are primarily educational in nature and focus on risk factors for sexual assault without addressing emotional precursors to assault, it is possible that women may be unable to use such information to identify risk or formulate effective defense plans due to emotion dysregulation in the face of an assault. Indeed, findings from the current study suggest emotion regulation deficits underlie poor risk perception. Interventions that integrate emotion regulation skills training with educational components might yield more effective results. One intervention specifically for adult survivors of child abuse that targets emotion dysregulation successfully improved emotion regulation, decreased levels of PTSD, and suggested lower rates of revictimization among treatment completers (Cloitre et al., 2002), yet the mechanism by which revictimization risk was reduced was not identified. The present findings suggest that that interventions focused on emotion dysregulation hold promise as a basis for revictimization reduction interventions.

Appendix

RPS-ACQ

The following is a chronological description of a social experience that is not uncommon for college-aged women. Please pretend that you are participating in each activity as it is described.

1. You and four of your friends attend a party. One of your friends agrees to be the designated driver and drives the five of you there in her car.
2. You and your friends get acquainted with other people at the party. Everyone is having a good time, and people begin to dance as the music gets louder. You begin dancing with your girlfriends.
3. You notice a guy you know, Ted, approaching you. You and Ted are both in the same algebra class, and you've studied together on several occasions.
4. Ted comes up to you and your friends, and begins dancing with you. You are flattered by Ted's attention, as he is really good looking and popular.
5. In a joking voice, Ted says, "You look great tonight!"
6. Ted puts his hands on your shoulders, and then starts to lean in towards you as he dances.
7. You jokingly tell him to "Back off!" and Ted calls you a "Flirt."
8. As he puts his arms around you Ted says, "Man you look sexy tonight in that outfit."
9. As you continue dancing, one of your friends gets sick and the others decide to take her home.
10. You are having a good time and don't want to leave yet. They agree to come back for you later.
11. As the party begins to die down, Ted invites you to go get something to eat. He offers to drive in his car.
12. You walk with Ted to his car and get in. You drive to Taco Bell.
13. While you are eating, he suggests that you go with him to his apartment. He wants to show you his new saltwater fish tank and wants to listen to some music.
14. You aren't ready for the night to end. You agree to go to his place.
15. You notice as you are driving that you don't recognize this part of town. He pulls into the driveway of the apartment complex and you walk to his apartment.

16. You walk into the living room and he shows you the tank. He puts on some slow music.
17. Ted says again, "I'm so attracted to you. You are so smart and beautiful. Would you ever be interested in a guy like me?"
18. He turns to you and begins kissing you on the lips, and puts his tongue in your mouth.
19. Even though you push him away Ted kisses you again, this time more passionately, and reaches for your breast. He says, "I know that you have a secret crush on me. Otherwise you wouldn't have come here."
20. Ted begins to un-tuck your shirt and reach for your bra.
21. You try to block his hands, but he grabs both of your hands and holds them down.
22. He pushes you down on your back, continuing to kiss you passionately and somewhat forcefully.
23. As he continues to pin your arms down, he begins to unbutton your pants.
24. He yanks down your pants and panties. He unzips his jeans.
25. You try to push him off, but he has sexual intercourse with you.

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.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: Portions of the present study were supported by a training grant from the National Institutes of Mental Health (F31MH081629; PI: Kate Walsh, MA) under the supervision of David DiLillo, PhD.

References

- Batten, S. V., Follette, V. M., & Aban, I. (2001). Experiential avoidance and high-risk sexual behaviors in survivors of child sexual abuse. *Journal of Child Sexual Abuse, 10*, 101-120.
- Bernstein, D. P., & Fink, L. (1998). *Childhood Trauma Questionnaire: A retrospective self-report questionnaire and manual*. San Antonio, TX: The Psychological Corporation.

- Bernstein, D. P., Fink, L., Handelsman, L., & Foote, J. (1994). Initial reliability and validity of a new retrospective measure of child abuse and neglect. *American Journal of Psychiatry*, *151*, 1132-1136.
- Boesch, L. E., Koss, M. P., Figueredo, A. J., & Coan, J. A. (2001). Experiential avoidance and posttraumatic stress disorder: A cognitive mediational model of rape recovery. *Journal of Aggression, Maltreatment, and Trauma*, *4*, 211-245.
- Borsari, B., Read, J. P., & Campbell, J. F. (2008). Posttraumatic stress disorder and substance use disorders in college students. *Journal of College Student Psychotherapy*, *22*, 61-85.
- Breitenbecher, K. H., & Gidycz, C. A. (1998). An empirical evaluation of a program designed to reduce the risk of multiple victimization. *Journal of Interpersonal Violence*, *13*, 472-488.
- Brener, N. D., McMahon, P. M., Warren, C. W., & Douglas, K. A. (1999). Forced sexual intercourse and associated health-risk behaviors among female college students in the United States. *Journal of Consulting and Clinical Psychology*, *67*, 252-259.
- Cloitre, M., Koenen, K., Cohen, L., & Han, H. (2002). Skills training plus exposure therapy may reduce post traumatic stress in women who experienced childhood sexual abuse. *Journal of Consulting and Clinical Psychology*, *70*, 1067-1074.
- Cloitre, M., Miranda, R., Stovall-McClough, K. C., & Han, H. (2005). Beyond PTSD: Emotion regulation and interpersonal problems as predictors of functional impairment in survivors of childhood abuse. *Behavior Therapy*, *36*, 119-124.
- DiLillo, D., Fortier, M. A., Hayes, S. A., Trask, E., Perry, A. R., Messman-Moore, T. L., . . . Nash, C. (2006). Retrospective assessment of childhood sexual and physical abuse: A comparison of scaled and behaviorally specific approaches. *Assessment*, *13*, 297-312.
- DiLillo, D., Hayes, S., Fortier, M. A., Perry, A. R., Evans, S., Messman-Moore, T. L., . . . Fauchier, A. (2010). Development and initial psychometric properties of the Computer Assisted Maltreatment Inventory (CAMI): A comprehensive self-report measure of child maltreatment history. *Child Abuse and Neglect*, *34*, 305-317.
- Feldman Barrett, L., Gross, J., Christensen, T. C., & Benvenuto, M. (2001). Knowing what you're feeling and knowing what to do about it: Mapping the relation between emotion differentiation and emotion regulation. *Cognition and Emotion*, *15*, 713-724.
- Filipas, H. H., & Ullman, S. E. (2006). Child sexual abuse, coping responses, self-blame, posttraumatic stress disorder, and adult sexual revictimization. *Journal of Interpersonal Violence*, *21*, 652-672.
- 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.

- Gidycz, C. A., McNamara, J. R., & Edwards, K. M. (2006). Women's risk perception and sexual victimization: A review of the literature. *Aggression and Violent Behavior, 11*, 441-456.
- Gratz, K. L., & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the Difficulties in Emotion Regulation Scale. *Journal of Psychopathology and Behavioral Assessment, 26*, 41-54.
- Gross, J. J., & Thompson, R. A. (2007). Emotion regulation: Conceptual foundations. In J. J. Gross (Ed.), *Handbook of emotion regulation* (pp. 3-24). New York, NY: Guilford.
- Koss, M. P., & Gidycz, C. A. (1985). Sexual experiences survey: Reliability and validity. *Journal of Consulting and Clinical Psychology, 53*, 422-423.
- Linehan, M. M. (1993). *Cognitive behavioral treatment of borderline personality disorder*. New York, NY: Guilford.
- MacKinnon, D. P., Lockwood, C., & Hoffman, J. (1998, June). *A new method to test for mediation*. Paper presented at the annual meeting of the Society for Prevention research, Park City, UT.
- Magar, E. C. E., Phillips, L. H., & Hosie, J. A. (2008). Self-regulation and risk-taking. *Personality and Individual Differences, 45*, 153-159.
- 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*, 25-32.
- Marx, B. P., Heidt, J. M., & Gold, S. D. (2005). Perceived uncontrollability and unpredictability, self-regulation, and sexual revictimization. *Review of General Psychology, 9*, 67-90.
- Messman-Moore, T. L., & Brown, A. L. (2006). Risk perception, rape, and sexual revictimization: A prospective study of college women. *Psychology of Women Quarterly, 30*, 159-172.
- Polusny, M. A., & Follette, V. M. (1995). The long term correlates of child sexual abuse: Theory and review of the empirical literature. *Applied and Preventive Psychology, 4*, 143-166.
- Shields, A., & Cicchetti, D. (1998). Parental maltreatment and emotion dysregulation as risk factors for bullying and victimization in middle childhood. *Journal of Consulting and Clinical Psychology, 30*, 349-363.
- Sobel, M. E. (1982). Asymptotic intervals for indirect effects in structural equations models. In S. Leinhardt (Ed.), *Sociological methodology 1982* (pp. 290-312). San Francisco, CA: Jossey-Bass.
- Soler-Baillo, J. M., Marx, B. P., & Sloan, D. M. (2005). The psychophysiological correlates of risk recognition among victims and non-victims of sexual assault. *Behavior Research and Therapy, 43*, 169-181.

- VanZile-Tamsen, C., Testa, M., & Livingston, J. A. (2005). The impact of sexual assault history and relationship context on appraisal of and response to acquaintance sexual assault. *Journal of Interpersonal Violence, 20*, 813-832.
- Walsh, K., DiLillo, D., & Scalora, M. (2011). The cumulative impact of sexual revictimization on emotion regulation difficulties: An examination of female inmates. *Violence Against Women, 17*, 1103-1118.
- Wenzlaff, R. M., & Eisenberg, A. R. (1998). Parental restrictiveness of negative emotions: Sowing the seeds of thought suppression. *Psychological Inquiry, 9*, 310-313.
- Wilson, A. E., Calhoun, K. S., & Bernat, J. A. (1999). Risk recognition and trauma-related symptoms among sexually revictimized women. *Journal of Consulting and Clinical Psychology, 67*, 705-710.
- Yeater, E. A., & O'Donahue, W. (2002). Sexual revictimization: The relationship among knowledge, risk perception, and ability to respond to high risk situations. *Journal of Interpersonal Violence, 17*, 1135-1144.
- Zeitlin, S. B., McNally, R. J., & Cassiday, K. L. (1993). Alexithymia in victims of sexual assault: An effect of repeated traumatization. *American Journal of Psychiatry, 150*, 661-663.

Bios

Kate Walsh, PhD, is a NIH-funded Postdoctoral Fellow and Research Associate at the Medical University of South Carolina. Her research interests include risk factors for and outcomes of sexual trauma including PTSD, substance abuse, sexual risk behaviors, and emotion dysregulation.

David DiLillo, PhD, is Professor and Director of Clinical Training at the University of Nebraska-Lincoln. His primary research and clinical interests lie in the area of family violence, including intimate partner violence and the long-term adjustment of individuals who have experienced various forms of childhood trauma. Research by Dr. DiLillo and his students' has been supported by NIMH, NICHD, and NIAAA.

Terri L. Messman-Moore, PhD, is an Associate Professor of Clinical Psychology and Director of Clinical Training at Miami University in Oxford, Ohio. Her research interests include the long-term impact of child maltreatment, especially risk factors and outcomes of sexual revictimization, including Posttraumatic Stress Disorder, risky sexual behavior, alcohol and substance use, and emotion dysregulation in female emerging adults.