A Prospective Study of Sex Differences in the Lifetime Risk of Posttraumatic Stress Disorder Among Abused and Neglected Children Grown Up

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Abstract

In the general population, women's lifetime risk of developing posttraumatic stress disorder (PTSD) is twice that of men's. However, evidence is contradictory as to whether this sex difference is present among child abuse/neglect victims. The authors examined sex differences in PTSD among a sample of 674 individuals with documented child abuse/neglect histories assessed for PTSD in adulthood. Across all types of abuse/neglect, women were more than twice as likely to develop PTSD as men. The sex difference was greatest among sexual abuse victims. Female victims' greater revictimization explained a substantial proportion (39%) of the sex differences in PTSD risk. Future research should identify mechanisms that make female victims particularly vulnerable to revictimization and the development of PTSD.

Posttraumatic stress disorder (PTSD) occurs following exposure to a potentially traumatic life event (PTE) and is defined by three symptom clusters: reexperiencing, avoidance and numbing, and arousal (American Psychiatric Association, 1994). In the general population, women's lifetime risk of developing PTSD is twice that of men's (Kessler et al., 2005; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). Numerous studies have documented that child abuse and neglect victims are at increased risk of developing PTSD (Kaplow, Dodge, Amaya-Jackson, & Saxe, 2005; Widom, 1999). However, evidence is contradictory as to whether there are sex differences in lifetime risk of PTSD among abuse and neglect victims. Specifically, a recent meta-analysis of sex differences in PTSD did not report a sex difference in lifetime risk of PTSD among survivors of childhood sexual abuse or nonsexual child abuse or neglect (Tolin & Foa, 2006). In this article, we further examine sex differences in lifetime PTSD in a prospective cohort of abused and neglected children grown up.

Extant research offers at least two competing explanations for potential sex difference in lifetime risk of PTSD among abused and neglected children grown up. The first explanation is that it is not female sex per se but women's greater lifetime exposure to specific types of PTEs, such as sexual abuse and rape, and revictimization which explains the sex difference in lifetime PTSD (Wolfe & Kimerling, 1997). This explanation has been labeled the "situational-vulnerability hypothesis" (Pimlott-Kubiak & Cortina, 2003). Support for this

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hypothesis comes most clearly from a study by Cortina and colleagues (2006) of victims of partner aggression. Results indicated that the effect of sex on PTSD symptoms was reduced to nonsignificance once sexual victimization history was taken into account (Cortina & Kubiak, 2006).

The second explanation is that women are more vulnerable to developing PTSD than men regardless of PTE exposure. This has been labeled by Cortina and colleagues as the "feminine-vulnerability hypothesis." Support for this hypothesis comes most clearly from epidemiologic studies by Breslau and colleagues (Breslau & Anthony, 2007; Breslau, Chilcoat, Kessler, Peterson,& Lucia, 1999; Breslau,Davis, Andreski, Peterson, & Schultz, 1997). Their findings suggest women's twofold risk of PTSD is not accounted for by greater exposure to assaultive violence events, such as rape, and persists even after controlling for previous trauma history. The feminine-vulnerability hypothesis is also supported by a meta-analytic study's results, which reported an overall PTSD sex difference that was consistent across many types of PTEs excluding sexual abuse and assault (Tolin & Foa, 2006).

Despite the strong evidence for the feminine-vulnerability hypothesis, the ability to draw definitive conclusions about the sex difference in lifetime risk for PTSD among child abuse/ neglect victims is constrained by the number and methodological limitations of available studies. For example, Tolin and Foa (2006) reviewed 2,477 articles for the meta-analysis, which ultimately included 290 studies, only 10 of which focused on child sexual abuse victims and 8 on nonsexual child abuse or neglect victims (Tolin & Foa, 2006). As noted by a recent review of sex differences in PTSD among child sexual abuse victims, "our knowledge of gender in relation to the risks for sexual victimization and subsequent PTSD is limited" (Walker, Carey, Mohr, Stein, & Seedat, 2004, p. 111).

In terms of methodological limitations, most studies of PTSD in child abuse/neglect victims rely on retrospective self-reports of abuse. Sex differences in willingness to report specific types of abuse or neglect may produce bias or inconsistent findings. Second, studies of child abuse and neglect victims often rely on convenience samples that may be subject to selection biases or include either participants of only one sex (usually females), making the examination of sex differences impossible. For example, in general, women are more likely than men to seek help for a range of mental health problems (Bland, Newman, & Orn, 1997). If men seek help only when their problems are particularly severe, treatment-seeking samples of child abuse and neglect victims may overrepresent male victims with high levels of PTSD. Thus, the PTSD sex difference in treatment-seeking samples may be attenuated. Third, many studies exclusively focus on one type of abuse, usually sexual, and do not include neglect victims, making comparisons in sex differences by type of childhood victimization impossible. Finally, prospective studies of child abuse and neglect victims often have short follow-up periods that may not allow sufficient time for sex differences in psychopathology to develop.

The current study of sex differences in PTSD among abused and neglected children grown up addresses each of the above limitations. First, we minimize issues of recall bias by relying on court-documented reports of child abuse and neglect. Second, participants were sampled through court records. Third, our study includes participants with documented histories of sexual abuse, physical abuse, and/or neglect, enabling us to compare sex differences by type of abuse history. Finally, participants are followed into adulthood allowing sufficient time for sex differences in PTSD and other forms of psychopathology to develop. Thus, our data should provide a less-biased estimate of the potential sex difference in PTSD among victims of child abuse or neglect than that reported by previous studies.

This study examines sex differences in PTSD among a sample of 676 individuals with documented histories of child abuse or neglect who were followed-up and assessed for PTSD in adulthood. First, we tested whether there are sex differences in PTSD among abused and neglected children grown up. We also tested whether the sex difference in PTSD is consistent across type of abuse (sexual, physical, neglect). Second, assuming a consistent sex difference is found, we will follow procedures recommended by Rutter, Caspi, and Moffitt (2003) for testing competing explanations for the sex difference in PTSD. Specifically, we will test whether women's differential exposure to specific types of PTEs (situational-vulnerability) accounts for the sex difference in PTSD by examining abuse characteristics and exposure to traumatic events as explanatory variables. If differential exposure to sexual abuse or rape explains the sex difference in PTSD, this would support the situational-vulnerability hypothesis. We will also examine the role of other PTSD-related risk factors and base rates of other psychopathology (e.g., depression) as potential explanatory variables. If differential vulnerability to depression explains the sex difference in PTSD, this would support the feminine-vulnerability hypothesis.

METHOD

Participants

The data are from a prospective cohort design study in which abused and/or neglected children with documented abuse histories were matched with nonvictimized children and followed prospectively into young adulthood. For the purposes of the current study, only the abused and/or neglected children were included as participants. For details of the study design and subject selection criteria, see Widom (1989a, 1989b).

Childhood physical and sexual abuse and neglect cases were drawn from the records of county juvenile and adult criminal courts in a metropolitan area in the Midwest during the years 1967 through 1971. The rationale for identifying the abused and neglected group was that their cases were serious enough to come to the attention of the authorities. Abuse and neglect cases were restricted to those in which the children were 11 years of age or less at the time of the abuse or neglect incident. The mean age at petition in this sample was 6.3 ($SD = 3.3$) years.

Physical abuse cases included injuries such as bruises, welts, burns, abrasions, lacerations, wounds, cuts, bone and skull fractures, and other evidence of physical injury. Sexual abuse charges varied from relatively nonspecific charges of "assault and battery with intent to gratify sexual desires" to more specific charges of "fondling or touching in an obscene manner," rape, sodomy, incest, and so forth. Neglect cases reflected a judgment that the parent's deficiencies in childcare were beyond those found acceptable by community and professional standards at the time. These cases represented extreme failure to provide adequate food, clothing, shelter, and medical attention to children (Widom, 1989a).

For this article we used data from the second phase of the study which took place between 1989 and 1995 and involved tracing, locating, and interviewing these individuals a mean of 22.3 ($SD = 2.1$) years after the age of petition, when the participants were approximately 29 years old. Respondents were interviewed in person, usually in their home, or if the respondent preferred, another place appropriate for the interview. The interviewers were blind to the purpose of the study and to the participant's history of abuse and/or neglect. Similarly, the participants were blind to the purpose of the study and were told that they had been selected to participate as part of a large group of individuals who grew up in the late 1960s and early 1970s. Before beginning the interview, all respondents were asked to sign a consent form. For those individuals with limited reading ability, the consent form was read to the person and, if necessary, explained verbally. Institutional review board approval was

obtained and individuals who participated signed a consent form acknowledging that they understood the conditions of their participation and were participating voluntarily.

At the follow-up interview, 737 of the original sample of 908 abused and neglected individuals were located. Of those located, 676 participants were interviewed. Of the people not interviewed, 27 were deceased (prior to interview), 8 were incapable of being interviewed, 171 were not found, and 26 refused to participate. Attrition analyses compared current study participants to those who were lost to attrition on measures of gender, race, age of onset of abuse, type of abuse, and poverty level. These analyses indicated that a higher percentage of those who were lost to attrition were White, χ^2 (1, $N = 908$) = 9.47, $p < .01$, and had experienced sexual abuse, χ^2(1, $N = 908$) = 8.90, $p < .01$, whereas a higher percentage of those who had experienced neglect were retained, χ^2(1,$N = 908$) = 12.61, $p < .001$. There were no significant differences between those who were retained and those lost to attrition with regard to gender, age of onset of abuse or poverty level.

Half the sample (50.0%) was female and about two thirds (61.5%) were White. The mean age of the sample at the follow-up interview was 29.7 years ($SD = 3.8$ years). Sample members completed a mean of 11.1 ($SD = 1.9$) years of school. The median occupational level for the sample was semiskilled workers, with less than 7% in levels 7 to 9 (managers to professionals). Thus, the sample is skewed toward the lower end of the socioeconomic spectrum.

Measures

Information about the abuse or neglect incident(s), including the age of the child at the time of the petition was obtained from the files of the juvenile (family) and adult criminal court.

Information regarding whether the child had experienced any abuse/neglect in addition to the initial maltreatment report was also obtained from the files of the juvenile (family) and adult criminal courts. The other abuse variable was coded dichotomously (0 = *no other abuse/neglect reported*, 1 = *other abuse/neglect reported*). Thirty percent of the sample had an additional report of abuse/neglect following the initial report.

Other risk factors shown to be previously associated with PTSD diagnosis or symptoms were also included in our analysis (Widom, 1999). These factors were assessed as part of the demographic and family history sections of the follow-up interview (described in more detail below) and included number of transitions in childhood caregivers, highest grade of schooling completed, minority race, either parent ever arrested, parent with alcohol or drug problem, parent on welfare, coming from a family with five or more children.

Psychiatric disorders were assessed via the National Institute of Mental Health Diagnostic Interview Schedule, Version III-Revised (NIMH-DIS-III-R; Robins, Helzer, Cottler, & Golding, 1988), a highly structured interview schedule designed for use by lay interviewers. The survey company who had used these methods as part of the Epidemiological Catchment Area studies (Eaton, Regier, Locke, & Taube, 1981) was hired to conduct the interviews. Field interviewers received a week of study-specific training and successfully completed practice interviews before beginning the study interviews. Field interviewer supervisors recontacted a random 10% of the respondents for quality control. Frequent contacts between field interviewers and supervisors were held to prevent interview drift, to monitor quality, and to provide continuous feedback. Computer programs for scoring the NIMH-DIS-III-R, were used to compute diagnoses according to the *Diagnostic and Statistical Manual of Mental Disorders, Third Edition-Revised* (*DSM-III-R*; American Psychiatric Association, 1987). Adequate reliability for the DIS has been reported (Helzer et al., 1985).

The NIMH-DIS-III-R section on PTSD begins with a question in which several PTEs are mentioned and respondents are asked whether any of these events has ever happened to them. Up to three qualifying events are investigated as to their PTSD sequelae. An earlier version of the DIS PTSD module was reported to have acceptable reliability (Cohen's κ = . 67) when compared to diagnoses made by experienced psychiatrists (Breslau & Davis, 1987) and construct validity (Sutker, Uddo-Crane, & Allain, 1991). We also assessed lifetime major depression, conduct disorder, alcohol abuse and/or dependence, and drug abuse and/or dependence. Information collected on diagnoses included age of first onset for the disorder.

Data Analysis

We first examined whether there was a sex difference in PTSD among abused and neglected children grown up. The significance of the association between sex and PTSD was assessed via the chi-square statistic; strength of the association was determined by odds ratios (OR) with 95% confidence intervals (CI). Fisher's exact test was used to assess the significance of the association between sex and PTSD in cases where the number in one or more cells was less than 5. The association between sex and continuous variables was assessed via the t test. For variables that were significantly associated with female sex, we then went on to test whether they also were associated with lifetime PTSD. Variables that were significantly ($p < .05$) associated with both female sex and lifetime PTSD were considered potential explanatory variables for the sex difference in PTSD.

We then tested competing explanations for the sex difference in PTSD among abused and neglected children grown up: the situational versus feminine-vulnerability hypotheses. To accomplish this goal, we examined whether the sex difference in PTSD among abused and neglected children grown up could be explained by sex differences in four sets of variables: (a) abuse-related factors; (b) exposure to other potentially traumatic events; (c) exposure to other PTSD-related risk factors; and (d) base rates of other psychiatric disorders. For a variable to explain the sex difference in PTSD, it must meet the following criteria: (1) be significantly associated with female sex; (2) be significantly associated with PTSD; and (3) when entered into the model predicting PTSD, it must substantially attenuate the effect of sex on risk of PTSD (Baron & Kenny, 1986; Rutter et al., 2003).

The final stage in our analysis was to test whether the sex difference in PTSD was substantially attenuated after adjusting for sex differences in exposure to specific risk factors. We tested whether the risk factors we identified as being associated with both female sex and PTSD explained the sex difference in PTSD using a hierarchical logistic regression analysis. In the first step, we regressed lifetime PTSD diagnosis on sex. In the second step, we included other risk factors and/or psychiatric disorders as explanatory variables in addition to sex. In the third step, we included PTEs and trauma characteristics as additional variables in the model. We then examined whether adding these variables to the model substantially attenuated the sex difference in PTSD. We defined a substantial attenuation as one that resulted in a (a) statistically significant improvement in model fit as defined by the chi-square change for the difference in the -2 log likelihood between the two models, and (b) 10% or greater reduction in the OR for the association between sex and PTSD (Rothman, 2002). If these two criteria are met, then the variable(s) can be interpreted as mediating the sex-PTSD association. In addition, if the OR for sex is attenuated to nonsignificance then the variable(s) can be interpreted as fully mediating the association. If the OR for sex is still statistically significant, then the variable(s) would be considered partial mediators. Alpha was set at <.05 for statistical significance.

RESULTS

Table 1 presents the lifetime prevalence of PTSD by sex and by type of abuse/neglect. The results indicated that women's lifetime risk of PTSD was more than twice that of men's in both the overall abuse/neglect groups and when analyses were stratified by type of abuse.

Risk Factors Associated With Female Sex

We began by testing whether abuse-related factors, specifically age of petition, type of abuse in petition, and other abuse reports, differed by sex. The mean age at petition was similar for abused and neglected boys ($M = 6.3$, $SD = 3.2$) and girls ($M = 6.4$, $SD = 3.3$). The prevalence of other abuse reports was similar in boys ($n = 94$, 29%) and girls ($n = 98$, 30%).

However, sex differences in the type of abuse experienced were significant (see Table 2).Girls were more likely to have experienced sexual abuse than boys; boys were more likely to have experienced neglect. There were no significant sex differences in the prevalence of physical abuse or multiple types of abuse.

We then examined whether there were sex differences in the number or type of potentially traumatic events experienced by abused or neglected participants (see Table 2). In this analysis, we only considered potentially traumatic events that occurred after the age of petition. This was done to insure that any sex differences found in type or number of potentially traumatic events was not merely an artifact of the sex differences in type of abuse.

Rape was the only potentially traumatic event significantly more prevalent among women than among men. Men were less likely than women were to have reported experiencing a rape after the age of petition. Women were also more likely to have experienced multiple traumatic events. Men were significantly more likely to report having witnessed someone being hurt or killed and experienced a sudden injury or accident.

Table 3 shows there were no sex differences in the following potential risk factors: number of transitions in childhood caregivers, highest grade of schooling completed, minority race, either parent ever arrested, parent with alcohol or drug problem, parent on welfare, coming from a family with five or more children.

Table 4 presents the prevalences of other psychiatric disorders by sex among abused and neglected children grown up. Of the other psychiatric disorders we considered, only lifetime diagnosis of depression was more prevalent among women than men. Lifetime diagnoses of conduct disorder, alcohol abuse or dependence, and drug abuse or dependence were significantly more prevalent among men than women.

Risk Factors Associated With PTSD

Our next step in our attempt to explain the sex difference in PTSD was to test whether risk factors associated with female sex ($p < .05$) were also associated with increased risk of developing PTSD. Thus far, our results indicate that women in our sample have higher prevalences than men of the following risk factors: childhood sexual abuse, rape, having experienced multiple traumas, and a lifetime diagnosis of depression. Thus, our next set of analyses considered whether these factors were also associated with PTSD.

Table 5 presents the prevalences of sex-correlated risk factors by PTSD diagnosis. The results indicate that rape, multiple traumas, and a lifetime diagnosis of depression were significantly associated with PTSD. Sexual abuse was not significantly more likely than

other types of abuse or neglect to be associated with PTSD among abused and neglected children grown up.

Sex-Correlated Risk Factors

In the analyses presented thus far, we focused on examining lifetime associations between sex or PTSD and potentially explanatory risk factors. Documenting associations between specific risk factors and both female sex and PTSD was a prerequisite for considering whether they explain the sex difference in PTSD. We did not take into account the temporal association between PTSD and the potential explanatory factor. For example, we examined the association between lifetime PTSD and lifetime major depression regardless of order of onset. In the next set of analyses, we used age-of-onset data for PTSD and each of our risk factors to insure that risk factors included in the model occurred prior to the onset of the first diagnosis of PTSD.

The final stage in our analysis was to test whether the sex difference in PTSD was substantially attenuated after adjusting for sex differences in exposure to specific risk factors. Table 6 presents the results of the hierarchical logistic regression analyses. The addition of rape (coded as 0, 1, or 2+) and multiple trauma variables to the model resulted in a reduction of the OR for the sex difference in PTSD from 2.69 to 1.65. This represents a statistically significant improvement in fit, χ^2 (2, $N = 676$) = 75.77, $p < .001$, and a 39% reduction in the OR for sex. The addition of rape and multiple traumas to the model therefore results in a substantial attenuation in the effect of sex on risk for PTSD. In contrast, the addition of preexisting depression, although statistically significant, does not result in a substantial reduction in the OR for the sex difference in PTSD (2.73 to 2.69 or 1% reduction).

DISCUSSION

Our prospective study has documented a more than twofold sex difference in risk of PTSD among abused and neglected children grown up. Women's increased risk of developing PTSD was apparent across all types of abuse/neglect. The greatest sex difference was found among participants who experienced sexual abuse; women's risk of developing PTSD was more than 4 times that of men's. Our data contradict those from a recent meta-analysis, which did not show a consistent sex difference for PTSD among samples of childhood sexual or nonsexual abuse and neglect victims (Tolin & Foa, 2006). As the authors acknowledge, the meta-analysis of child abuse/neglect studies was limited by the quantity and quality of studies that met their inclusion criteria.

The second goal of the current study was to explain the sex difference in PTSD by testing the situational versus feminine-vulnerability hypotheses. Although we had data on many potential explanatory risk factors, only three were significantly associated with both female sex and PTSD, and therefore met the inclusion criteria for our final model: rape, multiple traumas, and lifetime major depression. Of these, rape and exposure to multiple traumas explained a statistically significant and substantial proportion of the sex difference in PTSD. The OR for the sex difference was reduced from 2.69 to 1.65 when these were entered into the final model, representing a 39% reduction in the sex–PTSD association. However, a statistically significant and substantial sex difference (1.65) in risk for PTSD remained unaccounted for by our model. These results suggest situational factors, such as women's greater exposure to rape, partially mediate the sex difference in PTSD and provide support for the situational-vulnerability hypothesis. Preexisting major depression remained a significant independent predictor of PTSD in the final model. However, sex differences in major depression did not explain the sex difference in PTSD.

Limitations

Despite its strengths, several limitations of this study should be noted. Most important, our data do not differentiate between chronic versus acute abuse nor does it identify whether the abuse occurred within or outside the family. It is also possible that our sample may include some cases in which a child had been abused prior to the age reported in court records. Such factors may account for some of the sex difference in lifetime risk of PTSD. Second, our assessment of other traumatic events and PTSD relied on the NIMH-DIS-III-R. The structure of the questions in the interview may have led to underreporting of specific events, particularly rape. Experts on sexual violence have long argued that, to achieve valid assessments of rape prevalence, one must use detailed behavioral assessments of sexual assault histories, without requiring respondents to label their experiences as "rape" per se (Bachar & Koss, 2001; Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993). If our assessment led to differential underreporting whereby female victims were less likely to label their experiences as rape than male victims, this could account for some of the sex differences in lifetime risk of PTSD. Although widely used at the time of this study, the NIMH-DIS-III-R has been criticized for low sensitivity in its detection of PTSD (Kulka et al., 1991). Low sensitivity results from a high proportion of false-negatives or misclassification of individuals with PTSD as not having the disorder. If the NIMH-DIS-III-R had low sensitivity in out study, this would result in an underestimate of the prevalence of lifetime PTSD in our sample. However, we note that the prevalence as currently estimated was very high, over 20% of men and over 40% of women met lifetime criteria for PTSD. Low sensitivity would only affect our estimate of the association between female sex and PTSD if misclassification differed by sex. If the NIMH-DIS-III-R were less sensitive in detecting PTSD in men than women, this could potentially inflate the observed sex difference in PTSD. However, we know of no evidence that supports such differential misclassification. Finally, given that the NIMH-DIS-III-R uses the *DSM-III-R*, not the current *DSM-IV* criteria for the diagnosis of PTSD, this raises questions about whether our results would generalize to other samples using current diagnostic criteria.

Third, our findings are based on cases of childhood abuse and neglect drawn from official court records and most likely represent the most extreme cases processed in the system. This means that our findings on sex differences in PTSD are not generalizable to unreported or unsubstantiated cases of child abuse and neglect. Fourth, officially reported cases of child abuse and neglect are generally skewed toward the lower end of the socioeconomic spectrum. Thus, these findings cannot be generalized to child abuse and neglect cases that occur in middle- or upper-class children and their families. Indeed, the consequences of abuse and neglect for children in higher socioeconomic status families may be manifest in ways quite different from those for the children in the present study. Fifth, these findings represent the experiences of a group of young children (under 11 years at the time of maltreatment) during the late 1960s and early 1970s in the midwestern part of the United States. Our findings may not be generalizable to children abused and neglected at an older age (in adolescence), at a later point in time (the 1990s or at present), or from other parts of the country.

CONCLUSIONS AND IMPLICATIONS

Our findings of a twofold risk of PTSD among female abused and neglected children grown up have implications for both research and practice. Although our study aimed to test what have been posed in the literature as contradictory hypotheses (feminine vulnerability vs. situational vulnerability), the results from our study and emerging findings from translational research portray a more complex reality. Animal models and human correlational studies suggest sex differences in vulnerability to PTSD may reflect the interaction of feminine sex and experience. Sex differences in psychobiological response to

early life stress have been documented whereby girls may be more vulnerable to the neurodevelopmental effects of sexual abuse and boys to neglect (Kajantie & Phillips, 2006; Olff, Langeland, Draijer, & Gersons, 2007; Teicher, 2002; Teicher et al., 2004; Teicher, Tomoda, & Andersen, 2006). Genotype–environment interaction may also play a role in sex differences in PTSD. For example, a study by Barr and colleagues found sex differences in the effect of an interaction between serotonin transporter genotype (rh5-HTTLPR) and early rearing environment on neurobiological response to acute stress among infant macaques (Barr et al., 2004). Among female macaques carrying the short version (s) of the rh5-HTTLPR allele, those exposed to peer rearing showed both increased adrenocorticotropic hormone response to acute stress and lower cortisol levels overall. Early rearing environment did not modify the association between genotype and neurobiological response to acute stress in male macaques. Barr et al. (2004) note that their findings "suggest the intriguing possibility that human females carrying the 5-HTTLPR s allele could be more vulnerable to the effects of early adversity" (p.12358).

Our findings also suggest there may be sex differences in the long-term psychological consequences of abuse. If female abuse victims are more at risk of developing PTSD, there might be sex differences in the types of interventions that would be most effective in preventing or treating psychopathology in abuse victims. Female abuse victim's risk of PTSD was partially mediated through revictimization, e.g., rape and multiple traumas. Thus, interventions aimed at preventing revictimization may be particularly important for preventing PTSD in female child abuse victims. However, further research is needed to identify what it is about female victim's experience of or response to abuse in addition to revictimization that make them particularly vulnerable to developing PTSD.

Acknowledgments

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Table 1

Sex Differences in Lifetime Posttraumatic Stress Disorder (PTSD) by Type of Abuse

	Men		Women			
	n	%	n	%	OR	95% CI
Abuse/neglect group ($N = 674$)						
No PTSD	264	79.3	196	58.3	2.73***	1.94–3.85
PTSD	69	20.7	140	41.7		
Any sexual abuse						
No PTSD	16	84.2	42	56.0	4.19[a]**	1.13–14.60
PTSD	3	15.8	33	44.0		
Any physical abuse						
No PTSD	44	74.6	26	55.3	2.37*	1.04–5.39
PTSD	15	25.4	47	44.7		
Any neglect						
No PTSD	224	79.2	149	58.2	2.73***	1.87–3.98
PTSD	59	20.8	107	41.8		

Note. The number of participants in abuse groups does not equal 674 because some participants were exposed to two or more types of abuse.

[a] *p* Value determined by Fisher's exact test due to counts of less than 5 for some cells.

*
  p < .05.

**
  p < .01.

***
  p < .001.

Table 2

Prevalence of Exposure to Specific Types of Abuse and Other Potentially Traumatic Events After Age of Petition for Abused and Neglected Children Grown Up by Sex (N = 674)

	Men		Women		OR	95% CI
	n	%	n	%		
Type of abuse or neglect						
Sexual	20	5.9	76	22.5	4.61***	2.75–7.75
Physical	63	18.6	47	13.9	0.71	0.47–1.07
Neglect	286	84.6	257	76.0	0.58**	0.39–0.85
More than one type of abuse/neglect	30	8.9	40	11.8	1.38	0.84–2.27
Other potentially traumatic events after age of petition[a]						
Rape	3	0.9	81	24.0	35.20[b]***	10.99–112.69
Military combat	4	1.2	0	0.0	Not calculable	Not calculable
Physical assault	49	14.5	40	11.8	0.79	0.51–1.24
Seeing someone hurt or killed	63	18.6	37	10.9	0.54**	0.35–0.83
Disaster	10	3.0	12	3.6	1.21	0.51–2.83
Threat	34	10.1	31	9.2	0.90	0.54–1.51
Narrow escape	9	2.7	8	2.4	0.89	0.34–2.33
Sudden injury or accident	52	15.4	26	7.7	0.46**	0.28–0.75
News of sudden death or accident	27	8.0	31	9.2	1.16	0.68–2.00
Other event	17	5.0	20	5.9	1.19	0.61–2.31
Seeing another's experience	2	0.6	9	2.7	4.60	0.99–21.43
Any qualifying event	194	57.4	200	59.2	1.08	0.79–1.46
Two or more qualifying events	75	22.2	97	28.7	1.41*	1.00–2.00

[a] Other potentially traumatic events occurred after the age of petition for abuse/neglect and, therefore, are in addition to the documented abuse/neglect experience on which entry into the study was based.

[b] p Value determined by Fisher's exact test due to counts of less than 5 for some cells.

*
p < .05.

**
p < .01.

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Table 3

Descriptive Statistics for Risk Factors in Abused and Neglected Children Grown Up by Sex (*N* = 674)

	Men (*n* = 337)		Women (*n* = 337)	
	M	*SD*	*M*	*SD*
Number of transitions in childhood caregivers	5.71	4.85	5.50	5.09[a]
Highest grade of schooling completed	10.93	1.81	11.17	1.98[b]
	%	%	OR	95% C I
Minority race	63.0	60.1	0.88	0.65–1.20
Parent ever arrested	72.5	68.0	0.81	0.55–1.18
Parent with alcohol or drug problem	69.3	68.1	0.95	0.66–1.35
Parent on welfare	67.0	67.5	1.02	0.72–1.44
Four or more siblings	62.6	66.5	1.18	0.86–1.62

[a] $t < 1$.

[b] $t(664) = 1.63$.

[*] $p < .05$.

[**] $p < .01$.

[***] $p < .001$.

Table 4

Lifetime Prevalence of Other Psychiatric Disorders by Sex Among Abused and Neglected Children Grown Up (*N* =674)

	Men *n* =337 %	Women *n* =337 %	OR	95% CI
Major depression	19.0	31.1	1.92***	1.35–2.75
Generalized anxiety disorder	8.6	7.4	0.85	0.49–1.49
Conduct disorder	42.7	18.3	0.30***	0.21–0.43
Alcohol abuse or dependence	65.4	43.8	0.41***	0.30–0.56
Drug abuse or dependence	40.9	28.4	0.57***	0.42–0.79

*
$p < .05$.

**
$p < .01$.

***
$p < .001$.

Table 5

Prevalence of Risk Factors Associated With Female Sex by Lifetime Posttraumatic Stress Disorder (PTSD) Diagnosis in Abused and Neglected Children Grown Up (N =674)

Risk factor	Lifetime PTSD		No lifetime PTSD		OR	95% CI
	n	*%*	*n*	*%*		
Sexual abuse	36	17.2	58	12.6	1.44	0.92–2.27
Rape	67	32.1	17	3.7	12.30***	7.00–21.63
Seeing another's experience	7	3.3	4	0.9	3.95*	1.14–13.65
Two or more traumas	118	56.5	54	11.7	9.75***	2.08–3.26
Lifetime diagnosis of depression	107	51.2	61	13.3	6.86***	4.68–10.06

*
$p < .05$.

**
$p < .01$.

***
$p < .001$.

Table 6

Adjusted Risk for Lifetime Posttraumatic Stress Disorder (PTSD) in Hierarchical Logistic Regression Analyses (N =676)

Risk factors	Model 1		Model 2		Model 3	
	OR	95% CI	OR	95% CI	OR	95% CI
Female	2.73 ***	1.94–3.85	2.69 ***	1.90–3.80	1.65 *	1.12–2.41
Preexisting depression			2.09 **	1.37–3.20	2.01 **	1.27–3.16
Rape (0, 1, or 2)					8.08 ***	4.54–14.01
Two or more traumas					1.17	0.85–2.00
Model -2 log-likelihood	796.23		784.87		709.10	
χ^2 change (df)	–		(2) 11.37 **		(1) 75.77 ***	

*
$p < .05$.

**
$p < .01$.

***
$p < .001$.