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The Impact of Childhood Sexual Abuse on Adult Sexual Assault Victimization, Psychological Distress and Substance Use

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THE IMPACT OF CHILDHOOD SEXUAL ABUSE ON ADULT SEXUAL
ASSAULT VICTIMIZATION, PSYCHOLOGICAL DISTRESS AND
SUBSTANCE USE

by

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A thesis submitted in partial fulfillment of the requirements
for the Honors Undergraduate Thesis Program in Psychology
in the College of Sciences
and in the Burnett Honors College
at the University of Central Florida
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Thesis Chair: Jacqueline Woerner

ABSTRACT

The goal of this thesis is to explore the mechanisms underlying the association between women's experiences of child sexual abuse (CSA) and substance use in adulthood. Specifically, I evaluated the role of CSA, adult sexual victimization (ASA) and psychological distress including symptoms of depression, perceived stress, and PTSD on substance use. Research has shown that individuals who experience CSA are more likely to experience ASA, which results in psychological distress. Individuals may engage in substance use to cope with psychological distress from CSA and ASA, consistent with the self-medication hypothesis. Women ($N = 225$) were recruited from Mechanical Turk (MTurk) and completed an online survey. Results indicate positive correlations between CSA, ASA, psychological distress, problem drinking, and drug use. Further, there was an indirect effect of CSA on substance use through ASA, but not psychological distress. Results highlight the importance of trauma informed care for women's psychological distress and problem substance use.

DEDICATION

For my mother, thank you for instilling resilience and perseverance within me. For my father, thank you for the support and laughter when I was overwhelmed. For my nana and papa, thank you for being a listening ear, consistently motivating me and providing words of reassurance throughout my undergraduate career.

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INTRODUCTION

Women with histories of childhood sexual abuse (CSA) are more likely to engage in alcohol and other substance use compared to women without an history of CSA (Messman-Moore & Long, 2000; Classen et al., 2005). CSA is defined as any unwanted sexual contact perpetrated by an adult or by a child five years or older (Mayall & Gold, 1995; Johnson, 2004; Hornor, 2010). However, additional research is needed to assess potential underlying mechanisms of the association between CSA experiences and substance use. Two factors that warrant further consideration are psychological distress and adult sexual assault (ASA) victimization (Ullman, 2003; Ullman et al., 2008; Filipa's & Ullman; 2006; Messman-Moore; 2015). ASA is defined as unwanted sexual experiences, sexual contact, sexual coercion, and forcible rape experienced after the age of 14 (Pinchevsky et al., 2019). CSA victims are between two to eleven times more likely to experience adult sexual assault victimization, with higher risk depending on CSA frequency (Mayall & Gold, 1995; Fergusson et al., 1997; Arata, 2000; Filipa's & Ullman, 2006). Psychological distress is defined as an emotional and or discomforting state experienced by an individual, and includes symptoms of perceived stress, depression and post-traumatic stress disorder (Ridner, 2003). Women may engage in substance use as a means of coping with psychological distress and CSA and ASA experiences, consistent with the self-medication model of substance use, in which people aim to numb, reduce, or escape from psychological pain (Khantzian,1997; Ullman, 2009; Broman et al.,2020).

Studies suggest that one-fifth to one-third of women in the United States have experienced CSA, which may cause psychological distress throughout adulthood, as well as

substance use as a form of self-medication (Johnson et al., 2004; Walsh et al, 2010; Miller, 2013; Gray & Rarick, 2018; Broman et al., 2020). CSA is perpetrated by many types of offenders such as women, men, strangers, and trusted friends and family (Murray et al., 2014). Moreover, it has been found that only 1 in 20 occurrences of CSA victimization are reported (Kellogg, 2005; Hornor, 2010). This emphasizes the dire need for further research on the mechanisms underlying the relationship between CSA and substance use in adulthood to promote recovery and well-being following CSA victimization and reduce the likelihood of problem substance use.

The aim of this study is to evaluate associations between women's experiences of CSA, ASA, psychological distress, and substance use. Specifically, I hypothesize that CSA will be associated with increased psychological distress (i.e., depression, perceived stress, and post-traumatic stress disorder [PTSD] symptoms) and ASA victimization. Further, I hypothesize that psychological distress and ASA will be associated with increased substance use (See Figure 1 for conceptual model).

Childhood Sexual Abuse and Problem Substance Use

CSA is defined as any unwanted sexual conduct or contact perpetrated by an adult or by a child five years or older (Mayall & Gold, 1995; Johnson, 2004; Hornor, 2010). This may include unwanted intercourse, fondling, touching genitals, and exposing children to pornography or forcing the child to participate in pornography (Mayall & Gold, 1995; Johnson, 2004). CSA may not be reported due to a child not recognizing an action by an adult as inappropriate and or a young child may not be able to communicate what they are experiencing due to their young age (Johnson, 2004). CSA is more prevalent in girls compared to boys, and risk for sexual victimization increases as women age (Gray & Rarick, 2018). The average duration of child

sexual abuse ranges between two and six years (Polusny & Follette, 1995; Arata, 2000). CSA victimization experienced for a long duration, through the use of threat or force, sexual penetration, and involvement with a parental figure is more strongly associated with substance use in adulthood (Polusny & Follette, 1995).

CSA may lead to increased substance use, particularly when CSA is chronic or severe (Wamser-Nanney & Campbell, 2019). Research has found women who have experienced CSA are more likely to engage in problem alcohol use compared to women who have not experienced CSA (Simpson & Miller, 2002). Furthermore, between 14% to 31% of women who have been diagnosed with substance use disorders have experienced CSA compared to 3% to 12% who were diagnosed with a substance use disorder but were not sexually abused as a child (Polusny & Follette, 1995). Substance use may be used to cope with CSA, as a form of self-medication to escape psychological distress (Khantzian, 1997; Whiffen and Macintosh, 2005). To better understand these pathways, it is important to evaluate potential variables that underlie these associations. Accordingly, in the current study, I explore associations with CSA, ASA, psychological distress, and substance use. CSA and ASA survivors who engage in substance use in adulthood potentially feel distressed by trauma from childhood and therefore engage in substance use as a means to temporarily reduce psychological distress and cope with their trauma experiences (Whiffen & Macintosh, 2005).

Sexual Assault Victimization in Adulthood

Sexual assault victimization in childhood increases vulnerability to revictimization in adulthood (Messman-Moore & Long, 2000; Arata, 2000). CSA and ASA have been associated with higher levels of trauma symptoms compared to a single incident of sexual victimization

(Classen et al., 2005; Fortier et al., 2009). A recent meta-analysis of 80 studies with more than 12,000 CSA survivors reported that 47.9% were sexually victimized again in the future (Walker et al., 2019; Papalia et al., 2020). Moreover, individuals who experience CSA and ASA report being younger at the time of their initial sexual victimization compared to individuals who are not sexually victimized in adulthood (Papalia et al., 2020).

Research has found that women who experienced both CSA and ASA experienced the greatest frequency and duration of sexual victimization in childhood compared to CSA only victims (Classen et al., 2005; Papalia et al., 2020). CSA victims who were victimized in adulthood were more likely to have experienced penetration or intercourse during their child victimization, with nearly 50% of repeated victims reporting intercourse or penetration compared to 25% of child only victims (Arata, 2000). Moreover, experiencing CSA perpetrated by family members increases the risk for ASA victimization, followed by sexual abuse from peers, and then non-family members (Arata, 2000; Classen et al., 2005). Women who have experienced CSA may be less likely to report experiences of ASA if they believe the behavior is normal due to their childhood experiences, highlighting the need to address CSA early on to reduce sexual assault victimization in adulthood (Messman-Moore & Long, 2000).

Psychological Distress

CSA and ASA are also associated with psychological distress, including perceived stress, depression, and PTSD symptoms (Messman-Moore et al., 2000; Classen et al., 2005).

Depression resulting from CSA is also related to the frequency and duration of sexual abuse (Maniglio, 2010). CSA is also more strongly associated with symptoms of perceived stress for

more severe and traumatic forms of sexual victimization and multiple perpetrators (Browne & Finkelhor, 1986; Polusny & Follette, 1995; Maniglio, 2012).

Research has shown that 97% of women who have experienced both ASA and CSA reported greater symptoms of perceived stress or depression, compared to 86% of women who experienced CSA only (Messman-Moore et al., 2000). Further, more severe CSA sexual victimization is associated with increased PTSD symptoms in adulthood (Browne & Finkelhor, 1986; Maniglio, 2012). Moreover, experiences of ASA could trigger associations with experiences of earlier sexual assault victimization, in turn increasing PTSD symptoms due to combined impact of multiple experiences (Ullman et al., 2009).

Research has shown that psychological distress increases risk for engagement in substance use (Filipas & Ullman, 2006). This process can be explained by the self-medication model (Khantzian, 1996; Jarvis et al., 1998; Broman et al., 2020). This suggests that CSA and ASA survivors engage in substance use to cope with psychological distress and trauma symptoms (Khantzian, 1996; Jarvis et al; 1998; Hall & Queener, 2007; Ullman, 2016; Broman et al; 2020). However, it has also been found that self-medication through repeated and increased use of alcohol to temporarily alleviate psychological distress increases the likelihood of engaging in problem alcohol use (Ullman, 2016 & Hawn et al., 2020). Moreover, individuals experiencing PTSD symptoms and drinking to cope with distress or because they believe it will reduce distress have more PTSD symptoms (Ullman et al., 2013). The use of alcohol to avoid trauma-related responses may exacerbate or prolong PTSD symptoms by preventing emotional responses (Hawn et al., 2020). In other words, although substance use may be enacted to reduce psychological distress in the short-term, it is unlikely to be effective in the long-term.

Substance Use and the Current Study

CSA and ASA are associated with higher psychological distress, therefore resulting in increased risk for engagement in alcohol and other substance use to cope with their emotions and reduce psychological distress (Khantizian, 1996; Ullman, 2003; Filipas & Ullman, 2006; Ullman et al., 2008; Ullman et al., 2013) – consistent with the self-medication model of substance use. The substances individuals use often depend on how the substance affects individuals, as well as individuals' expectancies about these effects (Broman et al., 2020). Research has shown that individuals who use depressants are often motivated to inhibit negative emotions and that those who use opiates aim to relieve states of depression associated with trauma or painful emotions (Broman et al., 2020). In comparison, women who experienced CSA may be more prone to utilize depressants and opiates compared to non-CSA survivors to inhibit or reduce psychological distress from trauma (Jarvis, 1998; Broman, 2020). Further, individuals who engage in substance use due to CSA may feel uncomfortable discussing their emotions and experiences with others, which may increase their reliance on substance use (Ullman et al., 2013)

I hypothesized that CSA will be associated with increased psychological distress (i.e., depression, perceived stress, and post-traumatic stress disorder [PTSD] symptoms) and ASA victimization. Further, I hypothesize that psychological distress and ASA will be associated with increased substance use (See Figure 1 for conceptual model).

METHOD

Participants and Procedures

Two hundred and twenty-five women were recruited for this study during February 2021. To be eligible, participants had to speak English, reside in the U.S., and have an active Amazon Mechanical Turk account, identify as a woman and be 18 years of age or older. All women, regardless of their sexual orientation or relationship status, were eligible to participate in the study. Participants were recruited from MTurk and completed the survey hosted on Qualtrics survey platform. Participants were presented with a research information sheet and could skip questions at any time or withdraw from the study without penalty. Participants were provided with a survey completion code at the end of the study which they entered in Mturk and were compensated with \$2.00 for their time and participation. Participants were informed that they were participating in a research study about stressful experiences and health behaviors. Participants were also informed that sensitive content will be asked throughout the study and were provided with resources such as the national sexual assault, general crisis, mental health, and substance use recovery hotlines at the end of the study. Participants completed the study on any device that had internet service.

Measures

Demographics. Participants were asked to self-report their age, relationship status, race, ethnicity and sexual orientation. These items are included in in Appendix A.

Childhood Sexual Abuse Victimization. Participants experiences of childhood abuse is assessed the 28 item Childhood Trauma Questionnaire (CTQ-Bernstein et al., 1994), which includes subscales for frequency of five different types of childhood trauma: emotional abuse, physical abuse, sexual abuse, emotional neglect and physical neglect. Only the sexual abuse subscale was used for the current study analyses. A five-point Likert scale was used to assess the frequency of each item “when you were growing up” with response options ranging from “never” =1 to “very often” =5 (Bernstein et al., 2004). Items were averaged such that higher scores indicate more frequent CSA. Reliability and validity have been established for this measure in previous research (Bernstein et al., 2004). The scale was provided in Appendix B. Sample items include: “someone touched me in a sexual way/ made me touch them” and “I believed that I was sexually abused”.

Adult Sexual Victimization. The Sexual Experiences Survey (SES) is a 7-item scale used to measure severity of sexual victimization across various tactics (e.g., intoxication, physical force) since the age of 14 (Koss et al., 2007). Responses were coded as an ordinal scale reflecting ASA severity: unwanted sexual contact, sexual coercion, attempted rape and rape (Koss et. Al., 2007). The survey is provided in Appendix C. Sample items include: “Someone fondled, kissed, or rubbed up against the private areas of my body or removed some of my clothes without my consent” and “Someone had oral sex with me or made me have oral sex with them without my consent”.

Symptoms of PTSD. The Post-Traumatic Diagnostic Scale (PDS-5) is a 24-item scale that measures PTSD symptom severity in the past month (Foa et al., 2013). Questions 1-22 measure symptoms of PTSD and questions 23 and 24 focus on the duration of PTSD symptoms

after the traumatic experience (Foa et al., 2013). The questionnaire assessed trauma history related to sexual assault, child abuse, and other traumatic experiences. Symptoms were assessed on a five-point scale of frequency and severity ranging from 0 (Not at all) to 4 (6 or more times a week/severe) (Foa et al., 2013) and an average was computed for the 22 symptoms such that higher scores indicate more frequent/severe PTSD symptoms. The scale can be viewed in Appendix D. Sample items include: “Feeling very emotionally upset when reminded of the trauma” and “Trying to avoid thoughts or feelings related to the trauma”.

Symptoms of Depression. The depression (CES-D) questionnaire is a 20 item self-report scale that assessed depression symptoms over the past month (Radlof, 1977). The questionnaire had a possible range from 0-60 points, with higher scores indicating greater depressive symptoms (Radlof, 1977). There were four response options that ranged from “rarely or none of the time” (0) to “most or all of the time” (3). Items were averaged such that higher scores indicated more frequent depression symptoms. The scale can be viewed in Appendix E. Sample items include: “I was bothered by things that usually don’t bother me.” And “I felt that I could not shake off the blues even with help from my family or friends.”

Perceived Stress. The Perceived Stress Scale (PSS) is a 10-item scale that measured perception of stress in the past month. The questionnaire included a four-point scale with response options ranging from “0-Never” to “4-Very often” (Cohen et al., 1988). Reverse scored items were recoded such that higher scores indicate more frequent perceived stress, and items were averaged to create a composite score for perceived stress (Cohen et al., 1988). The scale can be viewed in Appendix F. Sample items on this scale include: “In the last month, how often

have you been upset because of something that happened unexpectedly?” and “In the last month, how often have you found that you could not cope with all the things that you had to do?”.

Substance Use

Problem Alcohol Use. Participants’ problem alcohol use was assessed with the Alcohol Use Disorders Identification Test (AUDIT), which is a ten-item screening used by the World Health Organization that assessed frequency and quantity of alcohol consumption, and alcohol related problems (Saunders et al., 1993). A score of 8 or more is considered hazardous and or harmful alcohol use (Saunders et al., 1993). The AUDIT has been validated across different gender identities and ethnic/racial groups (Saunders et al., 1993). For question one, individuals chose how often they have a drink containing alcohol from 0 (never) to 4 (4 or more times a week). Frequency of alcohol use and problems resulting from alcohol use were assessed on a scale from 0 (never) to 4 (daily or almost daily). Question two asked about quantity and questions three through eight asked a variety of questions measuring the frequency of alcohol related problems. Question 9 assessed if someone had been injured due to the individuals drinking and question 10 assessed if the individual has been warned by a doctor, family member or friend due to their problem drinking with yes or no selections. A total score was created in accordance with the original scale specifications (Saunders et al., 1993) The instrument can be viewed in Appendix G. Items on this measure included: “How often do you have a drink containing alcohol?” and “How many drinks containing alcohol do you have on a typical day when you are drinking?”

Drug Use. The Drug History Questionnaire (DHQ; Sobell et al., 1995) was used to assess the use of sixteen different substances that were not prescribed in the past month besides alcohol,

such as marijuana, heroin, and sedatives (including an option for “other”). Participants were provided with a checklist in which participants were instructed to select all substances they used in the last month. Follow up questions assessed past month frequency of use, with options including multiple times per day, once per day, once every 2-3 days, once every 4-6 days, once per week and just once in the past month. Given low rates of endorsement, a count of the number of drugs they used in the past month was created to be used in analyses. This questionnaire can be viewed in Appendix H.

RESULTS

Preliminary Analysis

Participants were 225 women between the ages of 19 and 77 years or older ($M = 41.83$, $SD = 12.87$). Participants' race was 80.4% White, 11.6% African American/Black, 8.4% Asian, 0.4% was Native Hawaiian or other Pacific Islander, 1.5% was American Indian or Alaskan Native and another identity (e.g., Mestizo) included 0.20% (see Table 1). Participant's ethnicity was 8.1% Hispanic or Latina. Participants could select multiple racial identities such that percentages add up to over 100%. The participants were 87.6% heterosexual or straight, 55.1% were married, civil union, or domestic partnership, and 52.9% were employed full time. Further information on sexual orientation, relationship status and employment prevalence can also be viewed in Table 1. Sixty-six (29.3%) women reported at least one form of CSA and 100 (44.5%) women reported at least one experience of ASA. Further, 69 (30.7%) women reported past month drug use and 140 (62.2%) women reported alcohol use in the past year. Bivariate correlations were also assessed (see Table 2.) Results from bivariate correlations indicate that CSA is significantly positively associated to ASA and problem alcohol use and drug use. CSA and ASA are also positively correlated with current perceived stress and depression symptoms (see Table 2).

Hypothesis Testing

To test the hypothesis that CSA and ASA severity are associated with PTSD symptoms among individuals who experienced either or both forms of sexual trauma, a multiple linear regression analysis was conducted ($n = 132$). The overall model was significant, ($F [2, 129] =$

11.95, $p < .001$), $R^2 = .141$. CSA was a significant predictor of PTSD symptoms $\beta = .24$, $t(128) = 2.83$, $p = .005$, indicating that greater frequency of CSA was associated with more symptoms of PTSD. ASA was also a significant predictor of PTSD symptoms, $\beta = .27$, $t(128) = 3.22$, $p = .002$, indicating that greater severity of ASA was associated with more symptoms of PTSD.

Next, to test the hypotheses that psychological distress and ASA are two potential mechanisms underlying the association between CSA and substance use, two indirect effects models were assessed, with problem drinking and drug use as outcomes, respectively. First, a model was assessed with CSA as the independent variable, depression symptoms, perceived stress and ASA as parallel mediators, and problem drinking as the outcome. As shown in Table 3, CSA was significantly associated with ASA, depression symptoms, and perceived stress. In turn, ASA was associated with problem drinking; however, the effects of depression symptoms and perceived stress on problem drinking were not significant. The total effect of CSA on problem drinking was significant, $b = .94$, $SE = .44$, $p = .034$, 95% CI: 0.07, 1.81; and the direct effect after accounting for other variables in the model was not significant $b = .28$, $SE = .44$, $p = .527$, 95% CI: -0.59, 1.15. Finally, the indirect effect of CSA on problem drinking through ASA was significant (effect = .66, $SE = .17$; 95% CI [0.24, 1.23]) but the indirect effects through depression (effect = .32, $SE = .32$; 95% CI [-0.20, 1.07]) and perceived stress (effect = -.10, $SE = .19$; 95% CI [-0.56, 0.22]) were not significant.

Finally, a model was assessed with CSA as the independent variable, depression symptoms, perceived stress and ASA as parallel mediators, and drug use as the outcome. As shown in Table 4, CSA was significantly associated with ASA, depression symptoms, and perceived stress. In turn, ASA was associated with drug use; however, the effects of depression

symptoms and perceived stress on drug use were not significant. The total effect of CSA on drug use was significant, $b = .17$, $SE = .07$, $p = .009$, 95% CI: 0.04, 0.30; and the direct effect after accounting for other variables in the model was not significant $b = .08$, $SE = .06$, $p = .246$, 95% CI: -0.05, 0.20. Finally, the indirect effect of CSA on drug use through ASA was significant (effect = .09, $SE = .03$; 95% CI [0.04, 0.16]) but the indirect effects through depression (effect = .001, $SE = .03$; 95% CI [-0.07, 0.07]) and perceived stress (effect = .01, $SE = .03$; 95% CI [-0.05, 0.06]) were not significant.

DISCUSSION

Summary of Results

Results indicated that CSA, ASA, depression symptoms, perceived stress, problem drinking, and drug use are all positively correlated with each other. However, in the full model, results indicated an indirect effect of CSA on substance use through ASA, but not through depression or perceived stress. This indicates that, although both indicators of perceived stress are associated with substance use in bivariate analyses, their impact on substance use is not significant after accounting for the effects of ASA. Therefore, results provide partial support for the self-medication hypothesis, consistent with previous findings (Khantizian 1996; Jarvis, 1998; Ullman et al., 2013). The findings that CSA and ASA were positively correlated with current perceived stress and depression symptoms is aligned with previous research as well (Browne and Finkelhor; 1986, Messman-Moore & Long, 2000; Maniglio, 2010). Further, among individuals who reported some form of sexual victimization during childhood and or adulthood, severity of their experiences was positively related to PTSD symptoms, which is consistent with existing research (Jarvis et al., 1998; Ullman et al., 2013; Ullman, 2016). This study contributes to existing research by providing results that discuss the prevalence of CSA and ASA among women and the potential resulting health behaviors.

Strengths, limitations, and suggestions for future research

There are several notable strengths of this study. This study included women of all ages, which builds upon past research that often focuses primarily on college age women. This provides the ability to assess victimization experiences from women in young adulthood

compared to women who are older and demonstrate that associations between CSA, ASA, psychological distress and substance use exist across the lifespan. Also, this study assessed several psychological and behavioral outcomes of CSA, which provides a more comprehensive examination of the experiences of CSA survivors. Moreover, this study replicated several established findings regarding the associations between CSA, ASA, and psychological distress (Browne & Finkelhor, 1986; Polusny & Follette, 1995; Whiffen & Macintosh, 2005; Ullman et al., 2009; Papalia et al., 2020).

There are also limitations of this study. This study focused only on women and although sexual victimization occurs more frequently with women, further research is needed on the impact of CSA on men, including potential experiences of psychological distress and substance use in adulthood. Also, most of the women who participated in the study were White and further information is needed on the unique impact of CSA and ASA in marginalized communities. Furthermore, this study required participants to recall experiences from childhood, which could result in recall bias. In addition, this study only assesses substance use, so additional health risk behaviors resulting from CSA and ASA should also be considered in future research. Moreover, conclusions are unable to be drawn about casual or temporal relationships in the current study due to the cross-sectional design. Therefore, it is important for future research to use longitudinal methods that assess how experiences of CSA impact individuals between childhood and early adulthood to identify behavior during adolescence that may result in risky behavior in adulthood.

Implications and Conclusion

CSA impacts a large number of women and effective intervention and prevention methods are needed to reduce the impact it might have on subsequent revictimization in

adulthood, psychological distress, and health risk behavior. Also, this work highlights the importance of trauma-informed services for individuals who engage in problem substance use. Individuals who seek help for problem substance use should be screened for trauma, which would allow trauma and substance use to be addressed simultaneously. Moreover, given the prevalence of ASA among college students, services should also be accessible on college campuses. Further, the stigma towards mental health care should also be reduced to better support individuals experiencing trauma and psychological distress. In addition, this study was completed in February of 2021 during COVID-19, which could have resulted in higher frequency of sexual victimization and psychological distress due to the lack of social interaction and quarantine regulations.

Overall, CSA, ASA, and substance use in adulthood consistently co-occur. I proposed a model to assess the underlying mechanisms between CSA and substance use, and found a significant indirect effect through ASA, emphasizing the combined impact of multiple forms of trauma on adult women's substance use. In addition to preventing CSA and ASA, it is important for interventions to mitigate the effects of CSA and ASA on psychological distress and health risk behaviors for individuals when these forms of trauma have already occurred.

Table 1. Demographic information ($N = 225$)

	<i>M (Sd)</i>	N (%)
Age	41.75(13.2)	
Gender identity		
Women		225(100%)
Race		
White		181 (80.4%)
Black/African American		26(11.6%)
Asian		19 (8.4%)
Native Hawaiian/Pacific Islander		1 (0.4%)
American Indian or Alaskan Native		4 (1.8%)
Another Identity		5(0.20%)
Ethnicity		
Hispanic or Latino/a/x		19 (8.4%)
Sexual orientation		
Heterosexual or straight		197 (87.6%)
Gay or Lesbian		3(1.3%)
Bisexual		18(8.0%)
Asexual		5(2.2%)
Questioning		1(0.4%)
Another Identity		1(0.4%)
Primary Relationship Status		
Single		48(21.3%)
Casually dating or hooking up		7(3.1%)
Exclusive dating relationship		26(11.6%)
Married, civil union, or domestic partnership		124(55.1%)
Employment Status		
Employed full time		119(52.9%)
Employed part time		51(22.7%)
Unemployed looking for work		20(8.9%)
Unemployed not looking for work		24(10.7%)
Retired		11(4.9%)

Table 2. Bivariate correlations and descriptive statistics ($N = 225$)

	1	2	3	4	5	6	7
1. CSA	-						
2. ASA	0.27**	-					
3. PTSD	0.30**	0.32**	-				
4. Depression	0.27**	0.32**	0.79**	-			
5. Perceived Stress	0.21**	0.19**	0.67**	0.85**	-		
6. Drug Use	0.19**	0.40**	0.26**	0.18**	0.13**	-	
7. Alcohol Use	0.16**	0.35**	0.27**	0.25**	0.17**	0.36**	-
Mean	0.45	1.87	1.87	1.85	1.53	0.54	3.61
SD	0.93	2.24	0.84	0.61	0.87	0.88	5.43

Note. * $p < .05$, ** $p < .01$.

Table 3. Indirect effects analysis predicting problem drinking (N = 225)

	<i>B</i> (<i>SE</i>)	<i>p</i>	95% CI: [LL, UL]
Outcome: ASA			
Intercept	1.82 (0.19)	< .001**	[1.45, 2.19]
CSA	0.65 (0.18)	< .001**	[0.29, 1.01]
Outcome: Depression symptoms			
Intercept	1.77 (0.05)	< .001**	[1.67, 1.87]
CSA	0.18 (0.05)	< .001**	[0.08, 0.28]
Outcome: Perceived stress			
Intercept	1.44 (0.07)	< .001**	[1.29, 1.58]
CSA	0.19 (0.07)	.008**	[0.05, 0.33]
Outcome: Problem drinking			
Intercept	-0.49 (1.40)	.728	[-3.26, 2.28]
CSA	0.28 (0.44)	.537	[-0.59, 1.15]
ASA	0.67 (0.19)	< .001**	[0.30, 1.05]
Depression symptoms	1.81 (1.34)	.177	[-0.83, 4.45]
Perceived stress	-0.52 (0.90)	.566	[-2.29, 1.26]

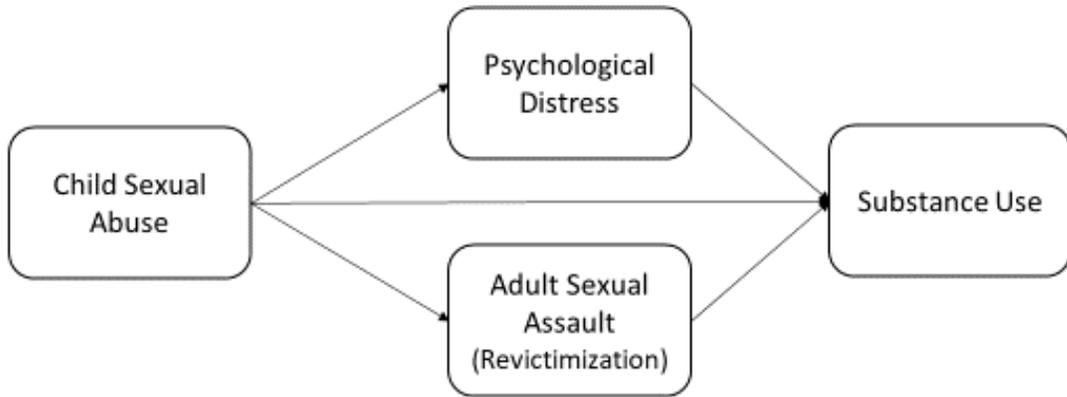
Note. **p* < .05, ***p* < .01.

Table 4. Indirect effects analysis predicting drug use (N = 225)

	<i>B (SE)</i>	<i>p</i>	95% CI: [LL, UL]
Outcome: ASA			
Intercept	1.71 (0.17)	< .001**	[1.37, 2.05]
CSA	0.63 (0.17)	< .001**	[0.30, 0.95]
Outcome: Depression symptoms			
Intercept	1.77 (0.05)	< .001**	[1.68, 1.87]
CSA	0.17 (0.04)	< .001**	[0.08, 0.26]
Outcome: Perceived stress			
Intercept	1.44 (0.07)	< .001**	[1.31, 1.57]
CSA	0.20 (0.06)	.003**	[0.07, 0.32]
Outcome: Drug use			
Intercept	0.16 (0.21)	.454	[-0.25, 0.57]
CSA	0.08 (0.06)	.246	[-0.05, 0.20]
ASA	0.14 (0.03)	< .001**	[0.09, 0.20]
Depression symptoms	0.01 (0.19)	.974	[-0.37, 0.38]
Perceived stress	0.04 (0.13)	.769	[-0.22, 0.29]

Note. **p* < .05, ***p* < .01.

Figure 1



APPENDIX A: DEMOGRAPHIC QUESTIONNAIRE

This first set of questions asks about your background. Remember that your responses cannot be linked back to you.

1. What is your age?
2. Which best describes your current primary relationship status?
 - Single
 - Casually dating or hooking up (brief sexual encounters)
 - Exclusive dating relationship
 - Married, civil union, or domestic partnership
 - Divorced or widowed
3. Which best describes your gender identity?
 - Woman
 - Man
 - Transgender woman
 - Transgender man
 - Genderqueer or gender non-conforming
 - Questioning
 - Another identity, please specify _____
4. Which best describes your sexual orientation?
 - Heterosexual or straight
 - Gay or lesbian
 - Bisexual
 - Asexual
 - Questioning
 - Another, please specify _____
5. Are you of Hispanic or Latino/a/x origin?
 - No
 - Yes
6. Which of the following best describes you? Please select all that apply.
 - White
 - Black or African American
 - Asian
 - Native Hawaiian or Another Pacific Islander
 - American Indian or Alaskan Native
 - Another identity, please specify _____

7. Please specify your annual household income. This includes income from all sources, such as work, investments, child support, and public assistance.

- Less than \$10,000
- \$10,000-\$19,999
- \$20,000-\$29,999
- \$30,000-\$39,999
- \$40,000-\$49,999
- \$50,000-\$59,999
- \$60,000-\$69,999
- \$70,000-\$79,999
- \$80,000-\$89,999
- \$90,000-\$99,999
- \$100,000-\$109,999
- \$110,000-\$119,999
- \$120,000-\$129,999
- \$130,000-\$139,999
- \$140,000-\$149,999
- \$150,000 or more

8. Which of the following best describes your current employment status?

- Employed full time
- Employed part time
- Furloughed
- Unemployed looking for work
- Unemployed not looking for work
- Retired

9. Which of the following best describes your political affiliation?

- Extremely liberal
- Somewhat liberal
- In the middle or moderate
- Somewhat conservative
- Extremely conservative
- Do not have a political affiliation

10. Which of the following best describes your religious affiliation?

- a. Agnostic
- b. Atheist
- c. Buddhist
- d. Christian

- e. Hindu
- f. Jewish
- g. Muslim
- h. Another, please specify _____
- i. Do not have a religious affiliation

11. How religious are you?

- j. Not at all religious
- k. Slightly religious
- l. Moderately religious
- m. Very Religious
- n. Extremely religious

APPENDIX B: CHILDHOOD TRAUMA QUESTIONNAIRE

These questions ask about some of your experiences growing up as a child before age 14. For each question, select the number that best describes how you feel. Although some of these questions are of a personal nature, please try to answer as honestly as you can. Your answers will be kept confidential.

S No.	When I was growing up before age 14....	Never True	Rarely True	Sometimes True	Often True	Very Often True
1	I didn't have enough to eat	1	2	3	4	5
2	I knew that there was someone to take care of me and. Protect me	1	2	3	4	5
3	People in my family called me things like "stupid", "lazy", or ugly	1	2	3	4	5
4	My parents were too drunk or high to take care of the family.	1	2	3	4	5
5	There was someone in my family who helped me feel that I was important or special	1	2	3	4	5
6	I had to wear dirty clothes	1	2	3	4	5
7	I felt loved	1	2	3	4	5
8	I thought that my parents wished I had never been born	1	2	3	4	5
9	I got hit so hard by someone in my family that I had to see a doctor or go to the hospital	1	2	3	4	5
10	There was nothing I wanted to change about my family	1	2	3	4	5
11	People in my family hit me so hard that it left me with bruises or marks	1	2	3	4	5
12	I was punished with a belt, a board, a cord, or some other hard object.	1	2	3	4	5
13	People in my family looked out for each other	1	2	3	4	5
14	People in my family said hurtful or insulting things to me	1	2	3	4	5
15	I believe that I was physically abused	1	2	3	4	5
16	I had the perfect childhood	1	2	3	4	5

17	I got hit or beaten so badly that it was noticed by someone like a teacher, neighbor, or doctor	1	2	3	4	5
18	I felt that someone in my family hated me	1	2	3	4	5
19	People in my family felt close to each other	1	2	3	4	5
20	Someone tried to touch me in sexual way, or tried to make me touch them	1	2	3	4	5
21	Someone threatened to hurt me or tell lies about me unless I did something sexual for them	1	2	3	4	5
22	I had the best family in the world	1	2	3	4	5
23	Someone tried to make me do sexual things or watch sexual things	1	2	3	4	5
24	Someone molested me	1	2	3	4	5
25	I believe that I was emotionally abused	1	2	3	4	5
26	There was someone to take me to the doctor if I needed it	1	2	3	4	5
27	I believed that I was sexually abused	1	2	3	4	5
28	My family was a source of strength and support	1	2	3	4	5

APPENDIX C: SEXUAL EXPERIENCES QUESTIONNAIRE

The following questions concern sexual experiences that you may have had that were unwanted. We know that these are personal questions, so we do not ask your name or other identifying information. Your information is completely confidential. We hope that this helps you to feel comfortable answering each question honestly. In the dropdown menu, select the number of times each experience has happened to you, since your 14th birthday, for each section with a letter. If several experiences occurred on the same occasion--for example, if one night someone told you some lies and had sex with you when you were drunk, you would select a number for each drop down menu for statements a and c.

	How many times since age 14?
Someone fondled, kissed, or rubbed up against the private areas of my body (lips, breast/chest, crotch or butt) or removed some of my clothes without my consent (<i>but did not attempt sexual penetration</i>) by:	0 1 2 3+
a. Telling lies, threatening to end the relationship, threatening to spread rumors about me, making promises I knew were untrue, or continually verbally pressuring me after I said I didn't want to.	
b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn't want to.	
c. Taking advantage of me when I was too drunk or out of it to stop what was happening.	
d. Threatening to physically harm me or someone close to me.	
e. Using force, for example holding me down with their body weight, pinning my arms, or having a weapon.	
Someone had oral sex with me or made me have oral sex with them without my consent by:	0 1 2 3+
a. Telling lies, threatening to end the relationship, threatening to spread rumors about me, making promises I knew were untrue, or continually verbally pressuring me after I said I didn't want to.	
b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn't want to.	
c. Taking advantage of me when I was too drunk or out of it to stop what was happening.	
d. Threatening to physically harm me or someone close to me.	
e. Using force, for example holding me down with their body weight, pinning my arms, or having a weapon.	
A man put his penis into my vagina, or someone inserted fingers or objects without my consent by:	0 1 2 3+

- a. Telling lies, threatening to end the relationship, threatening to spread rumors about me, making promises I knew were untrue, or continually verbally pressuring me after I said I didn't want to.
- b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn't want to.
- c. Taking advantage of me when I was too drunk or out of it to stop what was happening.
- d. Threatening to physically harm me or someone close to me.

- e. Using force, for example holding me down with their body weight, pinning my arms, or having a weapon.

A man put his penis into my butt, or someone inserted fingers or objects without my consent by:

- a. Telling lies, threatening to end the relationship, threatening to spread rumors about me, making promises I knew were untrue, or continually verbally pressuring me after I said I didn't want to.
- b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn't want to.
- c. Taking advantage of me when I was too drunk or out of it to stop what was happening.
- d. Threatening to physically harm me or someone close to me.
- e. Using force, for example holding me down with their body weight, pinning my arms, or having a weapon.

Even though it didn't happen, someone TRIED to have oral sex with me, or make me have oral sex with them without my consent by:

- a. Telling lies, threatening to end the relationship, threatening to spread rumors about me, making promises I knew were untrue, or continually verbally pressuring me after I said I didn't want to.
- b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn't want to.
- c. Taking advantage of me when I was too drunk or out of it to stop what was happening.
- d. Threatening to physically harm me or someone close to me.
- e. Using force, for example holding me down with their body weight, pinning my arms, or having a weapon.

Even though it didn't happen, a man TRIED to put his penis into my vagina, or someone tried to stick in fingers or objects without my consent by:

0 1 2 3+

- a. Telling lies, threatening to end the relationship, threatening to spread rumors about me, making promises I knew were untrue, or continually verbally pressuring me after I said I didn't want to.
- b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn't want to.
- c. Taking advantage of me when I was too drunk or out of it to stop what was happening.
- d. Threatening to physically harm me or someone close to me.

- e. Using force, for example holding me down with their body weight, pinning my arms, or having a weapon.

Even though it didn't happen, a man TRIED to put his penis into my butt, or someone tried to stick in objects or fingers without my consent by:

0 1 2 3+

- a. Telling lies, threatening to end the relationship, threatening to spread rumors about me, making promises I knew were untrue, or continually verbally pressuring me after I said I didn't want to.
- b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn't want to.
- c. Taking advantage of me when I was too drunk or out of it to stop what was happening.
- d. Threatening to physically harm me or someone close to me.

- e. Using force, for example holding me down with their body weight, pinning my arms, or having a weapon.

2. What was the gender of the person or persons who did them to you? Please check all that apply.

- Woman
- Man
- Transgender woman
- Transgender man
- Genderqueer or gender non-conforming
- Another identity, please specify _____
- I reported no experiences

3. Do you believe you have ever been raped? Yes or No

APPENDIX D PDS-5 QUESTIONNAIRE

The statements below are a list of problems that one may have experienced after a traumatic event. Select the box that described the most distressing traumatic event.

Have you ever experienced, witnessed, or been repeatedly confronted with any of the following:

(Check all that apply) Serious, life threatening illness (heart attack, etc.)

Physical Assault (attacked with a weapon, severe injuries from a fight, held at gunpoint, etc.)

Sexual assault (rape, attempted rape, forced sexual act with a weapon, etc.)

Military combat or lived in a war zone

Child abuse (severe beatings, sexual acts with someone 5 years older than you, etc.)

Accident (serious injury or death from a car, at work, a house fire, etc.)

Natural disaster (severe hurricane, flood, earthquake, etc.)

Other trauma (Please describe briefly):

None

***** If NONE, participants will be screened to the next section of the study*****

If you marked any of the above items, which single traumatic experience is on your mind and currently bothers you the most:

(Check only one)

Serious, life threatening illness (heart attack, etc.)

Physical Assault (attacked with a weapon, severe injuries from a fight, held at gunpoint, etc.)

Sexual assault (rape, attempted rape, forced sexual act with a weapon, etc.)

Military combat or lived in a war zone

Child abuse (severe beatings, sexual acts with someone 5 years older than you, etc.)

Accident (serious injury or death from a car, at work, a house fire, etc.)

Natural disaster (severe hurricane, flood, earthquake, etc.)

Other trauma (Please describe briefly):

Please read each statement carefully and select the number that best describes how often that problem has been happening and how much it upset you over THE LAST MONTH. Rate each problem with respect to the traumatic event that you wrote above.

Select 0 for "Not at all", 1 for "once a week or less/a little", 2 for "2 to 3 times a week/somewhat" or 4 for "6 or more times a week/severe".

For example, if you've talked to a friend about the trauma one time in the past month, you would respond like this: (because one time in the past month is less than once a week)

0 1 2 3 4

1. Unwanted upsetting memories about the trauma

0 1 2 3 4

- | | | | | | |
|---|---|---|---|---|---|
| 2. Bad dreams or nightmares related to the trauma | 0 | 1 | 2 | 3 | 4 |
| 3. Reliving the traumatic event or feeling as if it were actually happening again | 0 | 1 | 2 | 3 | 4 |
| 4. Feeling very EMOTIONALLY upset when reminded of the trauma | 0 | 1 | 2 | 3 | 4 |
| 5. Having PHYSICAL reactions when reminded of the trauma (for example, sweating, heart racing) | 0 | 1 | 2 | 3 | 4 |
| 6. Trying to avoid thoughts or feelings related to the trauma | 0 | 1 | 2 | 3 | 4 |
| 7. Trying to avoid activities, situations, or places that remind you of the trauma or that feel more dangerous since the trauma | 0 | 1 | 2 | 3 | 4 |
| 8. Not being able to remember important parts of the trauma | 0 | 1 | 2 | 3 | 4 |
| 9. Seeing yourself, others, or the world in a more negative way (for example "I can't trust people," "I'm a weak person") | 0 | 1 | 2 | 3 | 4 |
| 10. Blaming yourself or others (besides the person who hurt you) for what happened | 0 | 1 | 2 | 3 | 4 |
| 11. Having intense negative feelings like fear, horror, anger, guilt or shame | 0 | 1 | 2 | 3 | 4 |
| 12. Losing interest or not participating in activities you used to do | 0 | 1 | 2 | 3 | 4 |
| 13. Feeling distant or cut off from others | 0 | 1 | 2 | 3 | 4 |
| 14. Having difficulty experiencing positive feelings | 0 | 1 | 2 | 3 | 4 |
| 15. Acting more irritable or aggressive with others | 0 | 1 | 2 | 3 | 4 |
| 16. Taking more risks or doing things that might cause you or others harm (for example, driving recklessly, taking drugs, having unprotected sex) | 0 | 1 | 2 | 3 | 4 |
| 17. Being overly alert or on-guard (for example, checking to see who is around you, being uncomfortable with your back to a door) | 0 | 1 | 2 | 3 | 4 |
| 18. Being jumpy or more easily startled (for example when someone walks up behind you) | 0 | 1 | 2 | 3 | 4 |
| 19. Having trouble concentrating | 0 | 1 | 2 | 3 | 4 |
| 20. Having trouble falling or staying asleep | 0 | 1 | 2 | 3 | 4 |

Distress and Interference

21. How much have these difficulties been bothering you?

0 1 2 3 4

22. How much have these difficulties been interfering with your everyday life (for example relationships, work, or other important activities)?

0 1 2 3 4

Symptom Onset and Duration

23. How long after the trauma did these difficulties begin? [select one]

- a. Less than 6 months
- b. More than six months

24. How long have you had these trauma-related difficulties?[select one]

- a. Less than 1 month
- b. More than 1 month

APPENDIX E: CES-D QUESTIONNAIRE

Below is a list of the ways you might have felt or behaved. Please tell me how often you have felt this way in the past month by selecting the option that best applies.

	Rarely or none of the time	Some or a little of the time	Occasionally or a moderate amount of time	Most or all of the time
1.I was bothered by things that usually don't bother me.				
2.I did not feel like eating; my appetite was poor.				
3.I felt that I could not shake off the blues even with help from my family or friends.				
4. I felt I was just as good as other people.				
5. I had trouble keeping my mind on what I was doing.				
6. I felt depressed.				
7. I felt that everything I did was an effort.				
8.I felt hopeful about the future.				
9.I thought my life had been a failure.				
10.I felt fearful.				
11.My sleep was restless.				
12. I was happy.				
13.I talked less than usual.				
14.I felt lonely.				
15.People were unfriendly.				
16.I enjoyed life.				
17.I had crying spells.				
18. I felt sad.				
19.I felt that people dislike me.				
20.I could not get "going".				

APPENDIX F: PERCEIVED STRESS QUESTIONNAIRE

The questions in this scale ask you about your feelings and thoughts during the last month. In each case, you will be asked to indicate how often you felt or thought a certain way.

Response options: 0-never, 1-almost never, 2-sometimes, 3-fairly often and 4-very often.

_____ 1. In the last month, how often have you been upset because of something that happened unexpectedly?

_____ 2. In the last month, how often have you felt that you were unable to control the important things in your life?

_____ 3. In the last month, how often have you felt nervous and stressed?

_____ 4. In the last month, how often have you felt confident about your ability to handle your personal problems?

_____ 5. In the last month, how often have you felt that things were going your way?

_____ 6. In the last month, how often have you found that you could not cope with all the things that you had to do?

_____ 7. In the last month, how often have you been able to control irritations in your life?

_____ 8. In the last month, how often have you felt that you were on top of things?

_____ 9. In the last month, how often have you been angered because of things that happened that were outside of your control?

_____ 10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

APPENDIX G: DRUG HISTORY QUESTIONNAIRE

The questions in this scale measure substance use in the past month. Please select all that apply. All answers will remain confidential.

- a. Marijuana/ cannabis
- b. Cigarettes
- c. Vape pen
- d. Prescription medication that was not prescribed to you
- e. Cocaine
- f. Methamphetamine
- g. Amphetamines/stimulants
- h. Benzodiazepines or minor tranquilizer
- i. Heroin
- j. Methadone
- k. Inhalants
- l. Barbiturates
- m. Hallucinogens
- n. Sedatives or hypnotics
- o. Major tranquilizers
- p. Other
- h. none

1. How often have you used each substance above, on average in the past month? Select the most appropriate option.

- a. Multiple times per day
- b. Once per day

- c. Once every 2-3 days
- d. Once every 4-6 days
- e. Once per week
- f. Just once in the past month

APPENDIX H: AUDIT QUESTIONNAIRE

Alcohol use can potentially affect your health and it is important we ask some questions regarding your use of alcohol. Your answers will remain confidential, so please answer honestly. Select the options that best describes your answer to each question.

Questions	0	1	2	3	4
1. How often do you have a drink containing alcohol?	Never	Monthly or less	2-4 times a month	2-3 times a week	4 or more times a week
2. How many drinks containing alcohol do you have on a typical day when you are drinking?	1 or 2	3 or 4	5 or 6	7 to 9	10 or more
3. How often do you have six or more drinks on one occasion?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
4. How often during the last year have you found that you were not able to stop drinking once you had started?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
5. How often during the last year have you failed to do what was normally expected of you because of drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
6. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
7. How often during the last year have you had a feeling of guilt or remorse after drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
8. How often during the last year have you been unable to remember what happened the night before because of your drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
9. Have you or someone else been injured because of your drinking?	No		Yes, but not in the last year		Yes, during the last year
10. Has a relative, friend, doctor, or other health care worker been concerned about your drinking or suggested you cut down?	No		Yes, but not in the last year		Yes, during the last year

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