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Does the impact of child sexual abuse differ from maltreated but non-sexually abused children? A prospective examination of the impact of child sexual abuse on internalizing and externalizing behavior problems

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Abstract

Child sexual abuse (CSA) continues to be a significant problem with significant short and long term consequences. However, extant literature is limited by the reliance on retrospective recall of adult samples, single-time assessments, and lack of longitudinal data during the childhood and adolescent years. The purpose of this study was to compare internalizing and externalizing behavior problems of those with a history of sexual abuse to those with a history of maltreatment, but not sexual abuse. We examined whether gender moderated problems over time. Data were drawn from the Longitudinal Studies of Child Abuse and Neglect (LONGSCAN) at ages 4, 6, 8, 10, 12, 14, and 16 (N = 977). The Child Behavior Checklist was used to assess internalizing and externalizing problems. Maltreatment history and types were obtained from official Child Protective Services (CPS) records. Generalized Estimating Equations (GEE) were used to assess behavior problems over time by maltreatment group. Findings indicated significantly more problems in the CSA group than the maltreated group without CSA over time. Internalizing problems were higher for sexually abused boys compared to girls. For sexually abused girls internalizing problems, but not externalizing problems increased with age relative to boys. This pattern was similar among maltreated but not sexually abused youth. Further efforts are needed to examine the psychological effects of maltreatment, particularly CSA longitudinally as well as better understand possible gender differences in order to best guide treatment efforts.

Keywords

Maltreatment; Longitudinal; Child Sexual Abuse; Gender

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Child sexual abuse (CSA) remains a significant problem with world-wide prevalence rates ranging between 8–31% for girls and 3–17% for boys (Barth et al., 2013). In the United States, a large national survey conducted in 2008 indicated 12% of girls and 7.5% of boys under the age of 18 had experienced some form of sexual victimization (Finkelhor, Turner, Ormrod, & Hamby, 2009). A recent literature review reported CSA prevalence rates of 16.8% for women and 7.9% for men (Putnam, 2003). Discrepancies in rates are largely a function of informant differences (i.e., official Child Protective Services reports versus individual self-reported history), samples (e.g., clinical versus community), definitional differences, and/or methodological differences.

Regardless of the source of reports, a large body of empirical research indicates significant short and long-term effects for CSA including post-traumatic stress disorders and symptoms, depression, suicide, sexualized behaviors, and neurobiological effects (De Bellis, Spratt, & Hooper, 2011; Paolucci, Genuis, & Violato, 2001; Putnam, 2003). Adult outcomes associated with a history of CSA include poor physical health, higher prevalence of DSM disorders (Putnam, 2003), and psychosomatic physical complaints and conditions (Leeb, Lewis, & Zolotor, 2011; Ross, 2005). However, efforts to identify specific pathways from CSA to negative outcomes or a specific syndrome of symptoms have not resulted in any uniform or consistent findings across samples (Kendall-Tackett, Williams, & Finkelhor, 1991). This may be due in large part to the heterogeneous and diverse nature of CSA experiences, contexts of abuse, and potential moderating and mediating factors (Putnam, 2003; Paolucci et al., 2001).

In addition, there have been few studies to assess the pattern of symptoms in CSA victims over time. Some scholars have suggested CSA victims will exhibit “sleeper effects,” showing little distress initially then followed by increased psychopathology over time (Briere, 1992; Gomes-Schwartz, Horowitz, Carcharelli, & Sauzier, 1990). Alternatively, some studies have reported initial high levels of symptomology followed by a decline in symptoms over time or fluctuation of symptoms (see Berliner & Elliott, 2002). In a review of 46 studies, Kendall-Tackett and colleagues reported symptom resolution for two-thirds of sexually victimized children over the first 12 to 18 months (Kendall-Tackett, et al., 1991). However, the majority of extant research relies on adult retrospective reports of CSA or single-time point assessments. This significantly limits the capability to assess consequences prospectively.

Further, contemporary studies indicate that CSA victims experience other types of maltreatment in conjunction with sexual abuse (Finkelhor, Ormrod, Turner, & Hamby, 2005; Scott-Storey, 2011). Thus, the negative effects of CSA may be confounded or further exacerbated by multiple maltreatment types. However, some argue that that CSA constitutes a unique victimization experienced marked by feelings of shame, powerlessness, and boundary violations that may differ as a function of coercion and relationship of the perpetrator to the victim (Noll, 2008). Few studies have controlled for polyvictimization, or have examined outcomes of CSA compared to maltreated, but non-sexually abused youth. Thus we know little about whether sexual victimization constitutes a unique pattern of outcomes different from maltreated, but non-sexually abused children or how much polyvictimization accounts for the negative outcomes documented in CSA victims.

From a longitudinal perspective, there is little extant literature about whether behavioral symptoms may differ by gender of the victim over time. Few studies incorporate male victims of CSA, leaving much to be learned about outcomes for sexually abused boys. Studies, that do compare male and female outcomes of sexual abuse, tend to show mixed evidence of gender differences (Gershon, Minor, & Hayward, 2008). Some studies have failed to find differences in symptomology among sexually abused boys and girls (Maikovich-Fong & Jaffee, 2010). Other studies indicate higher rates of internalizing problems for girls, such as trauma symptoms, psychopathology, and suicide attempts compared to males (Bergen et al., 2003; Walker, Carey, Mohr, Stein, & Seedat, 2004), and higher rates of behavioral problems, substance use, disordered eating, suicide attempts/thoughts, and DSM disorders among male victims of CSA (Briggs-Gowan et al., 2003; Garnefski & Diekstra, 1997; Neumark-Sztainer et al., 2000). Differences in study findings may be related to the time at which the assessment was made (adult versus childhood) or differences in the study sample (e.g., clinical, CPS, or community). Further, comparative studies often lack a formal statistical test of gender differences (Gershon et al., 2008). Given the lack of longitudinal assessment of behavioral symptoms in childhood and adolescence, there is still need to assess the potential moderating role of gender differences in behavioral symptoms over time.

In summary, extant literature is limited by the reliance on retrospective recall of adult samples, single-time assessments, and lack of longitudinal data during the childhood and adolescent years. The potential effect of polyvictimization is often unaccounted for, and few studies have examined whether CSA represents a unique pattern of symptoms relative to maltreated, but non-sexually abused children. Boys are typically underrepresented in studies assessing the outcomes of CSA, and the limited gender comparative studies have resulted in mixed findings. The purpose of the current study was to assess behavior problems in a large sample of boys and girls assessed over seven time points from age 4 to 16. Study aims were to examine differences in internalizing and externalizing symptoms of CSA compared to maltreated but non-sexually abused youth, and to assess gender differences in symptoms over time.

Methods

Data for the current study were drawn from Longitudinal Studies of Child Abuse and Neglect (LONGSCAN). LONGSCAN is a multi-site prospective study of the antecedents and consequences of child maltreatment (see Runyan et al., 1998 for detailed information about recruitment and site samples). Face-to-face interviews were conducted separately with child and caregiver participants approximately every two years beginning at child age 4. Beginning at child age 12, interviews were completed using an audio computer self-assisted interview (A-CASI) format. Caregivers provided consent for their participation and that of the child. Youth provided assent for their participant. Each study site received approval from their respective institutional review boards.

Participants

The LONGSCAN baseline sample consists of 1,354 children. For the current study, only participants with complete data at age 4, and at least 3 waves of complete data between ages 6 and 16 were included (N = 977). Of those, 51% were female, 56% were African American, 25% were Caucasian, 11% were mixed race, 7% were Latino, and 1% were a race/ethnicity other than those already specified. By age 4, 63% (n = 687) of the children had one or more reports to Child Protective Services (CPS). The analysis sample and the LONGSCAN baseline sample did not differ with respect to child gender, race/ethnicity, CPS referral at age 4, or site distribution.

Measures

Child Behavior Problems—Child internalizing and externalizing behavior problems were assessed with the Child Behavior Checklist (CBCL; Achenbach, 1991), at ages 4, 6, 8, 10, 12, 14, and 16. The CBCL is a well-established measure of child internalizing and externalizing problems. The child's caregiver indicates the extent to which each of 113 behaviors is characteristic of the child. Scoring includes raw and standardized (T-scores) for two broadband groupings of symptoms (Internalizing and Externalizing). Raw scores were utilized for the current study. The CBCL has good psychometrics with regard to test-retest reliability, inter-rater agreement, and validity (Achenbach, 1991).

Maltreatment History—LONGSCAN conducted life-time reviews of administrative Child Protective Services (CPS) data approximately every two years, providing a history of CPS involvement from birth to age 18. Because definitional differences regarding maltreatment type may exist among CPS agencies within and across states, CPS case narratives were abstracted and coded using the Modified Maltreatment Classification System (MMCS; Barnett et al., 1993; English et al., 1997). This enabled the standardization of maltreatment type across sites. Maltreatment history between birth and age 16 was coded into three mutually exclusive groups: (1) any sexual abuse (CSA), (2) CPS allegations of maltreatment, but no sexual abuse (CPSnoCSA), and (3) no CPS allegations of any type (NoCPS). Because victims of maltreatment are likely to experience multiple types of maltreatment, a dichotomous indicator of polyvictimization was derived, such that any participant with more than one type of victimization between birth and age 16 was coded as polyvictimized (=1); all others were coded '0'. By definition, those with no history of CPS allegations were coded '0' for the polyvictimization indicator. An additional indicator for pre-age 4 maltreatment was created in order to control for abuse experiences prior to age 4, which may have preceded assessment of behavior problems.

Control Variables—Demographic control variables include child gender, race/ethnicity (coded as African American, Caucasian, or other), and study site. Age at each assessment was also used in each of the analytic models in order to examine behavior problems as a function of time.

Data Analysis

Data were analyzed separately for internalizing and externalizing problems longitudinally using Generalized Estimating Equations (GEE; Zeger & Liang, 1986). GEE was selected

because this method produces efficient and biased regression estimates for longitudinal studies by appropriately accounting for the correlation of responses within individuals over time. This method is flexible enough for use in analyzing response variables that are not normally distributed, such as CBCL scores, which were positively skewed in our sample. GEE can also accommodate unbalanced designs, missing data, fixed and time-varying covariates, and is generally robust to misspecifications of the correlation structure. CBCL internalizing and externalizing scores at ages 6, 8, 10, 12, 14, and 16 comprised the outcomes of interest. Scores at age 4 were included in order to account for baseline problem behaviors. Maltreatment group was include as a fixed, time invariant predictor (reference =sexual abuse). Child gender, race, study site, pre age-4 victimization, and polyvictimization status were included as control variables. To examine whether gender moderated internalizing and/or externalizing scores over time (i.e., age) and by maltreatment group, analyses were stratified by maltreatment group and the original analyses replicated with the addition of a gender X age interaction term. Significant interaction terms were explored with additional stratified analyses in order to determine the nature of the interaction.

Results

Of the analysis sample, 18% (n =195) had one or more CPS allegations of sexual abuse between birth and age 16. Fifty-three percent (n = 573) had one or more referrals for child maltreatment but no allegations of sexual abuse, and 29% did not have any CPS allegations of any type (n = 318). With regard to polyvictimization status, 47% (n = 510) of the sample had more than one alleged type of maltreatment between birth and age 16. With regard to abuse timing, 91% of the maltreated sample (CSA and CPSnoCSA) had one or more reports by age 6. Within the CSA group, 56% had one or more reports for sexual abuse by age 6. See Table 1 for study variables by maltreatment group and Table 2 for the distribution of timing and repeat victimization by maltreatment group by gender. Excluding those with no maltreatment history, A 2X2 chi-square analysis indicated significant differences in polyvictimization as a function of maltreatment group ($\chi^2 = 94.93$, $p < .001$). Those with CSA allegations were more likely to be polyvictims (95%) compared to the CPSnoCSA group (57%). A 2X3 chi-square was conducted to examine gender distribution by maltreatment group, results indicated significant differences ($\chi^2 = 31.74$, $p < .0001$) with females over-represented in the CSA group (69%) compared to males (31%). Gender representation in the CPSnoCSA group and the NoCPS group was approximately equal. Sexually abused boys were more likely than sexually abused girls to have abuse reports of any type in more than one time frame ($\chi^2 = 4.45$, $p = .035$). There were no gender differences with regard to timing of first sexual abuse report ($\chi^2 = 2.01$, $p = .367$).

Univariate ANOVAs were conducted to examine CBCL internalizing and externalizing scores separately (averaged over the 6 time frames) by maltreatment group (See Table 3). Results indicated significant differences among groups for internalizing problems ($F(2, 5678) = 128.28$, $p < .0001$) and externalizing problems ($F(2, 5677) = 173.25$, $p < .0001$). For both internalizing and externalizing behaviors, the CSA group had higher scores compared to the CPSnoCSA group and NoCPS group. The CPSnoCSA group had significantly higher scores than did the NoCPS group. See Figures 1 (externalizing problems) and 2 (internalizing problems) for distribution of scores over time by maltreatment group.

Two GEE models were conducted to examine internalizing and externalizing problems. Models included maltreatment group, age at each assessment, child gender, polyvictimization status, age 4 baseline CBCL score(s), child race/ethnicity, pre-age4 maltreatment, and study site. In order to compare the effect of sexual abuse relative to those with and without a history of maltreatment, the sexually abused group served as the reference group for all analyses. Parameters were estimated using maximum likelihood with an unstructured covariance structure. In GEE models with multiple outcome time points, the data are stacked such that each line of data represents one time point. Using all available data for all participants, the analysis N with stacked data was 5,137 representing 977 unique individuals.

Results for externalizing problems

The overall model was significantly different from a null model (χ^2 = 1425.25, p < .0001). Results indicated significant differences between the CSA group and the CPSnoCSA and NoCPS groups on externalizing problems over six assessments (see Table 4). Baseline externalizing problems at age 4 were predictive of subsequent problems (*b* = .50, *SE* = .02, *t*(964) = 21.63, *p* <.0001). Age (time) was also a significant predictor (*b* = −.14, *SE* = .03; *t*(4159) = −5.39, *p* < .0001) indicating that externalizing problems declined with age. Child gender was significantly associated with externalizing problems such that males had more behavior problems than did females (*b* = 1.71, *SE* = .41; *t*(964) = 4.22, *p* < .0001). The Midwestern site had significantly lower behavior problems relative to the southwest site. No other variables were significant in the model.

Results for internalizing problems

The overall model was significantly different from a null model (χ^2 = 1116.63, p < .0001). Results indicated significant differences between the CSA group and all other groups on internalizing problems over six assessments (see Table 5). Baseline internalizing problems at age 4 were predictive of subsequent problems (*b* = .49, *SE* = .03, *t*(964) = 16.93, *p* <. 0001). Age was also a significant predictor (*b* =.11, *SE* = .02; *t*(4159) = 5.48, *p* < .0001), but unlike externalizing problems, internalizing problems increased with age. Race/ethnicity was predictive such that caregivers of White youth reported more internalizing problems relative to those of ‘other’ race/ethnicities (*b* =1.07, *SE* = .43; *t*(964) = 2.48, *p* = .013). No other variables were significant in this model.

Stratified Analyses

The sample was stratified by maltreatment group and analyses expanded to include the age X gender interaction term in order to examine whether gender moderated behavioral problems over time for any of the groups. The NoCPS group was also examined for comparative purposes. With regard to externalizing problems, there was no significant interaction between age and gender for those who were sexually abused, nor were the main effects of gender and age significant for this group. For those with a history of maltreatment excluding sexual abuse, the interactive effect of gender and age was not significant. However, in this group, the main effect of age was significant (*b* = −.12, SE = .05, t(2208) = −2.24, p = .03), as was gender (*b* = 2.35, SE = .94, t(503) = 2.49, p = .01), indicating that

externalizing problems declined with age for both genders, but were higher overall for boys compared to girls. For the non-maltreated group, the interaction between gender and age was significant (b = −.30, SE = .08, t(1201) = −4.02) p< .0001). See Table 6 for results. To further explore the direction of this effect, analyses were stratified by gender. For girls, the effect of age was not significant, indicating no change in externalizing scores with age. For boys however, as age increased, externalizing problems declined (*b* = −.35, SE = .06, t(587) = −6.25, p < .0001).

With regard to internalizing problems, there was a significant interaction effect for the CSA group (*b* = −.28, SE = .14, t(745) = −2.05, p = .04) as well as main effects for gender (*b* = 3.88, SE = 1.65, t(745) = −2.36, p = .02) and age (*b* = 0.35, SE = .07, t(745) = 4.65, p < .0001). Regarding the main effects, boys had more internalizing problems than did girls. Overall as age increased so too did internalizing problems. To examine the interaction effect (genderXage), analyses were stratified by gender. For girls, as age increased, internalizing problems also increased (*b* = .35, SE = .07, t(512) = 4.64, p < .0001; however there was no effect of age for boys. For the CPSnoCSA group, there was a significant main effect for age (*b* = .22, SE = .04, t(512) = 5.70, p < .0001). As age increased, so too did internalizing problems. There was no main effect for gender. The interaction between gender and age was significant (*b* = −.15, SE = .05, t(2208) = −2.97, p = .003). In gender stratified analyses, internalizing problems increased with age for girls (*b* =.22 SE = .04, t(984) = 5.63, p < .0001). For males, internalizing problems also increased over time, but the effect was marginal (b = .07, SE = .03, t(1224) = 1.93, p = .05). There was no significant interaction effect for the non-maltreated group, and neither age nor gender emerged as a significant main effect. Results for internalizing problems are presented in Table 7, graphical representation of the interactions are presented in Figure 3 and Figure 4.

In summary, those with a history of sexual abuse had greater internalizing and externalizing scores compared to maltreated youth with no history of sexual abuse. Further, sexually abused boys had greater internalizing problems compared to girls, but internalizing problems increased with age for girls and not boys. In the maltreated group without CSA, internalizing problems increased with age for girls.

Discussion

The purpose of this study was to compare behavioral problems over time in sexually abused versus maltreated, but non-sexually abused children, and to examine the extent to which gender moderated problem behaviors. Findings indicated those with a history of sexual abuse had significantly greater externalizing and internalizing problems over time compared to those without sexual abuse histories. Some gender differences did emerge. Overall, caregivers reported higher externalizing behavior problems for boys than girls. Gender appears to moderate the effect of maltreatment such that internalizing problems increased with age for girls but not boys.

These findings suggest that the consequences of childhood sexual victimization present neither as clearly declining nor increasing with age, but remain consistently worse relative to those without a history of sexual abuse, including those with a history of maltreatment but

no sexual abuse. One potential explanation is the high percentage of sexually abused youth with other victimization experiences. As such it is difficult to discern if higher rates of behavior problems are specific to the sexual abuse or polyvictimization. Studies typically indicate greater negative consequences for those with polyvictimization experiences compared to a single type of victimization type or occurrence (Boxer & Terranova, 2008; Turner, Finklehor, & Ormrod, 2010) including CSA samples (Lacelle, Hébert, Lavoie, Vitaro, & Tremblay, 2012). Taken together, this suggests that CSA may be associated with greater detrimental outcomes than other types, but that the high rate of polyvictimization among CSA victims may partially explain the greater negative sequelae. However, in the present study, we controlled for polyvictimization and our findings are somewhat consistent with other studies suggesting that CSA is a unique contributor to symptoms over time (e.g., Fergusson, Boden, & Hornwood, 2008) even among polyvictims.

Aside from polyvictimization, scholars argue that the child sexual abuse is associated with experiences or constellations of feelings unique to sexual victimization relative to other abuse and neglect experiences (Feiring, Taska, & Lewis, 1996; Finklehor & Brown, 1985). For example, traumatic sexualization, betrayal, powerlessness, and stigmatization as well as attributions of responsibility, guilt, and shame collectively may impact victims of child sexual abuse more profoundly or in different ways than victims of other abuse experiences (Feiring, et al., 1996; Finklehor & Brown, 1985). In addition, victims of sexual abuse are often coerced into keeping the victimization secret through emotional manipulation or threats of physical harm to the victim or family members. Finally, childhood sexual victimization may go undisclosed or victims may delay disclosure. This may inhibit timely access for and/or recognition of the need for counseling services. Although we did not assess time to disclosure or receipt of services, our findings indicate that internalizing and externalizing problems remain consistently higher over a 12-year period for CSA victims relative to those with other abuse experiences.

The overall gender differences noted in the current study are consistent with the bulk of extant literature reporting greater externalizing behavior for boys and greater internalizing behavior among girls with a history of child maltreatment. However, our study provides some evidence that gender may moderate the effect of CSA and internalizing problems. Specifically, sexually abused boys had greater internalizing problems compared to girls, but problems increased with age for girls but not boys. Internalizing problems also increased over time for maltreated but non-sexually abused girls, but not boys. It is difficult to put these findings in context with extant because longitudinal studies comparing adjustment for sexually abused girls and boys are scant and have yielded largely mixed findings. For example, some studies have reported greater trauma symptoms and anxiety in violence exposed females compared to males (Foster, Kuperminc, & Price, 2004; Tolin & Foa, 2006), some suggest greater negative impacts for boys than girls (De Bellis et al., 2002, Garnefski & Diekstra, 1997), and some suggest few if any differences in negative sequelae (Maikovich-Fong, & Jaffee, 2010; Paolucci, et al., 2001). These contradictory findings may be due in part to the scant literature examining gender differences prospectively, the dearth of studies including sexually abused boys, or may reflect the complex and heterogeneous nature of child sexual abuse in general.

Few studies have documented the increase in internalizing symptoms among maltreated girls. One possible explanation for this increase may simply be normative development. In a large representative sample, Bongers and colleagues reported similar internalizing problems for girls and boys during childhood but higher average scores for girls, compared to boys during adolescence (Bongers, Koot, Van der Ende, & Verhulst, 2003). Alternatively, the increase in internalizing symptoms for girls may reflect subsequent (re)victimization. Although a review of the specific mechanisms associated with revictimization is outside the scope of this paper (for a review, see Messman-Moore & Long, 2003), studies consistently show increased risk of revictimization among child sexual abuse victims (Arata, 2006; Classen, Palesh, & Aggarwal, 2005; Desai, Arias, Thompson, & Basile, 2002; Noll, Horowitz, Bonanno, Trickett, & Putnam, 2003). However, the majority of studies are conducted with samples of females. Little is known about the rate of revicitimization or potential mechanisms associated with revicitimzation among males. More effort is warranted to further explore and understand mechanisms to explain gender differences in behavior problems in male and female victims during adolescence.

This study represents the first that we know of to assess externalizing and internalizing problems at multiple time points in a prospective study of maltreated youth. We were able to examine behavioral problems in a large sample that included sexually abused boys and girls, maltreated but not sexually abused youth, and non-maltreated but high-risk youth. Findings support literature suggesting a greater and prolonged effect among sexually abused children, even when compared to youth with other maltreatment experiences. We found that boys displayed higher internalizing problems over time, but girls exhibited increased problems during the pre/teenage period.

Despite significant study strengths, some limitations are worth noting. First, we relied on CPS reports to assess type of maltreatment and occurrence of any maltreatment. Studies suggest CPS reports under-represent the true incidence of child maltreatment, perhaps specifically so for CSA and for male victims of CSA in particular. Thus, we may have missed some youth with CSA histories but no CPS reports. Second, we relied on caregiver report of behavioral problems. Third, we did not attempt to assess chronicity or severity of abuse experiences, nor did we assess differences in abuse experiences by gender. Fourth, we did not assess other factors such as family or peer dynamics, perpetrator characteristics, or receipt of counseling services. Finally, the timing and chronicity of abuse experiences is complex. For some, the onset of abuse may have occurred after a particular measurement of behavior problems. The vast majority of youth (91%) were referred to CPS prior to age 4. However, the onset of sexual abuse may have occurred after a report of abuse of another type. In such cases, the consequences of the earlier abuse may have increased vulnerability to sexual abuse.

Nonetheless, findings from this study indicate a critical need to address the consequences of child maltreatment, including CSA. First, there is a high rate of polyvictimization among sexual abuse victims. Second, victims of CSA exhibited sustained and greater internalizing and externalizing problems compared to non-sexually abused counterparts. Third, although males had greater and sustained internalizing problems, problems increased with age for females. And finally, consequences continue to be evident, if not increase, during

adolescence – a critical developmental period with significant implications for social, behavioral, and academic functioning. Rigorous randomized control trials comparing treatment modalities are scarce. However available studies suggest cognitive behavioral therapy and trauma-focused cognitive-behavioral therapy appears to be effective in reducing PTSD symptoms, and some behavior problems (Cohen, Deblinger, Mannarino, & Steer, 2004; Putnam, 2003). In contrast, other behaviors such as sexualized behavior and aggression are not substantively reduced (Putnam, 2003). Intervention studies comparing outcomes between males and females are largely nonexistent. Further efforts are needed to examine the psychological effects of maltreatment, particularly CSA longitudinally as well as better understand possible gender differences in order to best guide treatment efforts.

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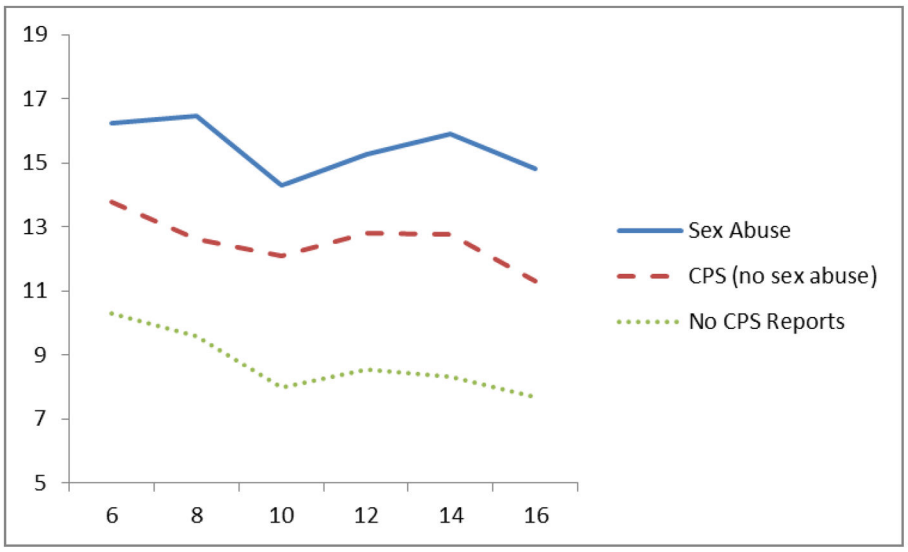

Figure 1.

Externalizing problems by maltreatment group over time

Graph of CBCL Externalizing raw scores by maltreatment group assessed at ages 6, 8, 10, 12, 14, and 16.

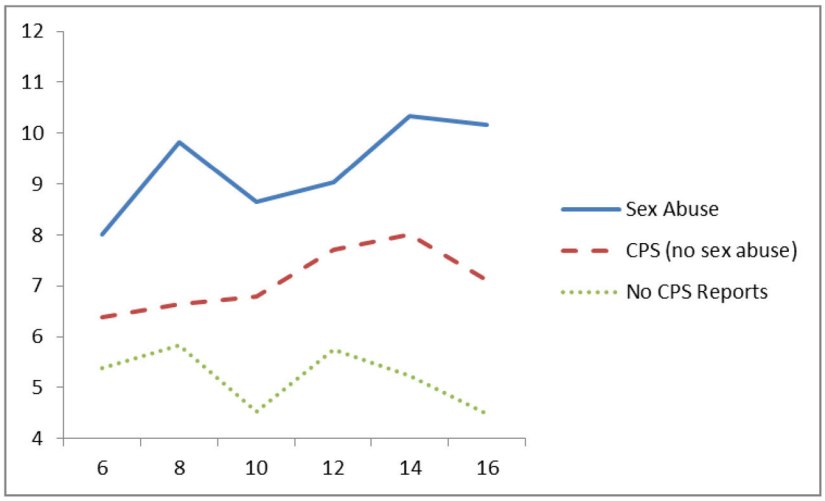

Figure 2.

Internalizing problems by maltreatment group over time.

Graph of CBCL Internalizing raw scores by maltreatment group assessed at ages 6, 8, 10, 12, 14, and 16.

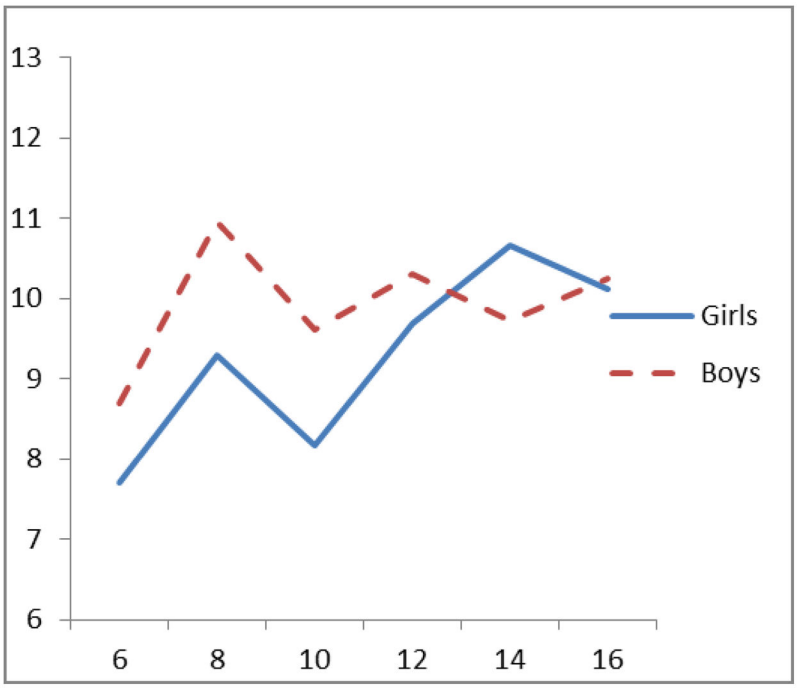

Figure 3.

Internalizing Problems by Gender among Sexually Abused Youth

Graph of CBCL Internalizing raw scores at ages 6, 8, 10, 12, 14, and 16 by gender for the sexually abused group.

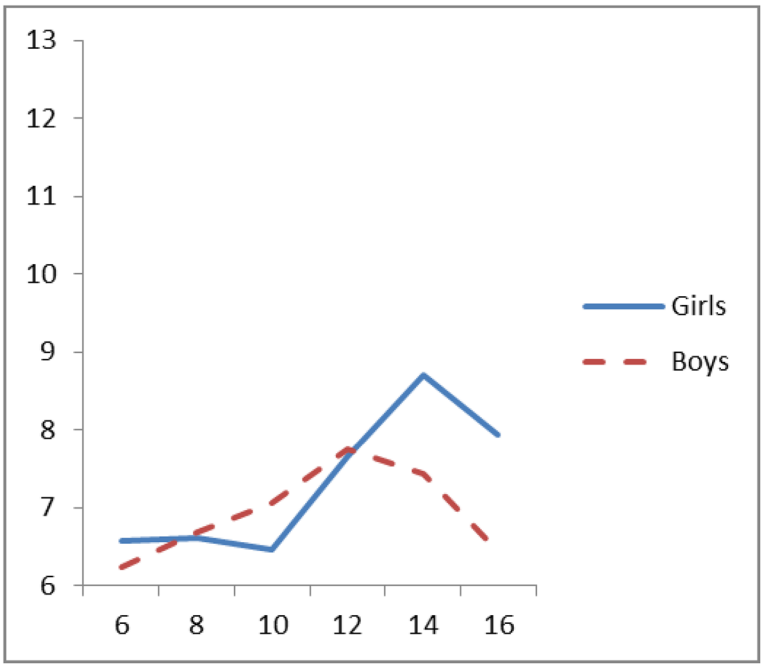

Figure 4.

Internalizing Problems by Gender among Maltreated but not Sexually Abused Youth

Graph of CBCL Internalizing raw scores at ages 6, 8, 10, 12, 14, and 16 by gender for the maltreated but not sexually abused group.

Table 1

Study variables by Maltreatment Group

	Sexual Abuse (N = 195)	CPS, no sex abuse (N = 573)	No CPS (N = 318)
	% (n)	% (n)	% (n)
Child Gender (female)	69 (134)	45 (260)	51 (162)
Child Race/Ethnicity			
African American	34 (67)	53 (306)	72 (230)
White	36 (71)	25 (146)	17 (53)
Other	29 (57)	21 (121)	11 (35)
Polyvictimization	95 (185)	57 (325)	-
Pre Age 4 Maltreatment	94 (183)	87 (498)	-
Study Site			
East	7 (14)	13 (76)	17 (53)
Midwest	9 (18)	16 (94)	28 (90)
South	11 (22)	13 (75)	29 (92)
Southwest	38 (75)	33 (190)	0
Northwest	34 (66)	24 (138)	2 (7)
	M (SD)		
Age at Interview			
Wave 2 (6)	5.93 (.61)	5.92 (.57)	6.07 (.65)
Wave 3 (8)	7.90 (.56)	7.82 (.50)	7.77 (.60)
Wave 4 (10)	9.84 (.51)	9.77 (.53)	9.90 (.57)
Wave 5 (12)	11.89 (.56)	11.83 (.53)	11.90 (.52)
Wave 6 (14)	13.88 (.58)	13.81 (.52)	13.82 (.58)
Wave 7 (16)	15.88 (.57)	15.78 (.56)	15.67 (.57)
CBCL Internalizing: Wave 1	9.42 (8.40)	5.25 (4.86)	4.98 (4.21)
CBCL Externalizing: Wave 1	15.52 (11.45)	13.53 (9.00)	10.95 (7.08)

Note. Percentages represent column (within group) percentages.

Table 2

Timing and Chronicity of Maltreatment Group by Gender

	Sexual Abuse				CPS No Sex Abuse			
	Females % (n)	**Males % (n)**			**Females % (n)**	**Males % (n)**		
Timing of first report for any abuse to CPS								
Birth to age 6	96 (128)	95 (58)			92 (238)	89 (277)		
Age 6 to age 12	4 (5)	5 (3)			6 (15)	10 (30)		
Age 12 to age 16	1 (1)	0			3 (7)	2 (6)		
Timing of first sexual abuse report								
Birth to age 6	59 (79)	51 (31)			-	-		
Age 6 to age 12	26 (35)	36 (22)			-	-		
Age 12 to age 16	15 (20)	13 (8)			-	-		
			χ^2	p			χ^2	p
Abuse in more than one time period	76 (101)	89 (54)	4.45	.035	43 (112)	50 (155)	2.37	.124
Sexual abuse in more than one time period	20 (27)	26 (16)	.90	.342	-	-	-	-

Table 3

Univariate ANOVAs assessing differences in behavior problems by maltreatment group

	Sexual Abuse	CPS No Sex Abuse	No CPS
	M (SD)	M (SD)	M (SD)
Externalizing Raw Score	15.52 (11.45)	12.59 (9.54)	8.79 (7.52)
Internalizing Raw Score	9.42 (8.40)	7.09 (6.54)	5.24 (5.18)

Note. All groups significantly ($p < .05$) differed from one another for both externalizing and internalizing problems.

Table 4

Results from GEE Model Predicting Externalizing Behavior

Variables	b (SE)	t	CI	
Maltreatment Group (ref = Sexual Abuse)				
CPS, no sex abuse	−2.30 (0.59)	−3.88***	−3.46	−1.14
No maltreatment	−4.07 (1.00)	−4.05****	−6.03	−2.10
Age	−0.14 (0.03)	−5.39****	−0.19	−0.09
Baseline Externalizing Prob	0.50 (0.02)	21.64****	0.46	0.55
Polyvictimization (ref = no)	0.58 (0.58)	1.01	−0.55	1.71
Pre-4 Maltreatment	−0.14 (0.80)	−0.17	−1.72	1.44
Child Gender (ref =female)	1.71 (0.41)	4.22****	0.91	2.51
Race/Ethnicity (ref = ‘other’)				
African American	−0.22 (0.57)	−0.39	−1.34	0.89
White	0.36 (0.61)	0.59	−0.84	1.56
Study Site (ref = Southwest)				
East	−0.59 (0.79)	−0.75	−2.13	0.96
Midwest	−1.61 (0.70)	−2.31*	−2.98	−0.25
South	−1.18 (0.74)	−1.59	−2.62	0.28
Northwest	−0.78 (0.60)	−1.29	−1.96	0.40

Model 1 Fit (χ^2 = 1425.25, p<.0001; N = 5137, −2LogLiklihood = 34825.4)

Table 5

Results from GEE Model Predicting Internalizing Behavior

Variables	b (SE)	t	CI	
Maltreatment Group (ref = Sexual Abuse)				
CPS, no sex abuse	−1.71 (0.42)	−4.11****	−2.52	−0.89
No maltreatment	−2.72 (0.70)	−3.86***	−4.10	−1.34
Age	0.11 (.02)	5.49****	0.07	0.15
Baseline Internalizing Prob	0.49 (0.03)	16.92****	0.43	0.55
Polyvictimization (ref = no)	0.50 (.40)	1.23	−0.29	1.29
Pre-4 Maltreatment	0.13 (0.57)	0.22	−0.98	1.23
Child Gender (ref = female)	−0.13 (.28)	−0.47	−0.69	0.42
Race/Ethnicity (ref = ‘other’)				
African American	−0.18 (0.40)	−0.44	−0.96	0.61
White	1.07 (0.43)	2.49*	0.23	1.91
Study Site (ref = Southwest)				
East	−0.10 (0.55)	−0.18	−1.18	0.98
Midwest	−0.40 (0.49)	−0.82	−1.36	0.56
South	−0.64 (0.53)	−1.21	−1.67	0.39
Northwest	0.39 (0.42)	0.92	−0.44	1.22

Model 1 Fit (χ^2 = 1116.63, p<.0001; N = 5137, −2LogLiklihood = 3202

Table 6

Analyses Assessing Gender Moderation by Maltreatment Group for Externalizing Problems

	Sexual Abuse Group		CPS, No Sexual Abuse		No Maltreatment	
	b (SE)	**t**	**b (SE)**	**t**	**b (SE)**	**t**
Age	−0.04 (.09)	−0.45	−0.12 (0.05)	−2.24*	−0.04 (0.05)	−0.79
Baseline Externalizing Prob	0.53 (0.06)	9.32****	0.50 (0.03)	15.94****	0.48 (0.04)	11.03****
Child Gender (ref =female)	3.10 (2.01)	1.54	2.35 (0.94)	2.49*	3.89 (1.01)	3.84***
Age X Gender	0.04 (0.16)	0.26	−0.04 (.07)	−0.61	−0.30 (.08)	−4.02****

Note. All analyses include control variables for study site, race/ethnicity, polyvictimization, and abuse prior to age 4.

Table 7

Analyses Assessing Gender Moderation by Maltreatment Group for Internalizing Problems

	Sexual Abuse Group		CPS, No Sexual Abuse		No Maltreatment	
	b (SE)	t	b (SE)	t	b (SE)	t
Age	0.35 (0.07)	4.65****	0.22 (0.04)	5.70****	−0.00 (.04)	−0.07
Baseline Internalizing Prob	0.55 (0.06)	8.61****	0.51 (0.04)	12.54****	0.34 (0.05)	6.50****
Child Gender (ref =female)	3.88 (1.65)	2.36*	1.20 (0.67)	1.78	0.74 (0.75)	0.98
Age X Gender	−0.28 (0.14)	−2.05*	−0.15 (0.05)	−2.97**	−0.08 (0.06)	−1.30

Note. All analyses include control variables for study site, race/ethnicity, polyvictimization, and abuse prior to age 4.