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Posttraumatic Stress Disorder: The Missed Diagnosis

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Abstract

Posttraumatic stress disorder (PTSD) is frequently under-diagnosed in maltreated samples. Protective services information is critical for obtaining complete trauma histories and determining whether to survey PTSD symptoms in maltreated children. In the current study, without protective services information to supplement parent and child report, the diagnosis of PTSD was missed in a significant proportion of the cases. Collaboration between mental health professionals and protective service workers is critical in determining psychiatric diagnoses and treatment needs of children involved with the child welfare system.

Keywords

Posttraumatic Stress Disorder; Children; Assessment; Child Maltreatment

Diagnosis of Posttraumatic Stress Disorder (PTSD)

The diagnosis of Posttraumatic Stress Disorder (PTSD) requires a history of witnessing or experiencing a life-threatening or otherwise serious traumatic event. The criteria for PTSD are outlined in Table 1 (APA, 1994). The symptoms are divided into three main categories: re-experiencing, avoidance, and hyperarousal symptoms. In the absence of reports of specific traumatic experiences, PTSD symptoms are not routinely screened in research or clinical practice.

Prevalence of PTSD in Maltreated Children

While maltreated children are at elevated risk for a number of psychiatric disorders, PTSD is one of the most frequent diagnoses associated with a history of abuse (Kessler, Sonnega, Bromet, Hughes, & et al., 1995). Estimates vary substantially, however, in studies that have assessed the prevalence of PTSD in maltreated populations. For example, in a study examining psychiatric diagnoses in 426 maltreated 6-18 year old children living in out-of-home care, only 1.7% of the sample was reported to meet criteria for PTSD (Garland et al., 2001). In a second study of 373 17-year-old youth in the foster care system, the rate of PTSD was estimated somewhat higher at 8% (McMillen et al., 2005). PTSD rates in these two large-scale studies are notably smaller than the rates of 26% to 67% reported in several smaller-scale investigations (Ackerman, Newton, McPherson, Jones, & Dykman, 1998;

Dubner & Motta, 1999; Famularo, Fenton, Kinscherff, & Augustyn, 1996; Famularo, Kinscherff, & Fenton, 1992; Kiser, Heston, Millsap, & Pruitt, 1991; Linning & Kearney, 2004; Ruggiero, McLeer, & Dixon, 2000; Wolfe, Sas, & Wekerle, 1994). In these smaller-scale studies, higher rates of PTSD were associated with recent disclosure of sexual abuse (Wolfe et al., 1994), shelter placement (Linning & Kearney, 2004), and the occurrence of multiple types of maltreatment (Kiser et al., 1991).

In the majority of studies reporting higher rates of PTSD, investigators were familiar with children's trauma histories before assessing psychiatric symptoms. The purpose of this report is to document the importance of using multiple informants of trauma experiences – especially input from protective service workers -- when diagnosing PTSD in maltreated children. As knowledge of past traumatic events is a prerequisite for the survey of PTSD symptoms, determining the optimal method to assess trauma is critical in assuring detection of this diagnosis in children.

Methods

Participants

The sample included 199 children (116 maltreated children removed from their homes in the six months prior to study entry and 83 community-control children with no history of maltreatment or domestic violence). Participants were 6 to 14 years of age and part of a larger study examining the efficacy of an intervention for children entering out-of-home care. As shown in Table 2, maltreated and control children were comparable on age, sex, and ethnicity.

Procedures

The Institutional Review Board at Yale University and the State of Connecticut Department of Children and Families approved the study. Protective service caseworkers introduced the study to maltreated children's birth mothers and obtained permission for research staff to contact birth mothers. Community control families were recruited through advertisements and targeted mailings in the communities that the maltreated children lived in. The absence of a history of maltreatment in control children was confirmed by reviewing State protective services records and inquiring about trauma experiences with birth mother and child.

The children's legal guardian provided written consent. When the children's legal guardian was not their birth parent, written assent was also obtained from the birth parent if they were available. All children provided written assent for the study, and participation required permission from all parties.

Participants underwent baseline interviews at their current place of residence. The baseline data were collected in one session with the child, and two sessions with the parent/guardian. Both children and parents were compensated financially after each session.

Approximately one month following the baseline interview, all children attended a one-week summer day camp program established specifically for our research purposes. The camp, free of charge to all participants, included 1 to 2 hours of research assessments per

day. In the remaining time, children engaged in recreational activities including art, sports, music, and outdoor water games. This data collection procedure allows for naturalistic observation and comprehensive assessments without overburdening children. The camps are fun for the children, cost-effective, and promote strong collaboration among research staff, protective service workers, and birth parents (Kaufman, 1991; Kaufman et al., 2006).

In the first year of data collection, we experienced a delay in receiving permission to review State protective services records. Thus, psychiatric assessments were initially completed without protective record data detailing the children's maltreatment experiences. Approval to review records and obtain these data were obtained shortly before the planned six-month follow-up assessment of cohort one. After examining protective service record data it became evident that children and parents failed to report a large number of maltreatment experiences during initial interviews, and consequently, PTSD symptoms were not surveyed at baseline for approximately half the children with a history of relevant trauma. Consequently, for cohort one, PTSD symptomatology was assessed at six-month follow-up visit.

In years two and three of the study, we surveyed trauma experiences at the visits using the same methods as in the first year, but reviewed children's protective services records before camp. Data obtained from parent, child, and protective service records were subsequently used to determine the need to survey PTSD symptoms with children.

Measures

Maltreatment experiences—Multiple informants and data sources were used to obtain a best estimate of children's maltreatment experiences (Kaufman et al., 1994). As noted in the procedures section, approval to review the protective service case records was not obtained until several months into data collection, providing an unexpected 'experiment' that highlighted the importance of collecting this information to obtain complete trauma histories to facilitate psychiatric assessment of children.

Sources of information that were examined to assess maltreatment included: 1) protective services computerized records, 2) child and parent reports of trauma included in PTSD section of the Schedule for Affective Disorders and Schizophrenia for School-Aged Children Present and Lifetime Version (K-SADS-PL), a semi-structured psychiatric interview (Kaufman et al., 1997), 3) birth parents' responses on Partner Violence Inventory (PVI), a 37-item measure that assesses multiple dimensions of domestic violence including emotional abuse, sexual exploitation, and physical abuse (Bernstein, 1998), and 4) children's reports on Childhood Trauma Questionnaire (CTQ), a 28-item measure that surveys experiences of physical abuse, sexual abuse, neglect, and emotional maltreatment that was individually administered at camp (Bernstein, Ahluvalia, Pogge, & Handelsman, 1997). As previously described (Kaufman et al., 1994), data from the various sources were reviewed and synthesized to provide a 'best estimate' of children's history of physical abuse, sexual abuse, neglect, emotional maltreatment, and exposure to domestic violence.

Diagnosis of PTSD—The K-SADS-PL, the semi-structured child psychiatric diagnostic interview (Kaufman et al., 1997), was administered to each child and one of the child's

biological parents or a relative caregiver. The child portion of the K-SADS-PL was administered at camp. A foster parent or residential staff member completed the Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2001) when no biological relative was available to complete the psychiatric interview (N = 40). The K-SADS-PL, like other standardized research diagnostic interviews, has screen items which determine if the full criteria for the diagnosis need to be surveyed. In the PTSD section, interviewees are first queried about trauma experiences. If none is endorsed, the remainder of the PTSD section is skipped.

After the first year of the study, a review of protective services records was routinely conducted before the child portion of the K-SADS-PL was administered. Parent/guardian interviews were also routinely completed prior to administering child portion of K-SADS-PL in order to assure the most comprehensive available trauma data. If children were known to have experienced a trauma and failed to acknowledge it during the interview, they were informed about how we had learned about their past traumas. They were told that they were not going to have to talk about the experiences, but would be asked about some common problems children often have after going through the types of things they have experienced.

In deriving 'best estimate' psychiatric diagnoses, all clinical material was reviewed during a multi-disciplinary team meeting led by a licensed child psychologist (JK) and a board certified child psychiatrist (DL). In addition to K-SADS-PL and CBCL data, clinical data obtained and reviewed to derive best estimate diagnoses included the 1) the Mood and Feelings Questionnaire (MFQ; Angold, Costello, Messer, Pickles, Winder, & Silver, 1995), a 33-item depression scale administered to children at baseline; 2) Screen for Child Anxiety Related Emotional Disorders (SCARED; Birmaher, Khetarpal, Cully, Brent, & McKenzie, 2003), a 41-item anxiety questionnaire also administered to children at baseline; 3) Child Dissociative Checklist (CDC; Putnam, Helmers, & Trickett, 1993), a 20-item parent-report scale; and 4) Child Behavior Checklist-Teachers Report Form (CBCL-TRF; Achenbach & Rescorla, 2001). For children with histories of trauma, the Posttraumatic Stress Disorder Checklist (PTSD-CL; Amaya-Jackson, Newman, & Lipschitz, 2000), a 17-item measure that assesses PTSD symptoms was also administered at camp. Each of these measures has excellent psychometric properties and is widely used in child psychiatric research.

Social Supports—Studies of individuals with a history of abuse suggest that the availability of a caring and stable parent or alternate guardian is one of the most important factors that distinguish abused individuals with good developmental outcomes, from those with more deleterious outcomes. For this reason, children also completed the Arizona Social Support Interview (ASSI; Kaufman, 1991). During the interview, children are asked to name people they can: (1) talk to about personal things; (2) count on to buy things they need; (3) share good news with; (4) get together with to have fun; and (5) go to if they need advice. Children provide information on their relationship to the people named (i.e., birth parent, foster parent, relative, friend), and the frequency with which they see each support.

Statistical Analysis

Descriptive statistics were utilized to report prevalence of PTSD traumas and diagnoses separately for each informant, and for combination of informants. Scores on clinical rating scales were examined for violations in normality using the Shapiro-Wilks test prior to conducting statistical analyses comparing scores of maltreated children with PTSD, maltreated children without PTSD, and community controls. Group differences on related continuous measures were first examined with MANOVAs, with follow-up univariate tests completed as appropriate. Student-Newman-Keuls multiple comparison test was used to control for multiple group comparisons.

Results

Trauma Experiences

Trauma experiences of maltreated children—Based on integrating the information from all data sources and informants, 20% of the children experienced sexual abuse, 62% physical abuse, 68% emotional maltreatment, 70% witnessed domestic violence, and 79% had histories of physical neglect. The majority of children had multiple maltreatment experiences, with 47% of the sample having experienced three or more types of maltreatment. In addition, many of the children suffered extreme abuse, with 31% of the physically abused children requiring medical attention as a result of abuse, 90% of the sexually abused children experiencing genital contact, and 34% of the emotionally maltreated children actually abandoned – either left unattended for several days on end while a parent was on a drug binge, or forsaken by a parent in favor of a partner who sexually abused them.

Trauma experiences not reported by parents or children—Figure 1 shows the proportion of traumas experienced by children that were reported by the various informants. When queried directly about these types of experiences using the K-SADS-PL semi-structured diagnostic interview, parents and children only reported approximately 50% of substantiated incidents of physical and sexual abuse documented by protective services. Of the various types of traumas, parents were most likely to report incidents of domestic violence. In addition, parents occasionally reported past incidents of physical abuse that occurred when the family was living in another state that their protective services workers did not know about. Utilizing only parent and child interview data, without access to the protective service information, we initially failed to identify 36% (N=8) of the children with a history of sexual abuse, 39% (N=29) of the children with a history of physical abuse, and 32% (N=26) of the children with a history of witnessing domestic violence.

Interview versus questionnaire data in surveying trauma experiences—Interview (i.e., K-SADS-PL) and questionnaire (i.e., CTQ, PVI) methods were used to assess physical and sexual abuse experiences with children, and domestic violence histories with mothers. Neither method used independently had a clear advantage in facilitating disclosure of trauma experiences. With children, interview and questionnaire methods each resulted in disclosure of approximately 50% of identified cases of physical and sexual abuse, and utilization of both methods together resulted in disclosure of approximately 70% of

known cases of physical abuse, and 60% of known cases of sexual abuse. In assessing domestic violence experiences with parents, 74% of known cases were reported via interview, 62% via questionnaire, and 93% when both methods were employed. Overall, utilizing both methods together resulted in more trauma experiences being reported, with this especially true with domestic violence.

Missed PTSD Diagnoses—Table 3 shows the number of children identified as having histories of physical abuse, sexual abuse, and/or domestic violence utilizing the different informants to assess children's trauma history, and the number of these children who met criteria for PTSD. In utilizing all available data (e.g. child, parent, and worker report), 107 children within the maltreated sample were reported to have experienced one or more of these significant traumas, and a total of 64 children, or 55% of the 116 maltreated children assessed, met diagnostic criteria for PTSD. Without utilizing protective services information to supplement parent and child report, there would have been many missed PTSD diagnoses.

Clinical Impairment Associated with PTSD Diagnosis—Maltreated children with PTSD scored significantly higher than maltreated children without PTSD and community control children on the self-report MFQ depression scale, and the teacher rated CBCL-TRF Total Problem and Externalizing Behavior scales. Maltreated children with PTSD also scored significantly higher on the self-report SCARED anxiety measure. As can be seen in Table 4, mean scores of maltreated children with PTSD were within the clinical range on these measures.

Predictors of PTSD—As indicated previously, the majority of children had multiple maltreatment experiences (e.g., physical abuse, sexual abuse, domestic violence exposure, emotional maltreatment, neglect). As can be seen in Figure 2, the proportion of children meeting criteria for PTSD grew linearly with the number of different categories of maltreatment experienced by the children. While only about 30% of children who experienced one form of maltreatment met criteria for PTSD, 80% of children who experienced four different types of maltreatment met criteria for this diagnosis. Histories of physical abuse ($\chi^2 = 8.5, p < .02$) and sexual abuse ($\chi^2 = 5.7, p < .05$) were also independent predictors of PTSD in children.

Factors Associated with Resiliency—Children who did not meet criteria for PTSD were more likely to identify a primary support who they could rely on for more different categories of support than children who met definite or probable criteria for PTSD ($F=8.1, df=2, p < .001$). They were also more likely to name a birth family member – mother, father, or sibling – as their primary support, and they were more likely to have at least weekly contact with their identified primary support ($\chi^2 = 20.5, p < .001$) than children who met criteria for PTSD.

Discussion

The prevalence of PTSD in this chronically traumatized group of foster care children was 55%. This rate is notably greater than the rate reported in two recent surveys of maltreated children in which no independent source of information was used to determine children's

trauma histories (Garland et al., 2001; McMillen et al., 2005), and within the range reported in several studies in which investigators were aware of children's trauma histories prior to completing child psychiatric assessments (Ackerman et al., 1998; Dubner & Motta, 1999; Famularo et al., 1996; Famularo et al., 1992; Kiser et al., 1991; Linning & Kearney, 2004; Ruggiero et al., 2000; Wolfe et al., 1994).

The collection of maltreatment information from the children's protective service workers was critical in making many of the PTSD diagnoses in the current report. If only parent and child interview data were used to assess children's trauma experiences, 36% of the children with a history of sexual abuse, 39% of the children with a history of physical abuse, and 32% of the children with a history of witnessing domestic violence would not have been identified as having had these experiences. If the child were the sole reporter of past traumatic experiences, an even greater number of PTSD diagnoses would have been missed.

While reports from protective service workers are critical to obtain complete trauma histories, determining the presence of individual symptoms requires input from children and their caregivers. Collaboration between caseworkers, mental health professionals, and caregivers is key in assuring proper psychiatric diagnoses of maltreated children. The results of this study suggest that multiple informants and multiple measures improve accuracy when assessing children's trauma histories and determining the appropriateness of surveying PTSD symptomatology. There does not appear to be any one best way to elicit trauma information. Questionnaire and interview format measures performed approximately equally well. In utilizing both methods together, however, more traumas were identified, especially in the case of domestic violence exposure. As several recent reviews have highlighted (Kaminer & Slesnick, 2005; Steinberg, Brymer, Decker, & Pynoos, 2004; Stover & Berkowitz, 2005), there are multiple assessment tools that can be used to facilitate proper assessment of PTSD symptoms in traumatized children. Practice parameters have also recently been drafted to guide the screening, assessment, and treatment of mental health problems of children in care (Pecora, Jensen, Romanelli, Jackson, & Ortiz, 2009; Romanelli et al., 2009).

This study was not specifically designed to test rates of trauma disclosure using different informants and different measures. The preliminary findings of this report suggest further systematic evaluation of assessment methods will help to determine optimal procedures for obtaining complete and accurate trauma histories and assessing the need to survey PTSD symptoms in children. As is evident from the current study and other research, PTSD in children is associated with significant clinical impairment.

Without knowledge of children's trauma experiences, trauma-related symptoms can appear to reflect manifestations of other diagnoses. For example, the teacher of one child who participated in our research reported that the child frequently initiated fights and often bullied other children. While these symptoms are consistent with the diagnosis of conduct disorder, she noted that he was most apt to initiate fights and bully girls, a likely "trauma re-enactment" symptom, as this child witnessed his mother bludgeoned with a hammer by her boyfriend. This child did meet full diagnostic criteria for PTSD, and the optimal treatment for this child would likely involve trauma-focused interventions. Knowing the link between

children's symptoms and their traumatic experiences is critical for optimizing treatment outcomes, helping guardians understand and empathize with children in their care; and minimizing exposure to trauma triggers that may elicit disruptive behavior and jeopardize placement stability.

Trauma-focused cognitive behavioral therapy (TF-CBT) currently has the most empirical support for treatment of PTSD in children, from preschoolers to adolescents. Specific elements of TF-CBT include (a) psychoeducation about child maltreatment, potentially traumatic experiences, and traumatic stress; (b) emotion knowledge and expression skills; (c) cognitive coping skills; (d) gradual exposure – centering on development of the child's trauma narrative; (e) cognitive processing of the trauma experience(s); (f) joint child-parent sessions; and (g) safety awareness. As children with PTSD frequently exhibit significant externalizing behaviors (Famularo et al., 1996), TF-CBT also utilizes standard behavioral approaches to target these symptoms.

The efficacy of TF-CBT has been tested in a number of randomized controlled trials. When compared to children in control treatments, multiple studies have found significantly greater improvements in PTSD, internalizing symptoms, dissociation, sexualized behavior, and social competence in sexually abused children who received TF-CBT (Cohen, Deblinger, Mannarino, & Steer, 2004; Cohen & Mannarino, 1998a, 1998b; Cohen, Mannarino, & Knudsen, 2005), with the therapeutic effects of TF-CBT sustained over time (Cohen et al., 2005).

Over the past decade, numerous studies have documented the high prevalence of mental health problems of children in foster care, and the low rate of service delivery to this population (Landsverk, Burns, Stambaugh, & Reutz, 2009; Levitt, 2009; Pecora et al., 2009). This growing body of research led to the establishment of the Child Welfare-Mental Health Best Practices group, which recently published a series of articles outlining their recommendations in a special issue of this *Journal* (2009, volume 88, issue 1). While there are significant gaps in the research base available to guide policy and practice in the area of mental health services for children in foster care (Kemp, Marcenko, Hoagwood, & Vesneski, 2009), this study highlights the importance of mental health professionals working collaboratively with protective service workers in psychiatric assessment and treatment planning for maltreated children. Beyond formal clinical interventions, this study also highlighted the importance of optimizing the likelihood of maltreated children having access to positive stable supports, as this reduced risk for PTSD in children. Ongoing research in this area is needed to refine existing practice parameters and improve outcomes of children in care.

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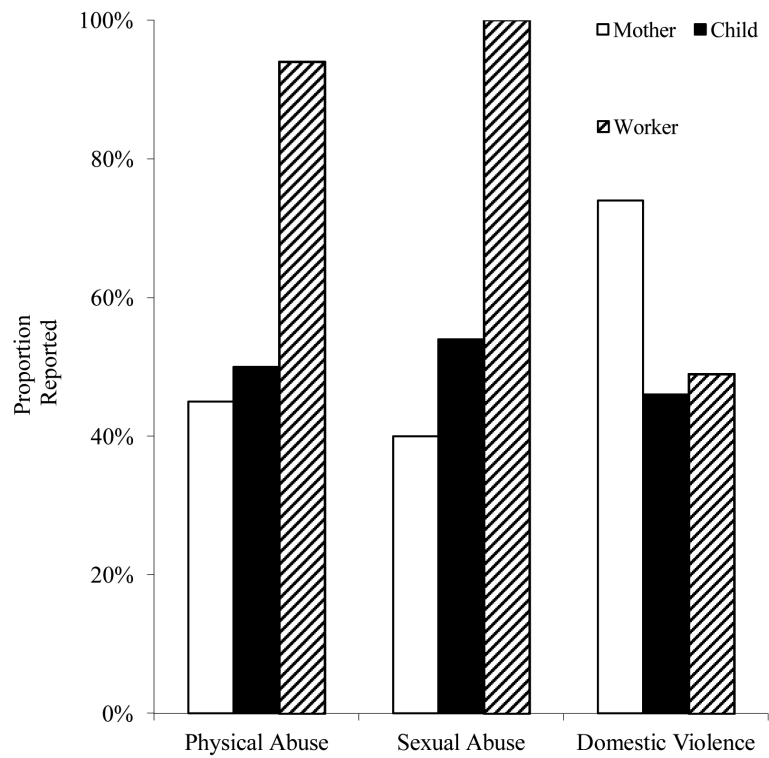


Figure 1. Proportion of traumas reported by each informant

When interviewed, parents and children failed to report approximately half of substantiated incidents of physical and sexual abuse. Mothers were most likely to disclose domestic violence.

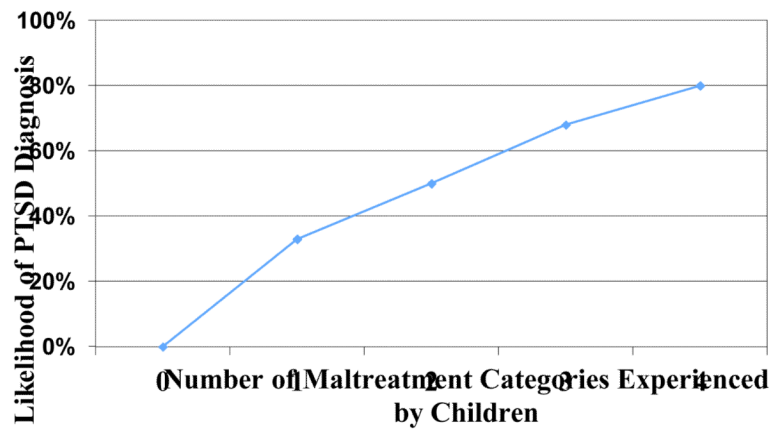


Figure 2. Likelihood of Meeting Criteria for PTSD Increases as a Function of the Number of Maltreatment Categories Children Experienced

Children who experienced three or four types of maltreatment experiences were approximately twice as likely as children who only had one or two types of maltreatment experiences to meet diagnostic criteria for PTSD.

Table 1

Symptoms of Posttraumatic Stress Disorder

<p>A. The traumatic event is re-experienced:</p> <ol style="list-style-type: none"> 1. recurrent and intrusive distressing recollections of the event, including images, thoughts, or perceptions. Note: In young children, repetitive play may occur in which themes or aspects of the trauma are expressed. 2. recurrent distressing dreams of the event. Note: In young children there may be frightening dreams without recognizable content. 3. acting or feeling as if reliving the traumatic event (e.g. illusions, hallucinations, flashbacks). Note: In young children, trauma-specific reenactment may occur. 4. intense psychological distress at exposure to internal or external cues. 5. physiological reactivity to internal or external cues. <p>B. Avoidance of stimuli and numbing of general response:</p> <ol style="list-style-type: none"> 1. efforts to avoid thoughts, feelings or conversations about trauma. 2. efforts to avoid places or people that arouse memories of the trauma. 3. inability to recall an important aspect of the trauma. 4. markedly diminished interest or participation in significant activities. 5. feeling of detachment or estrangement from others. 6. restricted range of affect (e.g. unable to have loving feelings). 7. sense of foreshortened future. <p>C. Increased Arousal (not present before the trauma):</p> <ol style="list-style-type: none"> 1. difficulty falling asleep or staying asleep. 2. irritability or outbursts of anger. 3. difficulty concentrating. 4. hypervigilance. 5. exaggerated startle response.

Table 2

Demographic Characteristics of the Sample

	Maltreated N=116	Controls N=83	Statistic	p-value
Age	10.2 ± 2.2	9.8 ± 2.3	T = -1.2	ns
Sex (% Male)	47%	47%	$\chi^2 = 0.004$	ns
Race ¹	20%/34%/24%/22%	24%/28%/24%/24%	$\chi^2 = 2.95$	ns

Note: Race ¹ = Caucasian, African American, Hispanic Bi-Racial

Table 3

Trauma and PTSD Rates Utilizing Different Informants to Assess Children's Trauma Histories (N=116)

Trauma Information Sources	Number of Children Identified with Histories of PA, SA, and/or DV	Number of Children with Trauma Histories Meeting Criteria for PTSD
Child report alone	64	39
Parent report alone	71	43
Both child and parent report	80	48
Worker report alone	96	54
Child, parent, and worker report	107	64

Codes: PA=Physical Abuse, SA=Sexual Abuse; DV=Domestic Violence

Table 4Child and Teacher Ratings of Psychopathology¹

CBCL-TRF	PTSD N = 54	No PTSD N = 49	Controls N = 16	F
MFQ ²	19.75 ± 11.71 ^a	14.47 ± 9.67 ^b	11.75 ± 8.46 ^b	11.26*
SCARED ³	28.55 ± 15.13 ^a	24.3 ± 14.29 ^{a,b}	21.26 ± 11.96 ^b	3.97*
Internalizing ⁴	58.98 ± 10.45 ^a	56.13 ± 9.72 ^a	52.26 ± 11.43 ^b	7.21*
Externalizing ⁴	62.67 ± 10.14 ^a	57.63 ± 9.76 ^b	52.98 ± 10.35 ^c	16.33*
Total Problem ⁴	62.75 ± 9.24 ^a	57.89 ± 8.85 ^b	53.9 ± 10.82 ^b	14.33*

¹ Values with different superscripts are significantly different from each other according to Student-Newman-Keuls post hoc tests

* $p < .05$

² MFQ data was rank-transformed for analyses, raw scores are presented in the table. MFQ scores of greater than 14 are considered clinically significant. Two maltreated children and one control child were excluded due to missing MFQ data.

³ SCARED data was square root transformed for analyses, raw scores are presented in the table. SCARED scores of greater than 25 are considered clinically significant. Two maltreated children and one control child were excluded due to missing SCARED data.

⁴ Thirteen maltreated children and 7 control children were excluded because of missing CBCL-TRF data. CBCL-TRF scores are age and gender normed. TRF scores of greater than 60 are considered borderline, and scores greater than 63 are considered clinically significant.