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Risky Behaviors and Depression in Conjunction with –or in the Absence of—Lifetime History of PTSD Among Sexually Abused Adolescents

Carla Kmett Danielson, Ph.D., Alexandra Macdonald, Ph.D., Ananda B. Amstadter, Ph.D., Rochelle Hanson, Ph.D., Michael A. de Arellano, Ph.D., Benjamin E. Saunders, Ph.D., and Dean G. Kilpatrick, Ph.D.

National Crime Victims Research & Treatment Center, Department of Psychiatry & Behavioral Sciences, Medical University of South Carolina

Abstract

Posttraumatic stress disorder (PTSD) is often considered the primary problematic outcome of child sexual abuse (CSA). However, a number of other, relatively understudied negative sequelae appear to be prevalent as well. Data from 269 adolescents with a CSA history from the National Survey of Adolescents-Replication study were therefore used to examine the prevalence of risky behaviors (i.e., problematic alcohol and drug use, delinquent behavior) and depression in this sample. The frequencies of these problems in youth with and without a history of PTSD also were examined. Results indicated that risky behaviors and depression were reported as or more frequently than PTSD. Among youth with a history of PTSD, depression and delinquent behavior were more common than among those without a history of PTSD. However, there were no differences between adolescents with and without a history of PTSD in reported problematic substance use. Findings highlight the need for comprehensive trauma-informed interventions for CSA-exposed adolescents.

Keywords

sexual assault; alcohol use; drug use; PTSD; depression; delinquent behavior

Although child and adolescent sexual abuse (CSA) has been associated with a range of mental health outcomes (Nelson et al., 2002), the majority of empirical investigations and interventions tailored for CSA have focused on posttraumatic stress disorder (PTSD) (Cohen, Deblinger, Mannarino, & Steer, 2004). As such, PTSD is frequently considered to be the primary outcome of CSA (Widom, 1999). PTSD is a debilitating condition among CSA victims that warrants significant empirical and clinical attention; however, questions remain regarding the prevalence of other problems common in adolescence (e.g., risky behaviors, depression, etc.) among those with a history of CSA. Similarly, among adolescents with a CSA history, the frequency at which risky behaviors and depression occur is not well understood. Drawing from a nationally representative sample of adolescents, the present study sought to compare the prevalence of lifetime and past year risky behaviors (i.e., delinquent behavior, drinking alcohol to intoxication, non-experimental drug use), as well as major depression, with and without a history of lifetime PTSD among sexually abused youth. Results from the current

descriptive study have implications for further informing the unique treatment needs for this vulnerable adolescent population.

Method

Data, Sample, and Measures

Participants were drawn from the National Survey of Adolescents Replication Study (NSA-R), which included a national household probability sample and an oversample of urban-dwelling adolescents. All study procedures were approved by the Institutional Review Board of the Medical University of South Carolina. Sample selection and interviewing were conducted by Schulman, Ronca, and Bucuvalas, Inc. (SRBI) survey research firm. To conduct the initial probability sample, SRBI used a multistage, stratified, area probability, random-digit-dialing six-stage sampling procedure, which was identical to the sampling procedure used in the original NSA (see Kilpatrick et al., 2000).

A total of 6,694 households were contacted during recruitment, in which parents completed a brief structured interview and were asked to identify at least one eligible adolescent. Of these, 1,268 (18.9%) parents refused adolescent participation, 188 (2.8%) adolescents refused to be interviewed following parental consent, and 119 (1.8%) adolescent interviews were initiated but not completed. In 1,505 (22.5%) cases, parental consent was obtained and a parent interview was completed, but the identified eligible adolescent was unreachable or not available for interview during any attempts during the field period. Thus, 3,614 (54%) cases resulted in complete parent and adolescent interviews, including 2,459 adolescents in the national cross-section and 1,155 urban-dwelling adolescents. Youth ranged in age from 12 - 17 years old ($M= 14.8$ years; $SD=1.7$).

Because adolescents were oversampled in urban areas, a weighting system was created to represent the adolescent population in the US in 2005 based on age, race, geographic location, and gender using statistics from the US Bureau of the Census. For the purposes of the present paper, the analyses focused on adolescents who reported having experienced at least one incident of CSA, which yielded a sample of 269 ($n=200$, 74.3% female participants, $n=69$, 25.7% male participants). The mean age of participants was 15.3 years ($SD=1.5$). See the Table for race/ethnicity breakdown of the sample.

Potentially traumatic events (sexual abuse, physical assault, physical abuse, and witnessed domestic or community violence) were assessed using behaviorally specific questions. To increase accuracy and honesty of responses, the interview included behaviorally specific terminology and introductory statements to orient adolescents to questions (Kilpatrick et al., 2003). *Sexual abuse* was defined as (a) episodes that involved forced vaginal or anal penetration by an object, finger, or penis; (b) episodes of forced oral sex; (c) episodes in which another person touched the adolescent's genitalia against their will; or (d) episodes in which the adolescent was forced to touch another's genitalia. *Physical assault* included being (a) attacked or threatened with a gun, knife, other weapon, or other object; or (b) physically attacked without a weapon, including fists, where the adolescent believed that the attacker was trying to kill or seriously injure him or her—or where injury occurred. *Physical abuse* included being (a) locked in a closet or tied up by an adult in charge; (b) thrown across the room or against a wall, car, floor, or other hard surface by an adult in charge; (c) beaten up, hit with a fist, or kicked by an adult in charge; (d) spanked or slapped so hard by an adult in charge that it resulted in injury; (e) pushed down or into objects so hard by an adult in charge that it resulted in injury; or (f) grabbed around the neck or choked by an adult in charge. *Witnessed domestic violence* included episodes in which parents (a) punched, hit, or beat up one another; (b) choked one another; (c) hit one another with an object; or (d) threatened one another with a gun, knife, or other weapon. *Witnessed community violence* included direct observation of (a) seeing

someone shoot, cut, or stab someone; (b) seeing someone being molested, sexually assaulted, or raped; (c) being robbed or mugged; (d) seeing someone threatened with a gun, knife, or other weapon; or (e) seeing someone beaten up, hit, punched, or kicked.

Symptoms of psychopathology were assessed based on the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV) criteria for PTSD and Major Depressive Episode (MDE). Past six-month and lifetime PTSD and MDE diagnoses were captured using questions based on the National Women's Study (NWS; Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993) that inquired in a yes/no format about the presence or absence of individual symptoms. Lifetime and past year substance use also were assessed. Consistent with literature demonstrating its link with future substance use disorders (Schulenberg, O'Malley, Bachman, Wadsworth, & Johnston, 1996), drinking alcohol to intoxication was used as a measure of problematic alcohol use and was measured by asking, "Have you ever gotten drunk or very high from drinking alcoholic beverages?" (for lifetime); and, "During the past year, on how many days have you gotten drunk or very high from alcohol?" (for past year). Non-experimental drug use was assessed by asking participants about non-medical use of various prescription drugs, illicit drugs, or club drugs and determining whether youth endorsed using such drugs 4 or more times in their lifetime and in the past year.

Delinquent behavior was considered present if youth endorsed at least one of the following behaviors in their lifetime or in the past year: physically attacked someone; sold drugs; broken into a house, apartment, vehicle, etc. and tried to steal something; used force to get money or things from people; attacked someone with a weapon and/or with the intention of seriously injuring or killing someone; been arrested; or been sent to jail or juvenile detention. These items were selected based on a modified version of the scale used by Elliott, Huizinga, and Ageton (1985) in the National Youth Survey.

Statistical Analysis

Descriptive analyses of demographic, other potentially traumatic events, and psychopathology were conducted on weighted data based on 2005 US Bureau of the Census population estimates. The weighting procedures for this data have been described elsewhere (see Wolitzky-Taylor et al., 2008). The prevalence of lifetime and past six-month PTSD and MDE and the prevalence of lifetime and past year delinquent behavior, drinking alcohol to intoxication, and non-experimental drug use were computed in this sample of CSA victims. Point-biserial correlations between the study variables and age (measured continuously) also were computed to determine whether age was related to the prevalence of the co-occurring disorders assessed and risky behavior. The prevalence of all study variables were compared between adolescents with and without lifetime PTSD using chi-square analyses and odds ratios (OR) with 95% confidence intervals (CI). Type I error was controlled by setting the statistical significance alpha criteria level at $p < .01$.

Results

Full CSA Sample Characteristics

Prevalence of study variables are presented in Table 1. Over three-quarters (78.8%) of the sample reported experiencing other potentially traumatic events in addition to the CSA, with the majority having witnessed community violence. Drinking alcohol to intoxication was the most frequent risky behavior reported by sexually abused adolescents, endorsed by approximately 40% of the sample. Over a third of the sample reported lifetime delinquent behavior, over a third reported MDE, over a quarter reported lifetime non-experimental drug use, and over a quarter reported lifetime PTSD. With regard to past-year problems, over one-third of the sample reported drinking alcohol to intoxication and nearly one-quarter of the

sample reported engaging in delinquent behavior. Similarly, past-year non-experimental drug use was reported by nearly one-quarter of the sample. Past 6-month MDE was reported by approximately 27% of adolescents, and past 6-month PTSD was reported by less than 20% of the sample. Point-biserial correlations between the study variables and participant age yielded significant associations between age and drinking alcohol to intoxication in the past year ($r=.23, p<.01$) and over one's lifetime ($r=.30, p<.01$). No other study variables were significantly correlated with age.

Comparisons by PTSD Status

Table 1 presents full statistics for all analyses¹. There were no significant differences between adolescents with or without a history of lifetime PTSD in demographics and the pattern of results reported in Table 1 were the same for girls and boys. As would be expected, there were higher rates of PTSD among adolescent CSA victims who also experienced physical assault (OR= 3.3, CI=1.9-5.9, $p<.001$), physical abuse (OR= 2.2, CI=1.3-3.8, $p<.01$), and witnessed community violence (OR= 3.8, CI=1.9-7.4, $p<.001$) compared with those who did not experience each form of victimization. Adolescents with a history of PTSD were at greater risk for both lifetime and past year MDE (OR=14.1, CI=7.2-27.6, $p<.001$; OR=10.6, CI=5.6-20.2, $p<.001$, respectively) compared to adolescents without PTSD. Adolescents with lifetime PTSD were at significantly greater risk for engaging in delinquent behavior in their lifetime (OR=2.4, CI=1.4-4.2, $p<.01$), but not in the past year. There were no differences between adolescents with and without PTSD in reported lifetime and past-year drinking alcohol to intoxication or non-experimental drug use.

Discussion

Sexual abuse experiences in childhood and adolescence, particularly in conjunction with other forms of child maltreatment and potentially traumatic events, can lead to impairing and long-lasting mental health consequences. In the current group of CSA victims recruited from a large, nationally-representative sample of adolescents, many also reported other types of interpersonal violence experiences. Thus, it is not surprising that the rates of PTSD, MDE, and risky behaviors reported by the sample far exceed that which has been reported in the general population (Kessler et al., 1994; Kilpatrick et al., 2003). Interestingly, the risky behaviors examined in this study, including drinking alcohol to intoxication, non-experimental drug use, and delinquent behavior, appear to be reported by adolescents with a CSA history as or more frequently than PTSD. In fact, the most commonly reported problem among CSA victims was drinking alcohol to intoxication (39.4% lifetime/31.2% past year). In addition, approximately a quarter of the sample reported engaging in past year non-experimental drug use, which also has been linked with other forms of health risk behaviors, such as risky sexual behaviors (Centers for Disease Control and Prevention, 2008) and reckless driving (Brookoff, Cook, Williams, & Mann, 1994).

In addition, results from the current study demonstrate that victims of CSA who report lifetime or recent depression, as well as lifetime delinquent behavior, also are likely to report lifetime history of PTSD. The overlap between depression and PTSD is highlighted among the nearly 80% of adolescents who reported both lifetime MDE and lifetime PTSD (in comparison to approximately 20% who reported lifetime MDE in the absence of PTSD lifetime history). Although the temporal sequence of these two conditions is unknown in the present study, this link between depression and PTSD is consistent with the adult traumatic stress literature (O'Donnell, Creamer, & Pattison, 2004), and is suggestive of a shared vulnerability among these conditions in the aftermath of trauma. With regard to delinquent behavior, research has

¹Due to space limitations, only significant test statistics are reported in text.

demonstrated that incarcerated juveniles tend to report multiple victimization histories (e.g., Wood, Foy, Goguem, Pynoos, & James, 2002). Over 50% of sexually abused adolescents in this sample reported both a lifetime history of delinquent behavior and PTSD—highlighting the need for further research studying delinquency as a potential trajectory following CSA.

Conversely, adolescents who reported lifetime and past-year problematic substance use (in the form of drinking to intoxication or non-experimental drug use) were no more likely to report lifetime PTSD than they were to report these behaviors in the absence of a lifetime history of PTSD. The self-medication hypothesis, which proposes that trauma-exposed individuals may use substances to cope with trauma-related distress—particularly in the form of PTSD (e.g., Chilcoat & Breslau, 1998)—would predict that alcohol and drug misuse in this population would be strongly linked with the presence of PTSD symptoms. However, adolescents who have experienced sexual abuse in the current study were as likely to report problematic substance behaviors in the absence of a lifetime history of PTSD and the prevalence of these problems still exceed what has been reported in some epidemiological studies. For example, in the National Survey on Drug Use and Health (Substance Abuse and Mental Health Services Administration, 2007), which also involved a national sample of adolescents 12-17 years, the prevalence of (any) marijuana use was reported to be 12.5% over the past year and 16.2% over a youth's lifetime—in comparison to the prevalence of non-experimental drug use found among participants in the current study over the past year (24.4%) and over a youth's lifetime (27.8%). These results highlight the need for additional research and clinical efforts to better understanding the link between CSA and substance use independent of PTSD symptoms.

One of the primary limitations of the current study includes its cross-sectional design (prohibiting temporal analyses). Thus, we are unable to determine whether these outcomes are truly a consequence of the CSA these youth experienced, or alternatively, whether these outcomes are a function of the overall prevalence of these behaviors or disorders among adolescents, independent of CSA or other potentially traumatic event history. Another important limitation to note is the study's reliance on self-report via telephone interviews, which limited participation to those in households with phones. In addition, recent PTSD and MDE diagnoses focused on the past 6 months, whereas the risky behaviors targeted in this study focused on the past 12 months. Thus, it is unknown the extent to which this difference in time frame may account for differences in prevalence that were found among these problems. A final limitation is that, although drinking to intoxication has been demonstrated to be a risk factor for later substance abuse (Schulenberg et al., 1996), it may be considered a low threshold definition of such problematic behavior (i.e., drinking to intoxication does not equate alcohol abuse). Thus, the results of the current study should not be interpreted to mean that Substance Abuse or Dependence (per DSM-IV diagnostic criteria) is necessarily more common than PTSD.

Nonetheless, several clinical implications extend from these findings. First, assessment of mental health sequelae among youth who have experienced sexual abuse should include a thorough screen for exposure to other types of interpersonal violence and the presence of risky behaviors, in addition to PTSD and depression. Second, the prevalence of multiple problematic health outcomes among adolescents who have experienced CSA, and the superiority of integrated treatment approaches versus non-integrated treatment approaches in the adult literature (e.g., Cocozza et al., 2005), indicate a strong need for comprehensive trauma-informed interventions that target both risky behaviors and mental health problems in adolescent trauma victims. Although empirically-supported interventions exist for PTSD among adolescents who have experienced sexual abuse and for substance use and delinquent behavior among general youth populations, limited comprehensive approaches addressing both traumatic event history and risky behaviors have been developed and evaluated to date (Danielson et al., 2006; Najavits, Gallop, & Weiss, 2006). Further efforts are needed in the

systematic evaluation and subsequent dissemination of these existing integrated interventions. Third, treatment needs of adolescents who have experienced sexual abuse may differ. Careful and thorough clinical assessment targeting the specific clinical pathways needed for treatment of individual youths and their families are suggested by this research.

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Table 1
Prevalence of Study Variables by Lifetime PTSD History Status and Chi-Square Comparisons.

	Total		Lifetime PTSD		Lifetime No PTSD		df	X ²	p
	n=269	%	n=70	%	n=199	%			
Demographics									
Gender							(1, 262)	0.2	
<i>Female</i>	200	74.3%	50	71.4%	143	71.5%			
<i>Male</i>	69	25.7%	20	28.6%	49	25.5%	(4, 248)	1.4	
Race/ethnicity ⁺									
<i>Caucasian</i>	172	63.9%	43	66.2%	127	67.9%			
<i>African American</i>	45	16.7%	10	15.4%	35	18.7%			
<i>Hispanic</i>	27	10.3%	9	12.3%	18	9.6%			
<i>Asian/Pacific Island</i>	5	1%	2	3.1%	3	1.6%			
<i>Native American</i>	8	3%	2	3.1%	4	2.1%			
Other PTE									
Physical Assault	110	40.8%	43	62.3%	64	33.2%	(1, 262)	17.9	**
Physical Abuse	105	39.2%	37	52.9%	65	33.9%	(1, 262)	7.8	*
Witnessed Community Violence	171	63.8%	58	82.9%	108	56.3%	(1, 262)	15.6	**
Witnessed Domestic Violence	55	20.7%	16	22.9%	36	18.8%	(1, 262)	0.5	
Co-occurring disorders									
PTSD									
<i>Lifetime</i>	70	26.0%	70	100.0%	0	0.0%	n/a		
<i>Past 6 mo.</i>	44	16.6%	44	62.9%	0	0.0%	n/a		
MDE									
<i>Lifetime</i>	97	36.2%	54	78.3%	39	20.3%	(1, 261)	74.4	**
<i>Past 6 mo.</i>	72	26.7%	43	61.4%	25	13.0%	(1, 262)	62.5	**
Risky Behavior									
Delinquent Behavior									
<i>Lifetime</i>	99	36.9%	36	52.2%	60	31.1%	(1, 262)	9.7	*
<i>Past 1 yr</i>	64	23.7%	21	30.0%	39	20.3%	(1, 262)	2.7	

	Total		Lifetime PTSD		Lifetime No PTSD		X ²	
	n=269	%	n=70	%	n=199	%	df	p
Alcohol to Intoxication <i>Lifetime</i>	106	39.4%	29	41.4%	75	39.1%	(1, 262)	0.1
<i>Past 1yr</i>	84	31.2%	25	35.7%	58	30.1%	(1, 263)	0.8
Non-experimental Drug Use <i>Lifetime</i>	75	27.8%	25	35.7%	45	23.4%	(1, 262)	3.9
<i>Past 1yr</i>	66	24.4%	24	34.4%	39	20.3%	(1, 262)	5.5

PTE=Potentially Traumatic Events.

** denotes p<.001;

* denotes p<.01.

+ 12 participants (5.1%) did not report their race/ethnicity.