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Childhood Maltreatment and Sexual Risk Taking: The Mediating Role of Alexithymia

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Abstract

Childhood maltreatment is a significant predictor of sexual risk taking. The nature of this relationship is not fully understood; however, emotion dysregulation may play an important role. We tested the role of difficulty identifying and describing feelings (i.e., alexithymia) on the relationship between childhood maltreatment and sexual risk taking. Specifically, we hypothesized two mechanisms, one in which alexithymia is related to sexual risk taking via negative urgency and alcohol use and a second one in which alexithymia is related to sexual risk taking via neediness. The participants for this study were 425 sexually active college undergraduates (303 females, 122 males) between the ages of 18 and 25 years. The results of a structural equation model indicated that alexithymia accounted for a significant part of the relationship between child maltreatment and sexual risk behavior. Moreover, the relationship between alexithymia and sexual risk taking was fully accounted for by two separate paths. First, negative urgency and subsequent alcohol use partially mediated the relationship, and the second effect was accounted for by needy interpersonal style. Adverse experiences during childhood can impair emotional functioning and contribute to behavioral and interpersonal dysregulation.

Keywords

Emotion dysregulation; Childhood maltreatment; Sexual risk taking

Introduction

Sexual risk taking is an area of great concern for public health. According to the American College Health Association (2011), 70% of college students in the United States are sexually active, and nearly 50% of those who were sexually active report that they did not use a condom during their most recent sexual intercourse. In addition to poor condom use, college students also engage in high rates of casual sex, sex with multiple partners, and sexual activity under the influence of drugs or alcohol (Flannery, Ellingson, Votaw, & Schaefer, 2003; Grello, Welsh, & Harper, 2006; Gullette & Lyons, 2006; Ravert et al., 2009). Consequently, sexually active individuals under the age of 25 account for nearly half of all new STIs (CDC, 2014; Satterwhite et al., 2013), and approximately one of every four sexually active adolescent females has a STI (Forhan et al., 2009). Consequences associated

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with sexual risk taking are severe and costly on both an individual and societal level. Due to the severity of consequences resulting from sexual risk taking (e.g., unplanned pregnancy, sexually transmitted infections, etc.), it is important to understand predictors and mechanisms associated with this behavior.

Childhood maltreatment, such as sexual abuse, physical abuse, emotional abuse, and neglect, is an important predictor of risky sexual behavior (Johnson & Johnson, 2013;Senn&Carey, 2010; Wilson, Woods, Emerson, & Donenberg, 2012). Research using representative samples of the general public indicate that childhood traumatic experiences and abuse predict earlier age of first sexual intercourse, a greater number of sexual partners, and greater risk of contracting sexual transmitted infections (Bensley, Van Eenwyk, & Simmons, 2000; Green et al., 2005; Hillis, Anda, Felitti, & Marchbanks, 2001; Hillis, Anda, Felitti, Nordenberg, & Marchbanks, 2000; Watson, Matheny, Gagne, Brack, & Ancis, 2013). Specifically, 50% of women and adolescents with HIV are victims of childhood maltreatment, especially physical or sexual abuse (Pao et al., 2000; Simoni & Ng, 2000). College students with a history of childhood sexual abuse have a greater number of sexual partners (Gidycz, Hanson, & Layman, 1995) and experience increased risky sexual behavior (Green et al., 2005; Johnson & Johnson, 2013). In addition to having more sexual partners and inconsistent condom use, victims of sexual trauma also have an increased likelihood of consuming alcohol in conjunction with sexual activity compared to individuals without a history of sexual trauma (Deliramich & Gray, 2008; Merrill, Guimond, Thomsen, & Milner, 2003; Stoner et al., 2008).

One possible mechanism for the relationship between childhood maltreatment and sexual risk taking is emotional dysregulation or difficulties regulating or controlling emotions. Traumatic experiences in childhood are also linked to lower abilities in understanding emotions (Shipman et al., 2000), as well as emotional non-acceptance (Gratz, Bornovalova, Delany-Brumsey, Nick, & Lejuez, 2007), and children with a history of maltreatment are significantly more likely to demonstrate emotional dysregulation than their peers (Shields & Cicchetti, 1998; Shipman etal., 2007; Shipman, Zeman, Penza, & Champion, 2000). In turn, emotional dys- regulation is a critical path to risky sexual behavior (Messman-Moore, Walsh, & DiLillo, 2010). One specific aspect of emotional dysregulation is difficulty identifying and expressing feelings, namely alexithymia. Due to their inability to identify and describe emotions, individuals with alexithymia tend to use rash action to deal with negative affect, a phenomenon known as negative urgency, characterized by an increase in impulsive behavior in response to intense negative affect (Fink, Anestis, Selby, & Joiner, 2010; Gaher, Hofman, Simons, & Hunsaker, 2013; Shishido, Gaher, & Simons, 2013). Finally, individuals with alexithymia have difficulties developing stable intimate relationships (Spitzer, Siebel-Jurges, Barnow, Grabe, &Freyberger, 2005) and thus may lead individuals to adopt an intrusive or needy interpersonal style. Impulsivity and interpersonal problems are thus consequences of dysregulated affect which, in turn, increase the risk for to deleterious outcomes, including alcohol use (Burton, Pedersen, & McCarthy, 2012; Dvorak, Lamis, & Malone, 2013)and sexual risk taking (Deckman & DeWall, 2011; Lamoureux, Palmieri, Jackson, & Hobfoll, 2012; Simons, Maisto, & Wray, 2010).

Alexithymia

Alexithymia is a trait characterized by difficulty identifying and describing feelings and externally oriented thinking (Taylor, Bagby, & Parker, 1997), and childhood maltreatment is a predictor of this trait (Gaher, Arens, & Shishido, 2013; Spitzer et al., 2005). Children reared in hazardous or neglecting environments do not learn how to express and understand their own and others' emotional cues, skills that are vital to emotional regulation, and the formation and maintenance of stable and lasting close relationships (Spitzer et al., 2005). Individuals with alexithymia demonstrate a decreased ability to cognitively process emotions (Lane & Schwartz, 1987). Processing emotions is a key aspect of the development of interpersonal relationships and learning how to function within relationships is an important developmental task for young adults. Relatedly, those who do not employ elaborative and reflective cognition in regard to emotions may also demonstrate poor self-control and exhibit more impulsive behaviors (Lieberman, 2007; Metcalfe & Mischel, 1999).

Negative Urgency

Negative urgency is a facet of impulsivity that refers to the tendency to act rashly as a result of negative affect (Cyders & Smith, 2008). Negative urgency is positively associated with childhood maltreatment (Gagnon, Daelman, McDuff, & Kocka, 2013; Gaher, Hofman et al., 2013) and alexithymia (Fink et al.,2010; Gaher, Arens et al., 2013; Shishido et al., 2013), and research shows that alexithymia mediates the relationship between childhood maltreatment and negative urgency (Gaher, Hofman et al., 2013). Due to deficits in emotional functioning, individuals with alexithymia may cope with intense affect through impulsive behaviors, including sexual risk taking and substance use. In fact, negative urgency is a predictor of both alcohol use (Burton et al., 2012;Dvoraketal., 2013) and sexual risk taking (Deckman & DeWall, 2011; Simons et al., 2010).

Alcohol Use and Sexual Risk Taking

Alcohol use is extremely prevalent across college campuses, and the majority of college students consume alcohol (Substance Abuse and Mental Health Service Administration [SAMHSA], 2011). In addition to positive associations with alexithymia and negative urgency, alcohol use is a significant predictor of sexual risk taking (Cooper, 2002; Hipwell, Stepp, Chung, Durand, & Keenan, 2012) and may account for the relationship between negative urgency and sexual risk taking. Although alcohol use and sexual risk taking share some common psychosocial antecedents, it is also possible that elevated drinking, in part, contributes to the observed increases in risky sexual behavior in this population. Research suggests that intoxication has a causal effect on risky sexual behavior (George et al., 2014; Maisto, Carey, Carey, Gordon, & Schum, 2004; Purdie et al., 2011). Global association studies, experimental studies, and event-level research suggest that alcohol intoxication may increase the likelihood of unsafe sex. Specifically, alcohol use is commonly associated with greater number of sexual partners and lower probability of condom and other contraceptive use (Abbey, Saenz, & Buck, 2005; Brown & Vanable, 2007; Hipwell et al., 2012; Patrick & Maggs, 2009; Scott-Sheldon, Carey, & Carey, 2010). However, results have not been consistent and indicate a less clear event-level association between alcohol use and sexual risk (Cooper, 2002; Lewis, Kaysen, Rees, & Woods, 2010). This inconsistency suggests that

the relationship between intoxication and sexual risk taking is a complex interplay between person and situational/ contextual factors. Indeed, event-level research indicates an association between alcohol use and sexual risk taking that is decreased among heavy drinkers (Neal & Fromme, 2007; Simons, Wills, & Neal, 2011), indicating that less experienced drinkers may be at a greater risk for engaging in sexual risk taking when intoxicated. In addition, research indicates that individuals who are intoxicated and highly aroused are at greater risk to engage in unprotected sex (MacDonald, MacDonald, Zanna, & Fong, 2000). Thus, despite the complex relationship between alcohol use and sexual risk taking, greater alcohol use increases an individual's likelihood to engage in sexual risk taking.

Interpersonal Problems

Childhood maltreatment and alexithymia might be related to sexual risk taking via difficulties developing and maintaining intimate relationships. Childhood maltreatment is associated with relationship difficulties later in life (Cloitre, Scarvalone, & Difede, 1997; Lamoureux et al., 2012; Paradis & Boucher, 2010). Alexithymia is also related to difficulties developing stable and meaningful interpersonal relationships (Spitzeret al., 2005; Vanheule, Desmet, Meganck, & Bogaerts, 2007). Close attachment and positive interpersonal connections are vital to the success of interpersonal relationships. Individuals with alexithymia who have emotional deficits in identifying, describing, and expressing emotions may struggle to develop and maintain such relationships and have an intrusive and needy interpersonal style (Spitzer et al., 2005; Vanheule, Vandenbergen, Verhaeghe, & Desmet, 2010). Due to the lack of quality interpersonal relationships, individuals with alexithymia may long for connection and attachment. Thus, these individuals may adopt a more intrusive and needy relational style, in which they are overly invasive and open to others and desire the same in return (Barkham, Hardy, & Startup, 1996). This type of interpersonal style may create a cyclical pattern of negative interpersonal relationships and problematic behavior. Despite the limited research investigating interpersonal problems and subsequent sexual risk taking, individuals with problematic interpersonal styles take greater sexual risk (Catania et al., 2008; Lamoureaux et al., 2012).

Current Study

The current study examined the mechanisms accounting for the relationship between childhood maltreatment and sexual risk taking, specifically examining the roles of alexithymia, negative urgency, alcohol use, and neediness (see Fig. 1 for the hypothesized model). First, because childhood is a period of important emotional development and traumatic experiences during this time could significantly impact this development, we hypothesized that childhood maltreatment would predict alexithymia. Next, we hypothesized that alexithymia would predict negative urgency and neediness, such that deficits in emotional functioning would predict poor emotion regulation (e.g., negative urgency) and problematic interpersonal styles (e.g., neediness). Thus, we expected alexithymia to be indirectly associated with sexual risk taking via two mechanisms. Alexithymia was expected to be associated with sexual risk taking via negative urgency and subsequent alcohol use, such that negative urgency predicts greater alcohol use, which predicts greater sexual risk taking and (2) via neediness.

Method

Participants

Participants were 425 undergraduate college students with ages of 18–25years (M = 19.24, SD = 1.34) from a Midwestern American university who engaged in sexual activity at least once in the six months prior to participation in the study. Participants received partial course credit for their participation. The sample consisted of 71% (n = 303) females and 29% (n = 122) males. The majority of the participants (90%) were white, 2% were African American, 2% were Asian, 3% were Native American or Alaskan Native, 2% were Latino or Hispanic, and 1% was Multiracial.

Measures

Childhood Maltreatment—The Child Abuse and Trauma Scale (CATS) (Sanders & Becker- Lausen, 1995) is a self-report questionnaire that was used to assess maltreatment in childhood. The CATS has 38 items and three subscales: Negative Home Environment/ Neglect, Punishment, and Sexual Abuse. Each item was rated on a 5-point scale (0 = never, 4 = always) intended to provide a quantitative index indicating the degree and frequency of several types of adverse experiences and maltreatment from early childhood to adolescence. Higher scores signify greater frequency and severity of maltreatment. The Cronbach's alpha for the CATS in the current sample was .95.

Alexithymia—The 20-item Toronto Alexithymia Scale (TAS-20) (Bagby, Parker, & Taylor, 1994) is a 20-item scale designed to assess alexithymia. All items were measured on a 5-point Likert-type scale with 1 representing "strongly disagree" and 5 representing "strongly agree"; five items were reversed scored. Three subscales comprise the TAS-20: difficulty identifying feelings (DIF), difficulty describing feelings (DDF), and externally oriented thinking (EOT). The Cronbach's alpha for the full-scale was .84.

Negative Urgency—Negative urgency was measured using the Urgency subscale of the revised Urgency, Premeditation, Perseverance, Sensation Seeking, and Positive Urgency Impulsive Behavior Scale (UPPS-P) (Lynam, Smith, Whiteside, & Cyders, 2006). Participants indicated how much they agreed or disagreed with statements describing ways in which people act and think on a four-point Likert scale (1 = Agree Strongly to 4 = Disagree Strongly). In the current study, Cronbach's alpha for Negative Urgency was .89.

Neediness—Neediness was assessed using the 4-item Needy/Intrusive subscale of the Inventory of Interpersonal Problems-32 (IIP-32) (Barkham et al., 1996). Neediness refers an individual's tendency to be excessively open to others and intrusive in others' affairs and the desire for the same in return (Barkham et al., 1996). Sample items from this scale include "It's hard for me to keep things private from other people" and "I tell personal things to other people too much." Each item was rated on a 5-point Likert-type scale with 1 indicating "not at all" and 5 indicating "extremely." The Cronbach's alpha was .93 for the IIP-32 and . 74 for the neediness subscale.

Sexual Risk Taking—The Sexual Risk Survey (SRS) (Turchik & Garske, 2009) is a 23-item self-report, free response questionnaire that was used to assess the frequency of sexual risk behaviors (e.g., intercourse without contraception, intercourse without a condom, number of sexual partners, number of sexual encounters while intoxicated) over the past 6 months. The SRS has five subscales: Sex with Uncommitted Partners, Risky Sexual Acts, Impulsive Sexual Behavior, Intent to Engage in Risky Sex, and Risky Anal Sex acts. Final scores were derived using recoding based off of a large-scale multi-university standardization (Turchik, Walsh, & Marcus, 2014). For this study, the Cronbach's alpha for the SRS was .88.

Alcohol Consumption—The Modified Daily Drinking Questionnaire (DDQ-M) (Dimeff, Baer, Kivlahan, & Marlatt, 1999) was used to assess participants' daily alcohol use during an average week. The DDQ-M provides participants with a 7-day grid in which participants enter the number of standard drinks (i.e., 12 oz. beer, 5 oz. wine, or 1.5 oz. hard liquor) consumed each day during an average week over the last 6 months. Average weekly alcohol consumption is computed as the total number of standard drinks reported across the grid. The DDQ-M has demonstrated good reliability and validity (Baer, Kivlahan, Blume, McKnight, & Marlatt, 20001: Marlatt et al., 1998)

Statistical Analyses

Structural equation modeling (SEM) was conducted using STATA 13 (StataCorp, 2013) to test the relative fit of the data to the structural and measurement models. As recommended by Kline (2011), a two-step approach was utilized, such that the measurement model was examined followed by the structural model. Fit statistics were used to measure goodness of fit. Comparative Fit Index (CFI) or Tucker-Lewis Index (TLI) above .95 and root- mean-square error of approximation (RMSEA) values of .06 or lower indicate a close fit (Hu & Bentler, 1999; Kline, 2011). According to Tabachnick and Fidell (2007), a general rule is that a ratio of chi-square to degrees of freedom less than two is an indicator of a good-fitting model.

Results

Descriptive Statistics

Descriptive statistics are shown in Table 1, and a correlation matrix is shown in Table 2. Childhood maltreatment was significantly positively correlated with negative urgency, neediness, and sexual risk taking. Approximately 75% of the sample reported consuming alcohol during a typical week. Alcohol use was significantly positively correlated with alexithymia, negative urgency, and sexual risk taking. Conversely, alcohol use was not significantly correlated with childhood maltreatment or neediness. Additionally, approximately 55% of the sample reported engaging in sexual intercourse over the past 6 months and, of those individuals, the majority (72%) reported engaging in vaginal sexual intercourse without a condom.

Measurement Model

The hypothesized measurement model used contained 20 observed variables and six latent variables: childhood maltreatment, alexithymia, negative urgency, alcohol use, neediness, and sexual risk taking. Each latent variable had between two and five indicators constructed of existing subscales or parcels. Parcels were created based on inter-item correlations (Little, Cunningham, Shahar, & Widaman, 2002).

The initial measurement model did not adequately fit the data, $\chi^2(156, N=425) = 360.75$, $p<.001$; *RMSEA* = .05; (CI .049-.064); *CFI* = .92; *TLI* = .90. Inspection of the model and modification indices indicated that two observed variables were negatively impacting the fit of the model (Item 21 from the IIP- 32 and the EOT subscale of the TAS-20). The modification indices were all related to both of these variables. Upon evaluation, Item 21 loaded weakly onto the neediness factor. Thus, that item was removed from the measurement model and this slightly improved the fit, $\chi^2(138, N=425) = 293.83$, $p < .001$; *RMSEA* = .05; (CI .044-.061); *CFI* = .93; *TLI* = .92. Despite removal of the aforementioned item, the measurement model still did not indicate an adequate fit. The modification indices indicated that the EOT subscale of the TAS-20 was still negatively impacting the fit of the model. The EOT subscale of the TAS-20 is often problematic in research and has a low alpha when compared to the other two subscales (Loas et al., 2001; Thorberg et al., 2010). Due to the negative impact of the fit, as well as the significant theoretical differences between EOT and the other two subscales, EOT was also removed from the measurement model. After removing EOT, the measurement model estimation indicated a good fit, $\chi^2(121, N=425) = 227.58$, $p< .001$; *RMSEA* = .04 (CI .037-.056); *CFI* = .95; *TLI* = .94. Additionally, the χ^2 to degrees of freedom ratio was less than two, further indicating a good fit.

Structural Model

Next, the structural model was estimated. A direct path from child- hood maltreatment to alexithymia was specified. Additionally, direct paths were also specified from alexithymia to negative urgency and neediness. A direct path was specified from negative urgency to alcohol use. Lastly, direct paths were specified from both alcohol use and neediness to sexual risk behavior. Gender was a covariate with paths to all variables and the negative urgency and neediness error terms were allowed to co vary (see Fig. 1). The structural model showed a good fit, $\chi^2(140, N = 425) = 242.00$, $p<.001$; RMSEA = .04 (CI .033-.051); *CFI* = .95; *TLI* = .94; however, the modification indices showed that a significant direct effect from childhood maltreatment to sexual risk taking was unspecified. Thus, a second structural model was estimated with a direct path specified from childhood maltreatment to sexual risk taking (see Fig. 2). The fit of the structural model improved with this added path, $\chi^2(139, N= 425) = 228.56$, $p < .001$; *RMSEA* = .03; (CI .030-.048); *CFI* = .96; *TLI* = .95.

Direct Effects—As hypothesized, childhood maltreatment was positively associated with alexithymia. Moreover, alexithymia was positively associated with negative urgency and neediness. Negative urgency was significantly associated with alcohol use. Negative urgency and gender were significantly associated with alcohol use. Also, alcohol use and neediness were significantly associated with sexual risk taking. The direct effect of childhood

maltreatment on sexual risk taking was not hypothesized and indicated that the hypothesized model only accounted for part of the relationship between childhood maltreatment and negative urgency. The final structural model is presented in Fig. 2.

Indirect Effects—The indirect effects were calculated using bias-corrected bootstrapping in Mplus (Muthén & Muthén, 2012; see Table 3). Traditional tests of indirect effects, such as the Sobel test, may reduce power in order to detect the effect (MacKinnon, 2008). For the current study, 500 samples were drawn from the data and the effects were estimated from each of those 500 samples. From those samples, an empirical sampling distribution of the effects was formed. Bias-corrected bootstrapped confidence intervals increase the likelihood that the population value of the effect was contained within the interval (Kline, 2011). There was an indirect effect of childhood maltreatment on sexual risk taking via alexithymia. Moreover, as hypothesized, there was an indirect effect of alexithymia on sexual risk taking via negative urgency, alcohol use, and neediness. Negative urgency had significant indirect effects via alcohol use (see Table 3 for the indirect effects).

Discussion

The purpose of this study was to examine the relationships between childhood maltreatment and sexual risk taking and investigate the role of alexithymia within this relationship. All hypothesized effects were significant. Results supported the hypothesis that emotion dysregulation accounted for a significant portion of the relationship between childhood maltreatment and sexual risk taking. Childhood maltreatment was positively associated with sexual risk taking. This effect was partially mediated by alexithymia (i.e., difficulties identifying and describing emotions). Individuals who have experienced maltreatment during childhood have emotional deficiencies in understanding and expressing emotions and take greater sexual risk.

The association between alexithymia and sexual risk taking was accounted for via two distinct mechanisms. First, alexithymia was associated with negative urgency, indicating that a deficit in understanding and expressing emotions may lead individuals to act rashly in response to intense negative affect. Negative urgency also predicted alcohol use, and these variables partially accounted for the relationship between childhood maltreatment and sexual risk taking. As a way to cope with intense negative emotions, individuals high in negative urgency may consume larger amounts of alcohol to alleviate negative affect. This increase in alcohol use may, in turn, increase an individual's likelihood to engage in sexual risk taking. The second mechanism accounting for the relationship between alexithymia and sexual risk taking was neediness. Results indicated that emotional deficits might negatively impact an individual's interpersonal function and predict greater sexual risk taking. In this study, alexithymia was associated with neediness, and neediness also partially mediated the relationship between alexithymia and sexual risk taking. Due to emotional difficulties, individuals with alexithymia have difficulty understanding and expressing emotions, which may lead to interpersonal problems, such as adopting a needy interpersonal style. Individuals high in neediness have difficulties developing and maintaining intimate relationships and may thus seek immediate interpersonal interactions through risky sexual behavior.

Although the current model accounted for a significant portion of the relationship between childhood maltreatment and sexual risk taking, much of this relationship was still unaccounted for. Future research could continue the direction of this study by further investigating other mechanisms that may account for part of the relationship between childhood maltreatment and sexual risk taking, such as other disinhibition mechanisms (e.g., positive urgency, lack of perseverance, lack of premeditation, sensation seeking, etc.) and interpersonal styles. Furthermore, the current model did not account for differences in sexual risk taking opportunity. In fact, Scimeca et al. (2013) found alexithymia to be associated with greater sexual detachment and dissatisfaction. Moreover, that same study found alexithymia to predict greater sexual nervousness and shyness. Additionally, in a study of females, Brody (2003) found alexithymia to be associated with decreased frequency of sexual intercourse. Thus, individuals could be at risk for engaging in risky sexual behavior but score low on a measure of sexual risk taking if they do not have the opportunity to engage in that behavior.

An additional limitation of the study was that it is cross-sectional nature. The relationship between alcohol use and sexual risk taking is complex, and future research should use event-level designs to better explain the relationships between negative urgency, alcohol use, and sexual risk taking among individuals who have experienced childhood maltreatment. Other limitations include the lack of diversity in the sample's age and race, as participants were predominantly Caucasian undergraduates at a Midwestern university. Moreover, some of the relationships in this model may be different as a function of gender. However, due to the low number of males and high number of females in this study, gender could not be examined. However, due to the high prevalence of risky sexual behavior among young adults, the use of college undergraduates will provide important information specific to this population.

Sexual risk taking is associated with sexually transmitted infections, unwanted pregnancy, and sexual victimization. These outcomes are of significant societal concern and associated with many negative financial, relational, and health consequences. Identifying the mechanisms associated with sexual risk taking can improve interventions aimed at decreasing the frequency of such behavior. Previous research has identified a significant relationship between childhood maltreatment and sexual risk taking. To the best of our knowledge, no studies have explicitly investigated the role of alexithymia in this relationship. Result indicates that alexithymia accounts for a significant portion of the relationship between childhood maltreatment and sexual risk taking. Identifying malleable mechanisms such as understanding and expressing emotion (e.g., alexithymia) could greatly reduce potential negative outcomes such as sexual risk taking. Specifically, interventions that target the development and maintenance of emotion regulation skills (e.g., dialectical behavior therapy) could have a significant impact on subsequent health behaviors such as sexual risk taking. Moreover, targeting emotion regulation among children could also significantly reduce problematic behaviors during adolescence and young adulthood.

Summary

The current study utilized structural equation modeling to investigate the relationship between childhood maltreatment and sexual risk taking. Results illustrated that adverse

experiences early in life can impair an individual's emotional processing. Subsequently, these deficiencies in emotional functioning contribute to behavioral and interpersonal dysregulation, resulting in sexual risk taking.

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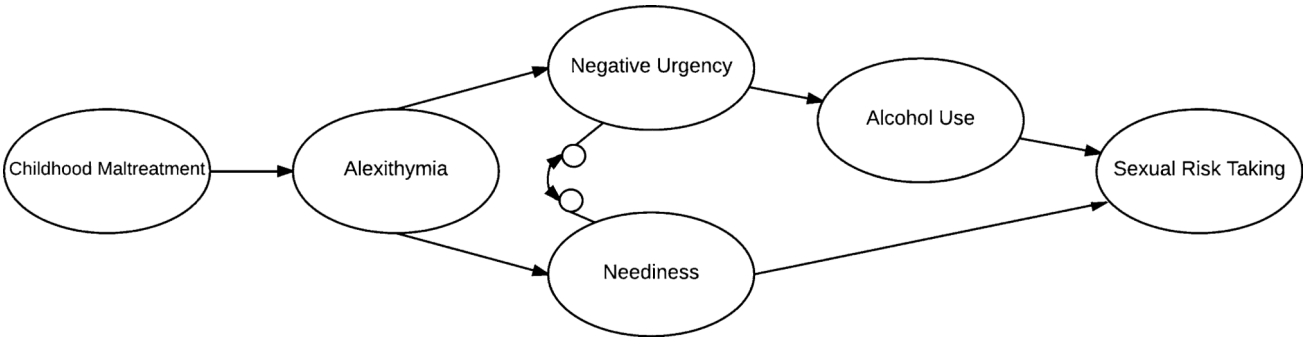

Fig. 1.
Hypothesized model. Gender was a covariate for each variable but omitted for clarity

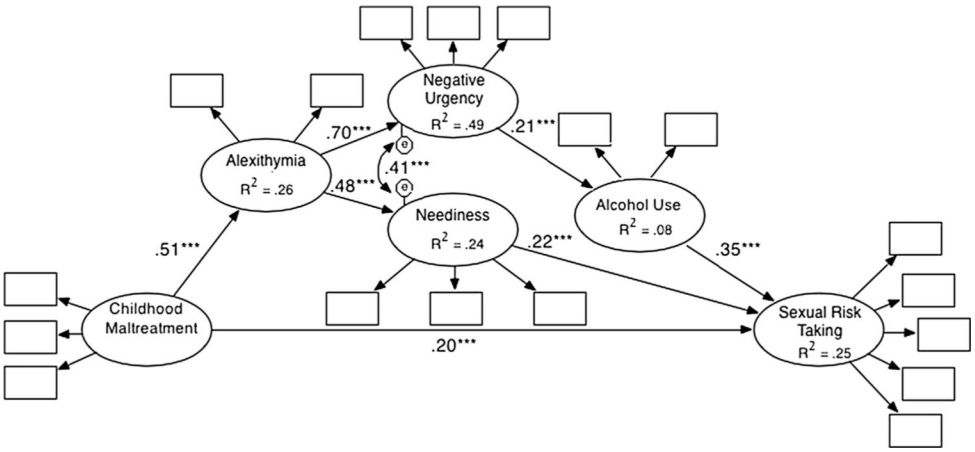

Fig. 2.

Final structural model (N = 425) with standardized path coefficients. Gender was omitted from the figure for clarity. *p<.05, **p<.01, ***p<.001

Table 1

Descriptive statistics

Variable	*N*	*M* (*SD*)	Skew
Age	425	19.24 (1.34)	–
Childhood maltreatment[a]	420	67.46 (22.43)	1.30
Alexithymia[b]	421	48.53 (11.37)	0.06
Negative urgency[c]	420	26.00 (6.03)	0.11
Neediness[d]	420	8.40 (3.16)	0.48
Alcohol use[e]	419	10.36 (12.01)	1.83
Sexual risk taking[f]	413	16.3 (13.02)	1.24

N's differ due to missing data. Gender: men (*N*=122), women (*N*=303). Alcohol use = self-report of drink consumed duringa typical week over the past 6 months

[a]Absolute range 38–143

[b]Absolute range 21–86

[c]Absolute range 13–44

[d]Absolute range 4–17

[e]Absolute range 0–66

[f]Absolute range 1–72

Table 2

Correlation matrix for observed variables (N=425)

Measure	1	2	3	4	5	6	7
1. Gender	–						
2. Childhood Maltreatment	−.02	.95					
3. Alexithymia	−.00	.39**	.84				
4. Negative Urgency	−.03	.34**	.54**	.89			
5. Neediness	−.06	.23**	.27**	.41**	.74		
6. Alcohol Use	.21**	−.01	.13*	.15*	.05	–	
7. Sexual Risk Taking	.13*	.22**	.21**	.25**	.21**	.26**	.88

Gender (men=1, women=0). Alcohol use=self-report of drink consumed during a typical week over the past 3months. Cronbach's alphas are on the diagonal

* $p<.01$

** $p<.001$

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Table 3

Indirect effects

Predictor	Mediator(s)	Outcome	Indirect effect	95% Confidence interval
CM	Alex.→Needy	SRT	0.08	0.04–0.13
CM	Alex.→NU→AU	SRT	0.04	0.02–0.08
NU	AU	SRT	0.49	0.25–0.89
Alex.	Needy	SRT	0.07	0.03–0.11
Alex.	NU→AU	SRT	0.03	0.02–0.06
CM	Alex.→NU	AU	0.03	0.02–0.05
Alex.	NU	AU	0.03	0.01–0.04
CM	Alex.	NU	0.08	0.06–0.11
CM	Alex.	Needy	0.07	0.05–0.10

CM childhood maltreatment, *Alex.* alexithymia, *Needy* neediness, *NU* negative urgency, *AU* alcohol use. Indirect effects are unstandardized coefficients