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Pathways from Childhood Abuse to Prospective Revictimization: Depression, Sex to Reduce Negative Affect, and Forecasted Sexual Behavior

Lynsey R. Miron and Holly K. Orcutt

Department of Psychology, Northern Illinois University, DeKalb, IL

Abstract

Research suggests that adverse events in childhood, such as childhood physical, sexual, and emotional abuse, confer risk for later sexual assault. Psychological distress, coping strategies, and sexual behavior may help explain the path from childhood abuse to revictimization. The present study explored how the use of sex to regulate negative affect (SRNA) operates independently, and in combination with other psychosocial factors to increase college women's ($N = 541$) risk of experiencing prospective adult sexual assault (ASA). Sequential multiple mediator models in Mplus were used to assess the effect of three different forms of childhood abuse on prospective ASA, both independently and while controlling for other forms of childhood abuse. The indirect effect of adolescent sexual assault (AdoISA), depressive symptoms, SRNA, and participants' response to a sex-related vignette was tested using bias-corrected bootstrapping. In the full path model, childhood emotional abuse and AdoISA predicted ASA, while childhood physical and sexual abuse were directly associated with AdoISA, but not ASA. Additionally, depressive symptoms and participants' estimate of their likely behavior in a sex-related vignette directly predicted prospective ASA. Results using bootstrapping revealed that a history of childhood abuse predicted prospective ASA via diverse direct and indirect paths, as well as through a similar multiple mediator path. Overall, findings suggest that a combination of affective, coping, and sexual expectancy factors contribute to risk for revictimization in adult survivors of childhood abuse. Future research directions and targets for risk-reduction programming will be discussed.

Keywords

Revictimization; child sexual abuse; child physical abuse; child emotional abuse; psychosexual behavior; depression

The link between adverse childhood experiences and subsequent trauma exposure is robust, and an extensive body of research indicates that women with a history of childhood sexual

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Correspondence concerning this article should be addressed to Lynsey R. Miron, Department of Psychology, Northern Illinois University, DeKalb, IL 60115. lmiron1@niu.edu.

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abuse (CSA) are at particularly high risk for later sexual revictimization (Arata, 2002; Fortier et al., 2009; Krahe, Scheinberger-Olwig, Waizenhofer, & Kolpin, 1999; Messman-Moore & Long, 2003; Widom, Czaja, & Dutton, 2008). Results from a meta-analysis by Roodman and Clum (2001) indicate that 15 to 79 percent of women reporting CSA also experience adult sexual assault (ASA), and a review by Classen, Paresh, and Aggarwal (2005) found that experiencing CSA doubles or even triples a woman's risk for ASA. Other studies have indicated that women reporting a history of both CSA and adolescent sexual assault (AdolSA) experience adult revictimization at significantly higher rates than women without a history of both trauma types (Gidycz, Coble, Latham, & Layman, 1993; Humphrey & White, 2000). Overall, findings suggest that the effects of CSA are detrimental and cumulative, resulting in significant risk for revictimization across the lifespan.

Given the robust relationship between CSA and risk for revictimization, numerous studies have explored potential mediators in order to identify appropriate targets for risk-reduction programs (e.g., Fargo, 2009; Fortier et al., 2009; Messman-Moore & Long, 2003). Psychological distress and sexual activity are two variables that have been implicated in the path from CSA to subsequent revictimization in prior research (Classen et al., 2005; Cuevas, Finkelhor, Clifford, Ormrod, & Turner, 2010; Senn, Carey, Vanable, Coury-Doniger, & Urban, 2007). Specifically, it has been theorized that some CSA survivors engage in sexual behavior as a method of coping with distress and temporarily decreasing negative affect (e.g., Orcutt, Cooper, & Garcia, 2005), a strategy that may increase risk for subsequent victimization through engagement in risky sexual practices. Further, researchers have begun to explore the role of other traumatic childhood experiences in the revictimization phenomenon, such as childhood physical and emotional abuse (e.g., Widom et al., 2008). The present study explored how the use of sexual behavior as a coping strategy operates independently, and in combination with other psychosocial factors, to increase college women's risk for prospective sexual revictimization.

Outcomes Following Victimization: Distress and Strategies for Coping

A history of childhood abuse is associated with long-term emotional consequences, such as prolonged symptoms of distress (Arata, 2002; Harkness & Lumley, 2008; Messman-Moore & Long, 2003) and difficulty effectively responding to negative internal experiences (Cloitre, Miranda, Stovall-McClough, & Han, 2005; Gratz, Bornova, Delaney-Brumsey, Nick, & Lejuez, 2007). Specifically, previous research has documented that CSA survivors are more likely to rely on avoidant coping strategies in response to distress (Fortier et al., 2009; Rosenthal, Rasmussen Hall, Palm, Batten, & Follette, 2005). Other researchers report that a history of diverse forms of childhood maltreatment (e.g., childhood physical and emotional abuse) results in increased reliance on avoidance-based coping (Gratz et al., 2007; Simons, Ducette, Kirby, Stahler, & Shipley, 2003).

The revictimization literature suggests that increased sexual activity and engagement in risky sexual practices (e.g., sexual encounters with poorly-known partners) may represent specific forms of avoidant coping (Batten, Follette, & Aban, 2001; Classen et al., 2005; Cooper, Shapiro, & Powers, 1998). Indeed, individuals with a history of CSA report having more sexual partners, as well as more casual, non-monogamous sexual experiences relative

to those without a CSA history (Briere & Elliott, 2003; Senn et al., 2007; Wilson, Asbridge, Kisely, & Langille, 2010). A dominant hypothesis is that sexual activity and risky sexual behavior represent strategies for coping with psychological distress, including distress associated with prior traumatic experiences (Briere & Elliott, 2003; Littleton, Grills-Taquechel, Buck, Rosman, & Dodd, 2013). Individuals may be motivated to engage in sexual intercourse for non-sexual goals, such as the enhancement of positive affect or reduction of negative affect (Briere & Elliott, 2003; Cooper, Agocha, & Sheldon, 2000; Cooper et al., 1998). Survivors' strategies for coping with distress likely play an important role in the pathway from childhood abuse to revictimization. Specifically, the use of sex to reduce negative affect (SRNA) may result in impaired sexual decision-making and engagement in risky sexual practices (Cooper et al., 1998; Tice, Bratslavsky, & Baumeister, 2001). Such behavior likely increases the odds of encountering a partner who coerces sex, thereby exaggerating risk for victimization.

In line with affect regulation motives for sexual behavior, Dawson, Shih, deMoor, and Shrier (2008) found that young adults report having sexual intercourse to cope with negative emotions. Further, a meta-analysis of 34 studies found support for the relation between negative affective states and sexual risk behavior (Crepaz & Mauks, 2001). Prior research has also demonstrated that engaging in SRNA is associated with having more sexual partners, including more casual partners (Orcutt et al., 2005; Patrick & Maggs, 2010; Sterk, Klein, & Elifson, 2011). Wilson and colleagues (2010) found that depressive symptoms independently predicted risky sexual activity in a sample of adolescents, suggesting that depressed individuals may be particularly reliant on sex-related coping. Other researchers have examined the impact of varied distress symptoms on sex-related coping and revictimization risk. Specifically, Littleton et al. (2013) found that symptoms of depression and anxiety mediated the relation between sexual assault history and use of SRNA among a sample of ethnically diverse college women. Similarly, Orcutt et al. (2005) found that psychological distress (i.e., depression, anxiety, and hostility) and use of SRNA partially mediated the relation between CSA and prospective ASA in a sample of community women.

Expanding Revictimization Risk Beyond CSA

While most revictimization research has investigated the influence of CSA, less examined is whether diverse maltreatment histories, such as childhood physical and emotional abuse, place survivors at risk for sexual assault. Existing research indicates that a history of CPA increases risk for adult sexual victimization (Cloitre et al., 1996; Desai, Arias, Thompson, & Basile, 2002; Hetzel & McCanne, 2005). In a study by Hetzel and McCanne (2005), participants with a history of CPA or a history of both CPA and CSA were more likely to report ASA than those with no prior abuse or a history of CSA only. Fewer studies have examined the impact of CEA on revictimization risk, though existing research suggests that a history of emotional abuse also confers risk for adolescent and adult sexual victimization (e.g., Stermac, Reist, Addison, & Millar, 2002; Zurbriggen, Gobin, & Freyd, 2010). In fact, a growing body of research suggests that diverse forms of childhood maltreatment can increase risk for revictimization (e.g., Widom et al., 2008). Specifically, Widom et al. (2008) found that participants with a history of CSA, CPA, or neglect were more likely to

experience subsequent interpersonal violence (e.g., physical or sexual assault) than matched controls.

Emerging research also suggests that engagement in sex-related coping is not exclusive to CSA survivors. Specifically, a history of CPA has been linked to dysregulated affect and risky sexual practices (Messman-Moore, Walsh, & DiLillo, 2010; Teisl & Cicchetti, 2008; Walsh, Latzman, & Latzman, 2014). Findings by Walsh et al. (2014) indicated that CPA, in addition to CSA, was associated with risky sex, impulsive sex, and intent of having risky sex in a college student population. In an urban sample of cocaine-using African-American women, Sterk and colleagues (2011) found that CPA, but not CSA, CEA, or childhood neglect, was associated with sex-related coping (i.e., having sex to manage worries, fears, or problems) and risky sexual practices. Berzenski and Yates (2011) found that the combination of childhood physical and emotional abuse was strongly associated with risky sexual behavior. Still, other findings suggest that increased or risky sexual activity is unique to CSA survivors (Senn & Carey, 2010). Specifically, Senn and Carey (2010) found that a history of CSA, CPA, CEA, and neglect were uniquely associated with adult sexual risk behavior, but only a history of CSA remained significant when controlling for the other child abuse types examined.

The Present Study

Although child abuse survivors are at increased risk for experiencing adult sexual assault, many individuals are not subsequently revictimized. Thus, understanding processes through which childhood abuse confers risk for revictimization, such as distress, coping behavior, and sexual activity, may help identify targets for risk-reduction programming. Further, it is unclear whether risk factors identified in previous research are specific to survivors of CSA (e.g., Senn & Carey, 2010) or common to survivors of diverse forms of childhood abuse. Continued research is needed in order to determine 1) the extent to which victims of CPA and CEA are also at risk for later sexual victimization, 2) the mechanisms through which such risk operates, and 3) whether the path from CPA and CEA to adult sexual assault is comparable to that observed for CSA survivors. Thus, the goal of the present study was to explore how the use of SRNA may operate independently, and in combination with other psychosocial factors, to increase college women's risk of experiencing prospective ASA using a comprehensive, longitudinal design. Specifically, the present study tested the overall hypothesis that childhood victimization (i.e., CPA, CSA, and CEA) contributes to increased vulnerability for subsequent revictimization in adulthood. Additionally, we hypothesized the relationship between childhood victimization and prospective ASA would be partially explained by different mechanisms shown to place individuals at increased risk for adult revictimization (i.e., AdolSA, depressive symptoms, and SRNA) as well as a more exploratory predictor (i.e., participants' forecasted likelihood of sexual risk behavior in a vignette). Of interest was investigating whether revictimization risk and mediational pathways differed as a function of the childhood abuse type experienced.

Method

Participants and Procedures

Data were obtained from college women enrolled in Introductory Psychology courses in a large Midwestern university. Female students were eligible for participation if they were at least 18 years old and fluent in English. Participants were not selected on the basis of trauma history. Each participant ($n = 1,043$) completed a first assessment session in-person (Time 1 [T1]). The T1 assessment occurred in a staggered fashion, with participants completing the assessment between Fall 2006 and Spring 2008, with approximately 50% of the sample completing study measures by Fall 2007. Of those who participated at T1, approximately 90% ($n = 939$) consented to follow-up contact. Participants who consented to follow-up contact and were still enrolled at the university ($n = 812$; 78%), were contacted via mail, phone, and e-mail to participate in online follow-up surveys at Time 2 (T2; March, 2008) and Time 3 (T3; September, 2008). All eligible participants were invited to complete the T2 and T3 assessments at the same time. Six hundred and eighty-five students (84% of eligible T1 completers) completed either the T2 or T3 assessment, and the average time elapsed between the T1 assessment and follow-up assessments (T2, T3, or both) was approximately 57 days ($SD = 23.63$). Lastly, because the present study was interested in the role of motivations for sexual intercourse and forecasted risky sexual behavior, participants indicating that they were not sexually active ($n = 144$; 21%) were not administered key measures (e.g., sex motives) and were removed from analyses. This left a final sample of 541 sexually-active college women.

Of the 541 qualifying participants, mean age at T1 was 19.6 years old ($SD = 2.8$), 19.7 years old ($SD = 2.9$) at T2, and 20.2 years old ($SD = 2.4$) at T3. In terms of race and ethnicity, 64% of the sample ($n = 346$) identified as European-American, non-Hispanic. Approximately 23% ($n = 123$) of the sample identified as African-American, 2.4% ($n = 13$) identified as Asian or Asian-American, 8.5% ($n = 46$) identified as “other”, approximately 1% ($n = 5$) preferred not to provide racial data, and 1 participant identified as Native Hawaiian or Pacific Islander. In addition, 7.4% ($n = 40$) of the sample endorsed a separate item indicating that they identified as Hispanic or Latina. In terms of sexual orientation, the majority of participants identified as heterosexual or mostly heterosexual ($n = 521$, 96%), while 2.2% identified as bisexual and 1.3% identified as homosexual or mostly homosexual.

Measures

Time Interval—To control for duration effects on the relations between variables measured at T1 and the occurrence of prospective ASA, the maximum time elapsed between T1 and follow-up assessment(s) (i.e., T2, T3, or both) was calculated in days.

Childhood Physical and Emotional Abuse—Items derived from the Family Experiences Questionnaire (Briere & Runtz, 1990) were used to assess for CEA at 14 years old or younger. Specifically, participants were asked to rate the frequency of four items assessing emotionally abusive experiences (i.e., “*How often did the person most responsible for taking care of you insult you? Try to make you feel guilty? Ridicule or humiliate you? Make you feel like you were a bad person?*”), and responses were collapsed into a

dichotomy of ever experienced versus never experienced. Similarly, items derived from the Childhood History Questionnaire (Milner, Robertson, & Rodgers, 1990) were used to assess for CPA at the age of 14 or younger. Participants were asked to rate the frequency of three items assessing consequences of CPA (i.e., “*How often did punishment from the person most responsible for taking care of you leave you with bruises? Cuts or scratches? Welts?*”), and responses were collapsed into a dichotomy of ever experienced versus never experienced. CPA and CEA history were both assessed at T1.

Childhood, Adolescent, and Adult Sexual Assault—Sexual victimization history was assessed using items from the Traumatic Life Events Questionnaire (TLEQ; Kubany et al., 2000), as well as the Young Adult Alcohol Problems Screening Test (YAAPST; Hurlburt & Sher, 1992). The TLEQ is a brief, broad-spectrum measure of trauma exposure that has demonstrated good psychometric properties (Kubany et al., 2000). Items from the TLEQ were used to assess experiences of CSA at 12 years old or younger (i.e., “*Before your 13th birthday: Did anyone touch or fondle your body in a sexual way or make you touch or fondle their body in a sexual way?*”), and AdolSA from ages 13–18 (i.e., “*After your 13th birthday and before your 15th birthday*” and “*After your 15th birthday and before your 18th birthday: Did anyone touch sexual parts of your body or make you touch sexual parts of their body against your will or without your consent?*”). Additionally, the following item was used to assess for AdolSA at age 18 for participants who were exactly 18 years-old at T1: “*After your 18th birthday: Did anyone touch sexual parts of your body or make you touch sexual parts of their body against your will or without your consent?*” Responses were collapsed into a dichotomy of ever experienced versus never experienced.

A single item from the TLEQ was also used to assess prospective ASA at 18 years or older since participants’ last interview (i.e., either T1 or T2). The date of participants’ last completed time point was embedded into their personalized survey (i.e., “*Since your last interview on [date]: Did anyone touch sexual parts of your body or make you touch sexual parts of their body against your will or without your consent?*” In addition to this item, a single item from the YAAPST was also used as an indicator of prospective ASA in the present sample (i.e., “*Since your last interview on [date]: Have you been pressured or forced to have sex with someone because you were too drunk to prevent it?*”). Prior to administration of the YAAPST items, lifetime frequency of alcohol use was assessed; if participants reported never using alcohol, they did not complete the YAAPST items. Prospective ASA was assessed at both T2 and T3. Scores were collapsed and scored as a single dichotomy across T2 and T3 indicating any endorsement of items from the TLEQ and YAAPST assessing unwanted sexual experiences since participants’ last interview.

Depressive Symptoms—The Depression Anxiety Stress Scale - 21 (DASS-21; Lovibond & Lovibond, 1995) was used as an indicator of distress in the present study. Specifically, the 7-item depression subscale of the DASS-21 was used (e.g., “*I felt that I had nothing to look forward to*”). Participants were asked to rate how much each statement applied to them using a 0 (*Did not apply to me at all*) to 3 (*Applied to me very much, or most of the time*) scale. Lovibond and Lovibond (1995) note that the factor structure and performance of DASS-21 items are similar in clinical and non-clinical samples, warranting

its use in the present non-clinical undergraduate sample. T1 mean scores on the DASS-21 depression subscale were used in the present analyses and the internal consistency estimate was good ($\alpha = .84$).

Sexual History—Participants were asked about their sexual history (Cooper, Wood, Orcutt, & Albino, 2003), including whether they have ever had sexual intercourse. This item was used as a screening measure at T1. Specifically, participants who reported never having sexual intercourse prior to T1 ($n = 144$) were eliminated from study analyses.

Sex to Reduce Negative Affect—Items from the Motivations for Sexual Intercourse scale (MSI; Cooper, et al., 1998) were used to capture the use of sex to reduce negative affect. Participants indicated on a 5-point scale ranging from 1 (*Almost never/Never*) to 5 (*Almost always/Always*) how often they had sex for the following reasons: (1) to cope with upset feelings, (2) to help deal with disappointment, (3) because it helps one feel better when one is lonely, (4) because it helps one feel better when feeling low, and (5) to cheer oneself up. SRNA mean scores were used and the internal consistency estimate at T1 was good ($\alpha = .86$).

Likely Sex—Participants' forecasting of hypothetical sexual behavior was assessed using responses elicited from a sex-related vignette. Specifically, participants were asked to *"Imagine that you're single (not currently in a relationship) and you've just met someone that you are really hitting it off with. You might be at a party, a bar or club, or out on a first date. You're feeling the chemistry between the two of you and having a great time."* Participants were asked to indicate (via a visual analog scale) the likelihood of having sexual intercourse with the individual described in the vignette (i.e., *"What's the chance that the two of you would have sexual intercourse [for example, vaginal or anal intercourse]?"*). Responses ranged from 0 (*0% chance*) to 100 (*100% chance*). The Likely Sex item was assessed at T1.

Results

Preliminary Analyses

In terms of victimization history, 46 participants (8.5%) reported a history of CSA, 115 (21.3%) reported a history of CPA, 167 (30.9%) reported a history of CEA, 86 (14.8%) reported a history of AdolSA, and 58 (10.7%) reported experiencing ASA between T1 and T2/T3. Thirty-two participants age 19 and older reported experiencing ASA during the T1 assessment (5.9%), though previous ASA was not modeled in subsequent analyses. Of the 32 individuals age 19 and older reporting ASA at T1, 12 also reported experiencing AdolSA (37.5%) and 7 reported experiencing T2/T3 prospective ASA (21.9%). In terms of the two types of prospective ASA assessed, 44 (8.1%) out of the 541 total participants reported experiencing alcohol-related ASA, 28 (5.2%) reported experiencing non-alcohol-related ASA, and 14 (2.6%) experienced both types of prospective ASA.

A series of chi-square analyses were computed in order to examine the overlap between childhood abuse types, AdolSA, and prospective ASA. Surprisingly, the association between CSA and ASA was not significant ($\chi^2 [1, N = 539] = .98, p = .57$). However, the association

between CSA and AdolSA was significant ($\chi^2 (1, N = 534) = 34.00, p < .001$), with 45.6% of CSA survivors reporting AdolSA. In terms of other childhood abuse types, the association between CPA and ASA ($\chi^2 [1, N = 533] = 15.90, p < .001$) as well as CEA and ASA ($\chi^2 [1, N = 533] = 22.53, p < .001$) were significant, with 20.9% of CPA survivors reporting ASA and 20.4% of CEA survivors reporting ASA. The associations between CPA, CEA, and AdolSA were also significant, with 28.1% of CPA survivors reporting AdolSA ($\chi^2 (1, N = 530) = 21.45, p < .001$) and 23% of CEA survivors reporting AdolSA ($\chi^2 (1, N = 528) = 9.10, p < .01$). Approximately 22% of participants reporting a history of AdolSA also experienced ASA between T1 and T3 ($\chi^2 [1, N = 536] = 13.49, p < .01$).

Bivariate correlations among study variables are listed in Table 1. Notably, CPA and AdolSA with the only victimization variables associated with CSA. However, ASA was significantly associated with CPA, CEA, and AdolSA. In addition, CEA and ASA were the only abuse/assault variables associated with the Likely Sex item. However, T1 SRNA and T1 depression evidenced moderate significant correlations with Likely Sex.

Next, a sequence of serial multiple mediator path models in Mplus 7.0 (Muthén & Muthén, 1998–2012) were used to assess the relations between childhood abuse and prospective sexual assault in college using the full sample of 541 participants. Mplus employs a robust full-information maximum-likelihood estimation procedure for handling missing data, which assumes missing data are unrelated to the outcome variable (missing at random). A single path model examining the relationship between prospective ASA and all three childhood abuse variables at once was conducted, as well as three separate models corresponding to each childhood abuse type. Serial multiple mediation proposes that individual mediators included in a model are causally linked (Hayes, 2013). In the present study, we hypothesized the following casual chain of mediators in the relationship between T1 childhood abuse variables and T2/T3 prospective ASA: a relationship from childhood abuse variables to AdolSA, AdolSA to T1 depressive symptoms, T1 depressive symptoms to T1 SRNA, T1 SRNA to T1 Likely Sex, and T1 Likely Sex to T2/T3 ASA.

Model with All Childhood Abuse Types Included

First, a saturated sequential model including each of the three forms of childhood abuse, prospective ASA, and the hypothesized causal chain of mediators was examined. Correlations were specified between each childhood abuse variable, and all endogenous variables were regressed on the preceding variables in the hypothesized causal chain (see Figure 1, top). The saturated model was then compared to a more parsimonious model trimmed at $p < .20$ using the BIC criterion as outlined by Raftery (1995). The comparison indicated that the trimmed model was a better fit to the data, and this model was chosen for report. Several significant direct effects were detected and standardized path coefficients for the trimmed model are presented in Figure 1 (bottom).

The potential indirect effect of hypothesized mediating variables (i.e., AdolSA, T1 depression, T1 SRNA, and T1 Likely Sex) was tested using bias-corrected bootstrapped confidence intervals (Hayes, 2013). We derived the 95% confidence intervals for indirect effects and intervals including zero indicated a mediation effect that was not statistically significant. There was a significant indirect effect of CSA on T2/T3 ASA via AdolSA, T1

depression, and T1 Likely Sex ($\beta = .001$, 95% CI = $\sim .001$, .002). This same indirect effect was observed for CPA ($\beta = .001$, 95% CI = $\sim .001$, .003). In addition, the entire hypothesized causal-related mediator path (i.e., via AdolSA, T1 depression, T1 SRNA, and T1 Likely Sex) also emerged as significant for these two abuse types (CSA, $\beta = .001$; 95% CI = $\sim .001$, .001; CPA, $\beta = .001$, 95% CI = $\sim .001$, .002). In terms of CEA, no significant indirect effects were found; however, a strong direct effect from CEA to prospective ASA emerged ($\beta = .25$; 95% CI = .07, .42).

Models Examining Each Childhood Abuse Type Individually

Next, three subsequent models that examined the direct and indirect effects of each childhood abuse type on T2/T3 ASA separately were conducted. In each case, a saturated model was compared to a model trimmed at $p < .20$ (Raftery, 1995). For each childhood abuse model, the trimmed model was a better fit to the data. Standardized direct path coefficients for each trimmed child abuse type model are depicted in Figure 2.

CPA-Only Model—When examined individually, CPA evidenced several direct effects unique to the full abuse-type model. Specifically, a significant direct effect of CPA on T2/T3 ASA emerged, as well as direct relationships with T1 AdolSA, T1 depression, and T1 SRNA. In addition, AdolSA was associated with T1 depression. Much like the full model, T1 depression evidenced associations with all subsequent variables in the model (i.e., T1 SRNA, T1 Likely Sex, and T2/T3 ASA), T1 SRNA was associated with T1 Likely Sex, and T1 Likely Sex was directly related to T2/T3 ASA. Two significant indirect effects were detected. First, there was significant indirect effect of CPA history on T2/T3 ASA via AdolSA, T1 depression, and T1 Likely Sex ($\beta = .002$, 95% CI = $\sim .001$, .004). In addition, the full hypothesized indirect path (i.e., via AdolSA, T1 depression, T1 SRNA, and T1 Likely Sex) was significant ($\beta = .001$, 95% CI = $\sim .001$, .002).

CSA-Only Model—When examined individually, significant direct effects resultant from the CSA-only model were similar to those found in the full model, with CSA demonstrating a direct relationship with AdolSA only. T1 AdolSA was directly related to T1 depression and T2/T3 ASA, while T1 depression was directly associated with each subsequent variable in the model (i.e., T1 SRNA, T1 Likely Sex, and T2/T3 ASA). T1 SRNA was directly associated with T1 Likely Sex, and T1 Likely Sex was directly related to T2/T3 ASA. Four significant indirect effects emerged from the CSA-only model. First, there was a significant indirect effect of CSA on T2/T3 ASA via AdolSA alone ($\beta = .06$, 95% CI = .001, .12). In addition, there was a significant indirect effect of CSA on prospective ASA via AdolSA and T1 depression ($\beta = .01$, 95% CI = $\sim .001$, .02), as well as via AdolSA, T1 depression, and T1 Likely Sex ($\beta = .001$, 95% CI = $\sim .001$, .003). Finally, the full hypothesized indirect path was also significant (i.e., via AdolSA, T1 depression, T1 SRNA, and T1 Likely Sex; $\beta = .001$, 95% CI = $\sim .001$, .002).

CEA-Only Model—When examined individually, CEA evidenced direct effects similar to the full abuse-type model, as well as a direct relationship with AdolSA. Specifically, CEA was significantly directly related to AdolSA, T1 depression, T2/T3 ASA. In addition, AdolSA was directly related to T1 depression and T2/T3 ASA. Direct relationships between

T1 depression, T1 SRNA, T1 Likely Sex, and T2/T3 ASA were similar to those observed in the CPA- and CSA-only models. Three significant indirect effects of CEA on T2/T3 ASA emerged. First, there was an indirect effect of CEA on T2/T3 ASA via AdolSA, T1 depression, and T1 Likely Sex ($\beta = .001$, 95% CI = $\sim .001$, $.003$). There was also a significant indirect effect via T1 depression, T1 SRNA, and T1 Likely Sex ($\beta = .003$, 95% CI = $\sim .001$, $.007$). Lastly, the full hypothesized mediation chain (i.e., via AdolSA, T1 depression, T1 SRNA, and T1 Likely Sex) was supported for the CEA-only model ($\beta = .001$, 95% CI = $\sim .001$, $.002$).

Discussion

The goal of the present study was to explore how the use of SRNA may operate independently, and in combination with other psychosocial factors (i.e., AdolSA, depressive symptoms, and participants' forecasted sexual behavior), to increase college women's risk for sexual revictimization. A secondary goal was to investigate whether differences were detected in both risk and patterns of revictimization for three different childhood abuse types: childhood physical, sexual, and emotional abuse. In the full abuse-type model, a history of CPA and CSA significantly predicted subsequent AdolSA, which in turn predicted prospective ASA both directly and through additional mediating variables. CEA, AdolSA, depressive symptoms, and forecasted likelihood of sexual intercourse in a vignette also directly predicted prospective ASA, while SRNA did not. However, SRNA did directly predict greater likelihood of intercourse with a poorly-known partner in a sex-related vignette, which is in line with the hypothesized chain of mediators. While each childhood abuse type demonstrated different pathways to prospective ASA in subsequent models, they also evidenced a significant indirect effect on ASA via the full hypothesized mediational chain (i.e., via AdolSA, depression, SRNA, and Likely Sex).

CEA emerged as the only childhood abuse variable that directly predicted prospective ASA independently, and while controlling for the other childhood abuse types examined (i.e., CPA and CSA). These results suggest that emotional abuse during childhood may confer a more direct risk for adult sexual victimization, while physical and sexual abuse may operate through mediating variables (e.g., AdolSA, depressive symptoms). However, findings may be partly due to the higher occurrence of CEA in the present sample relative to CPA and CSA. Statistically, this means that there are more individual differences and better distributional properties for detecting the effects of CEA, as opposed to the other abuse types. Despite these influences, the present results suggest that childhood abuse types other than CSA confer risk for subsequent revictimization. As such, continued examination of the unique influence of various forms of childhood maltreatment on adult sexual victimization risk is warranted.

When examined separately, the childhood abuse types included in the present study appeared to increase risk for adult revictimization via different pathways. In the single-abuse-type models, CPA and CEA evidenced a direct relationship with prospective ASA, while the effect of CSA on adult revictimization seemed to operate solely through mediating variables. An indirect relationship between CSA and revictimization has been observed in prior research (e.g., Humphrey & White, 2000). Results from the CPA- and CEA-only

models suggest that these abuse types confer risk for prospective ASA directly, as well as via multiple mediational chains. Further, CEA was the only childhood abuse type that operated independently of AdolSA (i.e., via T1 depression directly). That is, while there was a significant direct path from childhood abuse to T1 depression in both the CEA- and CPA-only models, there was a significant indirect effect of T1 depression on the relationship between childhood abuse and prospective ASA for the emotional abuse model only. It is important to note, however, that the abuse forms in the present study, as is the case with the general population, are not discrete. As such, the high rates of co-occurrence between abuse types should be taken into account when drawing conclusions about relations between child abuse types and other variables. Despite varied direct and indirect relationships, each of the childhood abuse types also influenced the occurrence of prospective ASA through the full hypothesized mediation path (i.e., via AdolSA, depression, SRNA, and Likely Sex). The emergence of this pattern across abuse types is especially noteworthy given the length of the hypothesized path.

Across models, sexual assault in adolescence and depressive symptoms emerged as particularly robust mediators of the relationship between childhood abuse and prospective revictimization. Findings are in line with previous research noting that sexual assault during adolescence places women at increased risk for ASA (e.g., Classen et al., 2005) and that experiencing both childhood abuse and AdolSA confers the greatest risk for adult revictimization (Humphrey & White, 2000). AdolSA appeared to play a particularly strong mediating role in the relationship between CSA and prospective ASA in the present results, as no direct relationship was observed from CSA to revictimization in college (yet over 45% of CSA survivors reported experiencing AdolSA). This is in line with previous findings by Humphrey & White (2000), who found that the relationship observed between CSA and college victimization disappeared when they controlled for AdolSA in their analyses. It is important to note that, in the present study, CSA was operationalized as occurring before 13 years old and AdolSA as occurring between ages 13–18. Consequently, the robust relationship observed between CSA and AdolSA may also reflect chronic sexual abuse over time instead of discrete childhood and adolescent experiences. Further, definitions of CSA and ASA have been shown to affect the strength of the revictimization relationship in previous research (e.g., Roodman & Clum, 2001), such that individuals with more severe CSA histories are at increased risk for subsequent ASA. While the present findings are consistent with Humphrey and White (2000), it is possible that the present study's assessment of CSA was not limited to severe cases, potentially weakening the relationship between CSA and prospective ASA.

Several previous studies have observed the mediating role of depression and anxiety on the relationship between childhood abuse, risky sexual behavior, and revictimization (Gidycz et al., 1993; Littleton et al., 2013; Orcutt et al., 2005). Much of the revictimization literature has focused on the mediating role of posttraumatic stress disorder (PTSD) symptoms in the path from childhood abuse to ASA (e.g., Fortier et al., 2009; Risser, Hetzel-Riggen, Thomsen, & McCanne, 2006). Depressive symptoms were highly associated with many of the variables explored in the present analyses, suggesting that continued examination of depression's role in the revictimization phenomenon is warranted. Due to high rates of comorbidity between depression and PTSD (e.g., Kessler, Sonnega, Hughes, & Nelson,

1995), research examining the unique roles of both symptom-types may be worthwhile. Overall, the present findings suggest that, for women reporting a history of childhood abuse, AdolSA and symptoms of depression significantly increase risk for sexual assault in college.

Women endorsing high rates of depression and SRNA also rated themselves as more likely to engage in sexual intercourse with a poorly-known partner in a behavioral vignette. This finding suggests that women with histories of childhood abuse and/or AdolSA may enter into sexual relationships with poorly-known partners intentionally, which may increase risk for revictimization. To our knowledge, no prior study has examined women's ratings of hypothetical sex behavior as a prospective predictor of sexual assault. While the predictive power of the Likely Sex item is promising, yet to be examined is exactly *how* participants' response to the vignette confers risk for future victimization. It is possible that responses on the Likely Sex item simply reflect past behavior, which is highly predictive of future behavior. It is also possible that a combination of emotional, motivational, and expectancy factors contribute to high-risk sexual behavior. That is, the beliefs or expectancies that victims hold regarding sexual experiences (e.g., if I have sex I will feel better) likely motivate engagement in sexual behavior. In line with this view, Walsh and colleagues (2013) found that low perceived sexual control resultant from CSA influenced college women's sex-related alcohol expectancies, which was associated with a higher likelihood of risky sexual behavior and revictimization. Thus, one potential avenue for future research is investigating whether participants' forecasting of hypothetical sexual behavior reliably predicts future behavior. Further, the present findings suggest that women may not exclusively make risky sexual choices "in the moment," but instead may have reliable estimates of their future sexual behavior. Continued exploration of this potential distinction will be important for improving sexual risk interventions, as efforts may be best directed at those who foresee a high likelihood of engaging in risky behavior.

The present results potentially further understanding of the relations between distress, sex-related coping, and risk for revictimization. Across models, self-reported SRNA was not directly associated with a history of CSA, CEA, AdolSA or ASA in any of the path model examined. CPA was the only victimization variable that evidenced a direct relationship with SRNA in both the full and CPA-Only models. These results are consistent with findings by Sterk and colleagues (2011) that suggested a history of CPA is uniquely associated with sexual coping behavior. The finding that SRNA did not directly predict prospective ASA is contrary to previous findings (Orcutt et al., 2005), though the bivariate correlation between SRNA and ASA in the present study was significant. Orcutt and colleagues (2005) found that the path from SRNA and prospective revictimization was significantly reduced when sexual behavior was included in their model (i.e., number of new sexual partners). The Likely Sex item included in the present study may be operating similarly, potentially accounting for the lack of direct relationship between SRNA and prospective ASA. Overall, SRNA seemed to play a significant role in the pathway from childhood abuse to adult sexual victimization. Future research should examine whether emotion regulation difficulties or problems with affect regulation predict SRNA and forecasted sex with a stranger. It may be that interventions designed to provide women with more adaptive affect regulation strategies

following interpersonal trauma decrease sexual risk, with the potential to disrupt revictimization cycles.

Limitations

Findings from the present study should be considered in the context of several limitations. First, despite being a study of sexual revictimization (a phenomenon predominantly observed in women), exploring the present relationships in a more gender-diverse sample is warranted given significant rates of male sexual assault and links between CSA and revictimization risk in this population (Desai, et al., 2002). The present sample also consisted of students enrolled in an Introductory Psychology course, which may not be wholly representative of a college student sample. Another limitation is that a significant direct relationship was not observed between a history of CSA and ASA. While unexpected, Zhao, Lynch Jr., and Chen (2010) note that a significant zero-order effect of the independent variable on the dependent variable is not necessary in order to establish mediation. Another potential limitation is that the indirect effects observed in the present study are quite small. This can be expected, however, given the low base-rate of prospective ASA, as well as the number of hypothesized causal paths in the present model (i.e., an indirect effect comprised of many paths will result in a small effect because the paths are multiplied). Further, the models used in the present study are not entirely prospective, but instead describes a retrospective analysis of correlations among several variables. Thus, causal relationships between T1 variables in the chain cannot be established.

Other shortcomings of the present study pertain to assessment. First, the present study did not assess childhood neglect, despite the robust prevalence and impact of this form of maltreatment (e.g., Stoltenborgh, Bakermans-Kranenburg, & van IJzendoorn, 2013). Future research might explore relations among the present variables and childhood neglect. Additional limitations are related to the assessment of abuse. Specifically, the present study assessed the impact (i.e., injury) of childhood physical abuse rather than behavioral acts (e.g., hitting, slapping). While assessing physical consequences of abuse is not unique to the present study (e.g., Milner et al., 1990), others studies choose to assess behavioral acts that constitute CPA (e.g., Messman-Moore et al., 2010). Similarly, our assessment of CEA, which focused on verbal communications from a caregiver that undermine an individual's sense of self-worth and competence, may be more broadly defined than that used in other research (e.g., Binggelli, Hart, & Brassard, 2001). An additional limitation is that the time periods used to indicate instances of CSA (age 12 years and younger) and childhood physical and emotional abuse (age 14 years and younger) were not identical, somewhat limiting our ability to compare and contrast findings across abuse types. While the time frames are similar enough to examine their relative influence on variables of interest, future studies might utilize the same time frame across abuse types to address this issue. Regarding our assessment of prospective ASA, the rates observed in the present study (approximately 10% of the sample) were somewhat lower than would be expected given other studies of sexual revictimization using a similar follow-up period (e.g., Giodycz et al., 1995; Messman-Moore, Ward, & Zerubavel, 2013). It may be that the present study's assessment of ASA contributed to the low prevalence rates observed, limiting generalizability and making it difficult to draw firm conclusions from results.

Finally, the present study did not include indicators of other childhood stressors shown to accompany chronic and/or multiple forms of childhood abuse, such as domestic violence, substance abuse, and economic stressors (see Shonkoff et al., 2012 for review). While the present study was interested in exploring the roles of distress and sexual activity in the path from childhood abuse to revictimization, these other factors are also important in understanding the impact of childhood abuse. Relatedly, the present study neglected to examine potential mediators of the relationship between childhood abuse and sexual victimization in adolescence. Much like research on ASA, distress and sexual risk behaviors are also associated with AdolSA (e.g., Bramsen et al., 2013; Howard & Wang, 2005). Because AdolSA emerged as a robust mediator in the path from childhood abuse to prospective ASA in the present analyses, there is a clear need for research that examines processes that drive the occurrence of AdolSA. Specifically, it would be useful to know if these processes are similar or different from those that explain the dynamics of adult revictimization, and whether they are amenable to change.

Conclusion

Despite limitations, the present findings contribute to existing research on the pathway from childhood abuse to adult sexual revictimization, and identify important targets for intervention and risk reduction programming among survivors of abuse and assault. Specifically, the present study broadens previous literature examining the effect of using SRNA on revictimization risk (e.g., Orcutt et al., 2005), as well as provides evidence that a history of diverse forms of childhood abuse are implicated in this pathway. Notably, a history of childhood physical or emotional abuse demonstrated a direct relationship with prospective ASA, while a history of CSA seemed to confer risk indirectly via victimization in adolescence. Further, each childhood abuse type examined demonstrated relations with ASA via adolescent assault, depressive symptoms, SRNA, and forecasted likelihood of risky sexual behavior. The present results suggest that assessing individuals' predictions of hypothetical sexual behavior may offer valuable information regarding who may be at increased risk for victimization and would benefit from targeted intervention efforts. While tentatively inferred from the present results, future research should examine whether estimates of likely sexual behavior reliably predict subsequent behavior, or whether this mediator operates via different mechanisms.

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References

- Arata CM. Child sexual abuse and sexual revictimization. *Clinical Psychology: Science and Practice*. 2002; 9:135–164.10.1093/clipsy.9.2.135
- Batten SV, Follette VM, Aban I. Experiential avoidance and high-risk sexual behaviors in survivors of child sexual abuse. *Journal of Child Sexual Abuse*. 2001; 10:101–120. doi: 10.1300%2FJ070v10n02_06. [PubMed: 15154403]
- Berzenski SR, Yates TM. Classes and consequences of multiple maltreatment: A person-centered analysis. *Child Maltreatment*. 2011; 16:250–261.10.1177/1077559511428353 [PubMed: 22146858]

- Binggeli, NJ.; Hart, SN.; Brassard, MR. Psychological maltreatment of children: The APSAC study guides 4. Thousand Oaks, CA: Sage; 2001.
- Bramsen RH, Lasgaard M, Koss MP, Shevlin M, Elklit A, Banner J. Testing a multiple mediator model of the effect of childhood sexual abuse on adolescent sexual victimization. *American Journal of Orthopsychiatry*. 2013; 83:47–54.10.1111/ajop.12011 [PubMed: 23330622]
- Briere JN, Elliott DM. Prevalence and psychological sequelae of self-reported childhood physical and sexual abuse in a general population sample of men and women. *Child Abuse & Neglect*. 2003; 27:1205–1222.10.1016/j.chiabu.2003.09.008 [PubMed: 14602100]
- Briere JN, Runtz M. Differential adult symptomatology associated with three types of child abuse histories. *Child Abuse and Neglect*. 1990; 146:357–364.10.1016/0145-2134(90)90007-g [PubMed: 2207804]
- Classen CC, Palesh OG, Aggarwal R. Sexual revictimization: A review of the empirical literature. *Trauma, Violence, and Abuse*. 2005; 6:103–129.10.1177/1524838005275087
- Cloitre M, Tardiff K, Marzuk PM, Leon AC, Potera L. Childhood abuse and subsequent sexual assault among female inpatients. *Journal of Traumatic Stress*. 1996; 9:473–482.10.1007/BF02103659 [PubMed: 8827650]
- Cloitre M, Miranda R, Stovall-McClough KC, Han H. Beyond PTSD: Emotion regulation and interpersonal problems as predictors of functional impairment in survivors of childhood abuse. *Behavior Therapy*. 2005; 36:119–124. doi:10.1016%2FS0005-7894%2805%2980060-7.
- Cooper ML, Agocha VB, Sheldon MS. A motivational perspective on risky behaviors: The role of personality and affect regulatory processes. *Journal of Personality*. 2000; 68:1059–1088.10.1111/1467-6494.00126 [PubMed: 11130732]
- Cooper ML, Shapiro CM, Powers AM. Motivations for sex and risky sexual behavior among adolescents and young adults: A functional perspective. *Journal of Personality and Social Psychology*. 1998; 75:1528–1558.10.1037/0022-3514.75.6.1528 [PubMed: 9914665]
- Cooper ML, Wood PK, Orcutt HK, Albino AW. Personality and predisposition to engage in risky or problem behaviors during adolescence. *Journal of Personality and Social Psychology*. 2003; 84:390–410.10.1037/0022-3514.84.2.390 [PubMed: 12585812]
- Crepaz N, Marks G. Are negative affective states associated with HIV sexual risk behaviors? A meta-analytic review. *Health Psychology*. 2001; 20:291.10.1037/0278-6133.20.4.291 [PubMed: 11515741]
- Cuevas CA, Finkelhor D, Clifford C, Ormrod RK, Turner HA. Psychological distress as a risk factor for re-victimization in children. *Child Abuse & Neglect*. 2010; 34:235–243.10.1016/j.chiabus, 2009.07.004 [PubMed: 20304492]
- Dawson LH, Shih MC, de Moor C, Shrier L. Reasons why adolescents and young adults have sex: Associations with psychological characteristics and sexual behavior. *Journal of Sex Research*. 2008; 45:225–232.10.1080/00224490801987457 [PubMed: 18686151]
- Desai S, Arias I, Thompson MP, Basile KC. Childhood victimization and subsequent adult revictimization assessed in a nationally representative sample of women and men. *Violence and Victims*. 2002; 17:639–653. doi:10.1891%2Fvivi.17.6.639.33725. [PubMed: 12680680]
- Fargo JD. Pathways to adult sexual revictimization: Direct and indirect behavioral risk factors across the lifespan. *Journal of Interpersonal Violence*. 2009; 24:1771–1791. doi: 10.1177%2F0886260508325489. [PubMed: 18931368]
- Fortier MA, DiLillo D, Messman-Moore TL, Peugh J, DeNardi KA, Gaffey KJ. Severity of child sexual abuse and revictimization: The mediating role of coping and trauma symptoms. *Psychology of Women Quarterly*. 2009; 33:308–320. doi:10.1111%2Fj.1471-6402.2009.01503.x.
- Gidycz CA, Coble CN, Latham L, Layman MJ. Sexual assault experience in adulthood and prior victimization experiences: A prospective analysis. *Psychology of Women Quarterly*. 1993; 17:151–168. doi:10.1111%2Fj.1471-6402.1993.tb00441.x.
- Gratz KL, Bornova MA, Delaney-Brumsey A, Nick B, Lejuez CW. A laboratory based study of the relationship between childhood abuse and experiential avoidance among inner-city substance abusers: The role of emotional nonacceptance. *Behavior Therapy*. 2007; 38:256–268. doi: 10.1016%2Fj.beth.2006.08.006. [PubMed: 17697851]

- Harkness, KL.; Lumley, MN. Child abuse and neglect and the development of depression in children and adolescents. In: Abela, JRZ.; Hankin, BL., editors. *Handbook of Depression in Children and Adolescents*. New York: Guilford Press; 2008. p. 466-487.
- Hayes, AF. *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York: Guilford Press; 2013.
- Hetzel MD, McCanne TR. The roles of peritraumatic dissociation, child physical abuse, and child sexual abuse in the development of posttraumatic stress disorder and adult victimization. *Child Abuse & Neglect*. 2005; 29:915–930.10.1016/j.chiabu.2004.11.008 [PubMed: 16125234]
- Howard DE, Wang MQ. Psychosocial correlates of U.S. adolescents who report a history of forced sexual intercourse. *Journal of Adolescent Health*. 2005; 36:372–379.10.1016/j.jadohealth.2004.07.007 [PubMed: 15837340]
- Hurlbut SC, Sher KJ. Assessing alcohol problems in college students. *Journal of American College Health*. 1992; 41:49–58.10.1080/07448481.1992.10392818 [PubMed: 1460173]
- Humphrey JA, While JW. Women's vulnerability to sexual assault from adolescence to young adulthood. *Journal of Adolescent Health*. 2000; 27:419–424.10.1016/S1054-139X(00)00168-3 [PubMed: 11090744]
- Kessler RC, Sonnega A, Hughes M, Nelson CB. Posttraumatic stress disorder in the National Comorbidity Survey. *Archives of General Psychiatry*. 1995; 52:1048–1060.10.1001/archpsyc.1995.03950240066012 [PubMed: 7492257]
- Krahe B, Scheinberger-Olwig R, Waizenhofer E, Kolpin S. Childhood sexual abuse and revictimization in adolescence. *Child Abuse and Neglect*. 1999; 23:383–394. doi: 10.1016%2FS0145-2134%2899%2900002-2. [PubMed: 10321775]
- Kubany ES, Haynes SN, Leisen MB, Owens JA, Kaplan AS, Watson SB, Burns K. Development and preliminary validation of a brief broad-spectrum measure of trauma exposure: The Traumatic Life Events Questionnaire. *Psychological Assessment*. 2000; 12:210–224.10.1037//1040-3590.12.2.210 [PubMed: 10887767]
- Littleton HL, Grills-Taquechel AE, Buck KS, Rosman L, Dodd JC. Health risk behavior and sexual assault among ethnically diverse women. *Psychology of Women Quarterly*. 2013; 37:7–21.10.1177/0361684312451842 [PubMed: 24223467]
- Lovibond, SH.; Lovibond, PF. *Manual for the Depression Anxiety Stress Scales*. 2. Sydney: Psychology Foundation; 1995.
- Messman-Moore TL, Long PJ. The role of childhood sexual abuse sequelae in the sexual revictimization of women: An empirical review and theoretical reformulation. *Clinical Psychology Review*. 2003; 23:537–571.10.1016/S0272-7358(02)00203-9 [PubMed: 12788109]
- Messman-Moore TL, Walsh KL, DiLillo D. Emotion dysregulation and risky sexual behavior in revictimization. *Child Abuse & Neglect*. 2010; 34:967–976.10.1016/j.chiabu.2010.06.004 [PubMed: 21030084]
- Messman-Moore TL, Ward RM, Zerubavel N. The role of substance use and emotion dysregulation in predicting risk for incapacitated sexual revictimization in women: Results of a prospective investigation. *Psychology of Addictive Behaviors*. 2013; 27:125.10.1037/a0031073 [PubMed: 23276308]
- Milner JS, Robertson KR, Rogers DL. Childhood history of abuse and adult child abuse potential. *Journal of Family Violence*. 1990; 5:15–34.10.1016/j.chiabu.2013.09.010
- Muthén, LK.; Muthén, BO. *Mplus User's Guide*. 7. Los Angeles, CA: Muthén & Muthén; 1998–2012.
- Orcutt HK, Cooper ML, Garcia M. Use of sexual intercourse to reduce negative affect as a prospective mediator of sexual revictimization. *Journal of Traumatic Stress*. 2005; 18:729–739.10.1002/jts.20081 [PubMed: 16382425]
- Patrick ME, Maggs JL. Profiles of motivations for alcohol use and sexual behavior among first-year university students. *Journal of Adolescence*. 2010; 33:755–765.10.1016/j.adolescence.2009.10.003 [PubMed: 19922994]
- Raftery AE. Bayesian model selection in social research. *Sociological Methodology*. 1995; 25:111–163.10.2307/271063

- Risser HJ, Hetzel-Riggin MD, Thomsen CJ, McCanne TR. PTSD as a mediator of sexual revictimization: The role of reexperiencing, avoidance, and arousal symptoms. *Journal of Traumatic Stress*. 2006; 19:687–698.10.1002/jts.20156 [PubMed: 17075896]
- Roodman AA, Clum GA. Revictimization rates and method variance: A meta-analysis. *Clinical Psychology Review*. 2001; 21:183–204. Retrieved from <http://www.journals.elsevier.com/clinical-psychology-review/>. [PubMed: 11293365]
- Rosenthal MZ, Rasmussen Hall MA, Palm KM, Batten SV, Follette VM. Chronic avoidance helps explain the relationship between severity of childhood sexual abuse and psychological distress in adulthood. *Journal of Child Sexual Abuse*. 2005; 4:25–41. doi:10.1300%2FJ070v14n04_02. [PubMed: 16354647]
- Senn TE, Carey MP. Child maltreatment and women's adult sexual risk behavior: Childhood sexual abuse as a unique risk factor. *Child Maltreatment*. 2010; 15:324–335.10.1177/1077559510381112 [PubMed: 20930181]
- Senn TE, Carey MP, Vanable PA, Coury-Doniger P, Urban M. Characteristics of sexual abuse in childhood and adolescence influence sexual risk behavior in adulthood. *Archives of Sexual Behavior*. 2007; 36:637–45.10.1007/s10508-006-9109-4 [PubMed: 17192833]
- Shonkoff JP, Garner AS, Siegel BS, Dobbins MI, Earls MF, McGuinn L, Wood DL. The lifelong effects of early childhood adversity and toxic stress. *Pediatrics*. 2012; 129:e232–e246.10.1542/peds.2011-2663 [PubMed: 22201156]
- Simons L, Ducette J, Kirby KC, Stahler G, Shipley TE. Childhood trauma, avoidance coping, and alcohol and other drug use among women in residential and outpatient treatment programs. *Alcoholism Treatment Quarterly*. 2003; 21:37–54.10.1300/J020v21n04_04
- Sterk CE, Klein H, Elifson KW. The relationship between sexual coping and the frequency of sexual risk among 'at risk' African American women. *Women's Health & Urban Life: An International and Interdisciplinary Journal*. 2011; 10:56. Retrieved from <http://www.uts.utoronto.ca/~womenshealth/womenshealth/Home.html>.
- Stermac L, Reist D, Addison M, Millar GM. Childhood risk factors for women's sexual victimization. *Journal of Interpersonal Violence*. 2002; 17:647–670.10.1177/0886260502017006004
- Stoltenborgh M, Bakermans-Kranenburg MJ, van IJzendoorn MH. The neglect of child neglect: A meta-analytic review of the prevalence of neglect. *Social Psychiatry and Psychiatric Epidemiology*. 2013; 48:345–355.10.1007/s00127-012-0549-y [PubMed: 22797133]
- Teisl M, Cicchetti D. Physical abuse, cognitive and emotional processes, and aggressive/disruptive behavior problems. *Social Development*. 2008; 17:1–23.10.1111/j.1467-9507.2007.00412.x
- Tice DM, Bratslavsky E, Baumeister RF. Emotional distress regulation takes precedence over impulse control: If you feel bad, do it! *Journal of Personality and Social Psychology*. 2001; 80:53–67. doi: 10.1037%2F%2F0022-3514.80.1.53. [PubMed: 11195891]
- Walsh K, Latzman NE, Latzman RD. Pathway from child sexual and physical abuse to risky sex among emerging adults: The role of trauma-related intrusions and alcohol problems. *Journal of Adolescent Health*. 2014; 54:442–448.10.1016/j.jadohealth.2013.09.020 [PubMed: 24268710]
- Walsh K, Messman-Moore T, Zerubavel N, Chandley RB, DeNardi KA, Walker DP. Perceived sexual control, sex-related alcohol expectancies and behavior predict substance-related sexual revictimization. *Child Abuse and Neglect*. 2013; 37:353–359.10.1016/j.chiabu.2012.11.009 [PubMed: 23312991]
- Widom CS, Czaja SJ, Dutton MA. Childhood victimization and lifetime revictimization. *Child Abuse and Neglect*. 2008; 32:785–796.10.1016/j.chiabu.2007.12.006 [PubMed: 18760474]
- Wilson K, Asbridge M, Kisely S, Langille D. Associations of risk of depression with sexual risk taking among adolescents in Nova Scotia high schools. *Canadian Journal of Psychiatry*. 2010; 55:577–85.10.1037/e515152013-001
- Zhao X, Lynch JG Jr, Chen Q. Reconsidering Baron and Kenny: Myths and truths about mediation analysis. *Journal of Consumer Research*. 2010; 37:197–206.10.1086/651257
- Zurbriggen EL, Gobin RL, Freyd JJ. Childhood emotional abuse predicts late adolescent sexual aggression perpetration and victimization. *Journal of Aggression, Maltreatment, & Trauma*. 2010; 19:204–223.10.1080/10926770903539631

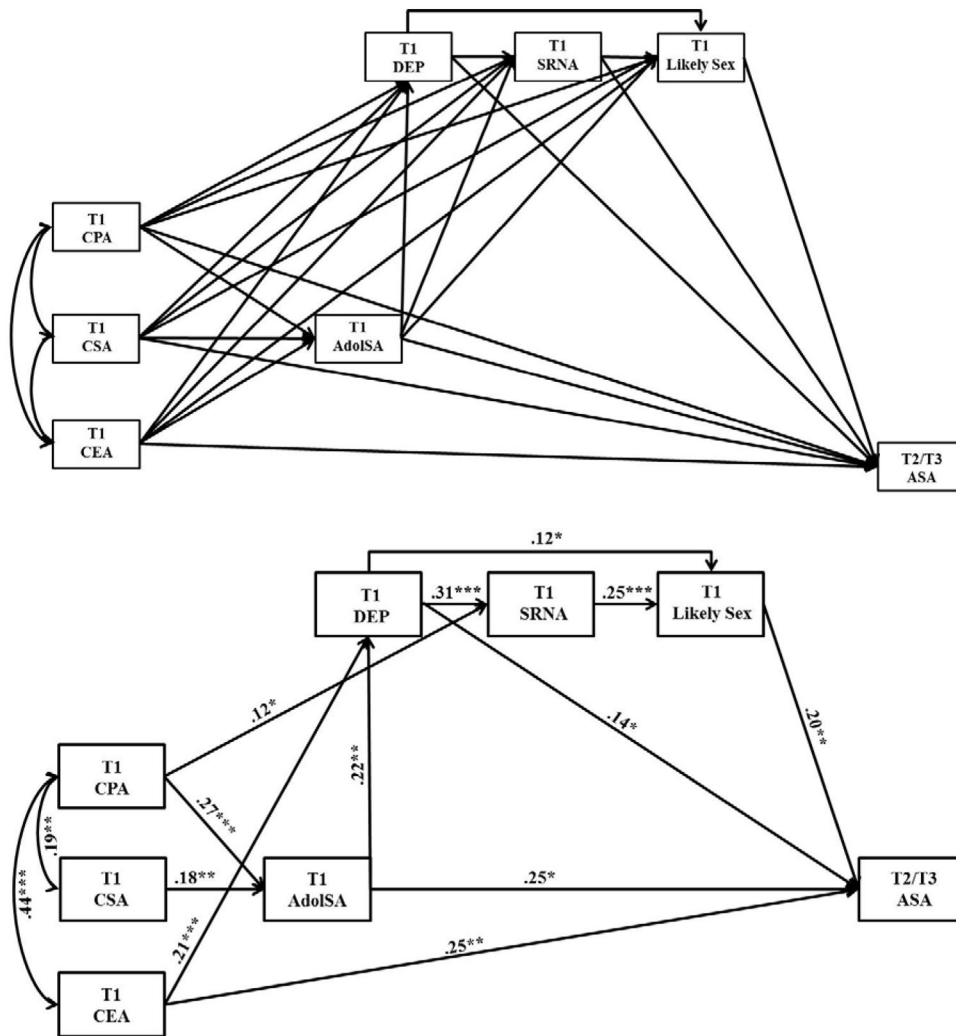


Figure 1. Saturated (top) and trimmed (bottom) path models of the direct effects of time 1 (T1) adolescent sexual assault (AdolSA), depressive symptoms (DEP), sex to reduce negative affect (SRNA), and forecasted likelihood of sexual intercourse with a poorly-known partner (Likely Sex) on the relationship between childhood abuse variables (i.e., childhood physical abuse [CPA], childhood sexual abuse [CSA], and childhood emotional abuse [CEA]) and time 2/time 3 (T2/T3) adult sexual assault (ASA). $N = 541$. Path coefficients are standardized regression coefficients. Model is estimated controlling for days between assessments. $*p < .05$. $**p < .01$. $***p < .001$.

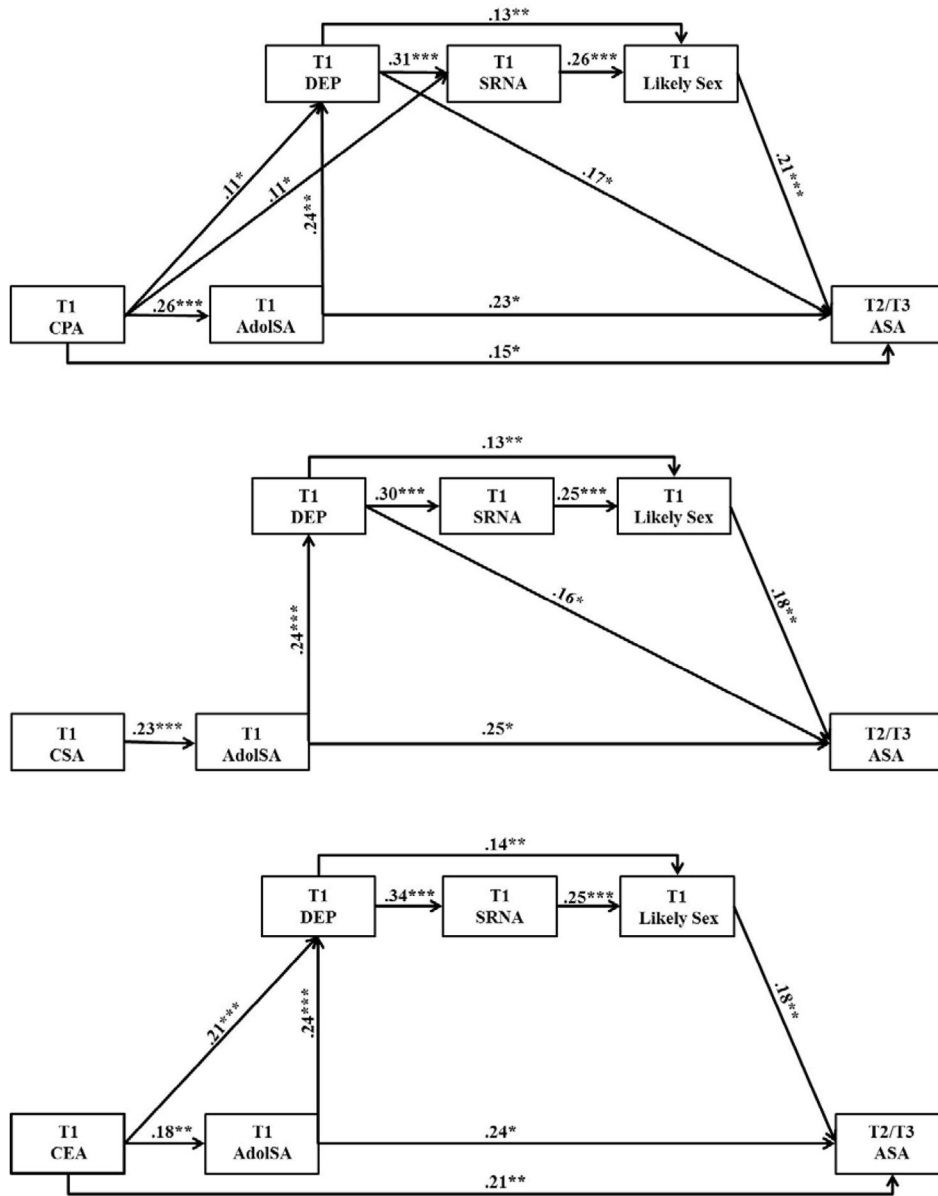


Figure 2. Trimmed path models of the direct effects of time 1 (T1) adolescent sexual assault (AdSA), depressive symptoms (DEP), sex to reduce negative affect (SRNA), and forecasted likelihood of sexual intercourse with a poorly-known partner (Likely Sex) on the relationship between childhood abuse variables (i.e., childhood physical abuse [CPA; top], childhood sexual abuse [CSA; middle], and childhood emotional abuse [CEA; bottom]) and time 2/time 3 (T2/T3) prospective adult sexual assault (P-ASA). $N = 541$. Path coefficients are standardized regression coefficients. Models are estimated controlling for days between assessments. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 1

Correlations Among Main Study Variables and Descriptive Statistics

	1	2	3	4	5	6	7	8	9
1. T1	-								
CPA									
2. T1	.20***	-							
CSA									
3. T1	.42***	.07	-						
CEA									
4. T1	.20***	.25***	.13**	-					
AdSA									
5. T1	.17***	.02	.22***	.19***	-				
DEP									
6. T1	.16***	.02	.12**	.12**	.32***	-			
SRNA									
7. T1	.06	-.01	.10*	.07	.21***	.30***	-		
Likely Sex									
8. T2/T3	.17***	.001	.21***	.16***	.21***	.17***	.23***	-	
P-ASA									
9. Interval (days)	-.01	-.15***	-.07	.003	.02	.01	.02	.07	-
<i>M</i>	-	-	-	-	1.45	1.39	6.33	-	56.54
<i>SD</i>	-	-	-	-	.49	.61	15.57	-	23.63
<i>Min</i>	0	0	0	0	1	.21	0	0	3
<i>Max</i>	1	1	1	1	3.43	1.00	100	1	113
<i>N</i>	533	539	533	536	541	533	541	541	541

Note. T1 = Time 1; T2 = Time 2; T3 = Time 3; Race is coded as 1 = non-Hispanic White 0 = all others; CPA = childhood physical abuse (14 or younger); CSA = childhood sexual abuse (12 or younger); CEA = childhood emotional abuse (14 or younger); AdSA = adolescent sexual assault (13-17); DEP = depression symptoms; SRNA = sex to reduce negative affect; Likely Sex = forecasted likelihood of sexual intercourse with a poorly-known partner; P-ASA = prospective adult sexual assault; Interval (days) = number of days between first (T1) and last (T2 or T3) assessment.

* $p < .05$.

**
 $p < .01$.

 $p < .001$