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## *BRIEF REPORT*

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# A Preliminary Study of ADHD Symptoms and Correlates: Do Abused Children Differ from Nonabused Children?

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**ABSTRACT.** In this pilot study, differences in inattention, impulsivity, and hyperactivity as well as demographic factors were investigated in a community sample of 8- through 11-year-olds, approximately half of whom had experienced child abuse or neglect. Parents completed the Attention Deficit Hyperactivity Disorder Test, the SNAP-IV, the Brief Betrayal Trauma Survey – Parent version, and additional questions. Abused children had more severe impulsivity and inattention, but not

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hyperactivity, symptoms. Abused boys and girls had a similar age of onset of symptoms, whereas nonabused girls had a much later age of onset than nonabused boys. ADHD is a significant problem among maltreated children. These data support large scale studies investigating possible differences in etiology, presentation, and treatment.

**KEYWORDS.** Child abuse, child maltreatment, attention deficit hyperactivity disorder, inattention, hyperactivity, impulsivity

The American Academy of Pediatrics (AAP) and the American Academy of Child and Adolescent Psychiatry (AACAP) recognize the importance of abuse history in diagnosing and treating attention deficit hyperactivity disorder (ADHD; AAP, 2000; Dulcan & Benson, 1997). The AAP guidelines state they are not appropriate for use with abused children. The AACAP practice parameters recommend screening for psychological trauma and interviewing children if the child appears to be at risk for abuse, but do not specifically state how this history would inform diagnosis or treatment. The limited research on this topic backs up these recommendations. In a sample of adopted youth, pre-adoption abuse and neglect predicted ADHD diagnosis (Simmel, Brooks, Barth, & Hinshaw, 2001). In a clinical sample, Ford et al. (2000) reported high rates of physical and sexual maltreatment among children diagnosed with ADHD, Oppositional Defiant Disorder (ODD), and especially both ADHD and ODD. These rates were considerably higher than for children diagnosed with adjustment disorder. Hinshaw (2002) reported that abused girls in a community sample were significantly more likely than controls to be diagnosed with inattentive-type ADHD, and especially combined-type ADHD. In addition, several symptoms are common to ADHD and posttraumatic stress disorder (PTSD) and some dissociative disorders (e.g., Cuffe, McCullough, & Pumariega, 1994; Peterson, 1998; Weinstein, Staffelbach, & Biaggio, 2000). Difficulty concentrating, for example, could be caused by re-experiencing trauma and hyperactivity by hypervigilance (Weinstein et al., 2000).

Another set of studies points to sex differences in ADHD. In clinical samples, boy-to-girl ratios are as high as 12:1, 4 times higher than non-clinical samples (Voeller, 2004). Girls are less likely to have externalizing problems and, as a result, may be less likely to be referred for assessment. Because their hyperactive and impulsive symptoms tend to emerge (or be noticed) earlier, boys typically have an earlier age of onset. Some evidence suggests this pattern is different for abused girls,

who may be more likely than other girls to experience combined-type ADHD and externalizing symptoms (Briscoe-Smith & Hinshaw, 2006; Hinshaw 2002).

Maltreated children with ADHD, and in particular maltreated girls with ADHD, have been understudied. Rates of ADHD are high among children referred to child protective services (Famularo, Kinscherff, & Fenton, 1992; McLeer, Callaghan, Henry, & Wallen, 1994). Successfully managing ADHD symptoms is crucial for securing safe, permanent homes.

In this pilot study, abused and nonabused children were compared on symptom severity, age of onset, and family history of ADHD. It was hypothesized that abused children would have greater hyperactivity and impulsivity symptoms than nonabused children. It was also hypothesized that a later age of onset for abused children, suspecting that some symptoms were exacerbated by stressful events after infancy. Further, if abuse increases externalizing behaviors in girls, it was predicted findings similar to those seen in nonabused boys. Compared to nonabused girls, abused girls would have more hyperactivity and impulsivity and an earlier age of onset. No directional hypothesis were predicted regarding family history of ADHD, as predictions could be made in either direction.

## ***METHODS***

### ***Participants***

Twenty-nine parents and 8- to 11-year-old children ( $M = 9.27$  yrs.,  $SD = 0.94$ ) participated. Most participants were Caucasian ( $n = 25$  parents;  $n = 24$  children). Other parents reported the following ethnic/racial backgrounds: African American, Caucasian/Hispanic, English, Bohemian, Native American, and combinations of these. Family income ranged from assistance programs to \$100,000 per year ( $M = \$30,816$ ,  $SD = \$25,542$ ). Parental education ranged from high school to graduate school. Fourteen (48 %) girls participated. Twenty-two (76%) parents were living with a partner.

### ***Measures***

#### ***ADHD***

Parents completed the Attention Deficit Hyperactivity Disorder Test (ADHDT; Gilliam, 1995), a 36-item normed test based on the Diagnostic

and Statistical Manual of Mental Disorders (DSM-IV) (American Psychiatric Association, 1994) criteria. Children with a raw score of 8 or higher (percentile rank = 25) on any of the hyperactivity, impulsivity, or inattention scales were included in the study. Participants' scores were as follows: Hyperactivity subscale:  $M = 13.3$ ,  $SD = 5.0$ , range = 6–23; Impulsivity:  $M = 10.8$ ,  $SD = 4.8$ , range = 2–20; Inattention:  $M = 15.6$ ,  $SD = 6.9$ , range = 3–26; Total score (sum of subscale scores):  $M = 39.7$ ,  $SD = 13.6$ , range = 18–65. The total score scale had a Chronbach's  $\alpha$  of 0.92 in this sample. Parents also completed the SNAP-IV Rating Scale (Swanson, n.d.), which assesses symptoms of ADHD on a response scale ranging from 1 (*Not at all*) to 3 (*Quite a bit*). Scale alphas were as follows: Inattention (10 items) = 0.88; Hyperactivity (5 items) = 0.69; Impulsivity (5 items) = 0.65.

### *Abuse History*

Parents also completed the Brief Betrayal Trauma Scale – Parent version, which defined abuse in behavioral terms (Becker, 2002). Children were coded as *abused* when a parent responded affirmatively to any question directly asking if the child had been physically, sexually, or emotionally abused or neglected. Good test-retest stability has been reported in a previous sample (Goldberg & Freyd, 2006). In the present sample, all parents responded *yes* to at least one item on the Brief Betrayal Trauma Scale; all but one child was exposed to multiple forms of emotional, physical, and sexual abuse and/or neglect; and all but three had also witnessed domestic violence.

### *Procedure*

Parents responded to fliers in after-school programs, tutoring offices, and similar public locations for a study of “life stress and attention.” Thus, a broad community sample designed to be more representative than a clinical or child protective services sample was recruited. After describing the study to the parents, written informed consent was obtained.

## **RESULTS**

There was a statistically nonsignificant trend for there to be more girls in the abused group (see Table 1). Of the 15 nonabused children, 9 were boys. Of the 13 abused children, 5 were boys. One child was not classified

TABLE 1. Comparisons between abused and nonabused participants on demographics and ADHD symptoms

Sex (%)	Hyperactivity		Impulsivity		Inattention		Age of Onset <sup>c</sup>	Family History (%)
	ADHDT	SNAP	ADHDT	SNAP	ADHDT	SNAP		
<b>Abused</b>	<b>9.4 (1.6)</b>	<b>1.8 (0.4)</b>	<b>10.5 (2.1)<sup>d</sup></b>	<b>2.5 (0.4)<sup>a</sup></b>	<b>10.5 (2.9)<sup>e</sup></b>	<b>2.4 (0.5)<sup>b</sup></b>	<b>3.5 (1.8)</b>	<b>77<sup>f</sup></b>
Boys	10.0 (1.6)	2.0 (0.4)	11.0 (2.6)	2.5 (0.3)	10.8 (2.7)	2.4 (0.3)	3.3 (1.5)	80
Girls	9.0 (1.6)	1.8 (0.4)	10.1 (1.7)	2.4 (0.4)	10.4 (3.2)	2.5 (0.6)	3.6 (2.1)	75
<b>Nonabused</b>	<b>9.7 (1.9)</b>	<b>1.9 (0.6)</b>	<b>8.7 (2.2)<sup>d</sup></b>	<b>2.0 (0.5)<sup>a</sup></b>	<b>7.5 (2.8)<sup>e</sup></b>	<b>2.1 (0.4)<sup>b</sup></b>	<b>2.7 (2.9)</b>	<b>33<sup>f</sup></b>
Boys	10.0 (2.3)	2.0 (0.6)	9.4 (2.3)	2.1 (0.5)	7.8 (3.3)	2.2 (0.5)	.86 (1.21)	33
Girls	9.2 (1.2)	1.8 (0.5)	7.7 (1.6)	1.8 (0.4)	7.0 (2.1)	1.9 (0.4)	6.0 (1.4)	33

Means and standard deviations are provided unless % is denoted in column heading. For ADHDT, standard scores are given. Values with identical superscripts are significantly different. All tests are two-tailed.

<sup>a</sup> $F(1, 26) = 7.75, p = 0.01$ .

<sup>b</sup> $F(1, 27) = 4.07, p = 0.05$ .

<sup>c</sup>Main effect of sex:  $F(1, 22) = 14.5, p < 0.01$ . Age by sex interaction:  $F(1, 22) = 10.8, p < 0.01$ .

<sup>d</sup> $F(1, 26) = 4.6, p = 0.04$ .

<sup>e</sup> $F(1, 26) = 7.9, p < 0.01$ .

<sup>f</sup> $\chi^2(1, N = 289) = 5.32, p = 0.02$ .

due to missing data. We found no differences in parental education. Household income was lower for the abused group ( $M = \$19,769$ ,  $SD = \$21,023$  versus  $M = \$39,628$ ,  $SD = \$26,982$ ). Because the results did not substantially change with income as a covariate, it was not included in the reported results. Additional details on procedure are available in Becker (2002).

With regard to differences in ADHD symptoms, abused children had higher mean scores on impulsivity and inattention scales of the SNAP-IV, but not the hyperactivity scales (see Table 1). With regard to age of onset, average parent-reported age for nonabused children followed a pattern familiar in the literature: Boys had a much earlier age of onset than girls (see Table 1). Abused boys and girls had a similar age of onset, approximately halfway between the average ages reported for nonabused boys and girls.

Parents were asked, "Do any of your child's relatives have (or do you suspect they have) an attention disorder?" Fifteen parents (54%) indicated that a parent, brother, sister, or other relative had or was suspected of having an attention disorder. Parents of abused children were more likely to report this (see Table 1). Seventy-seven percent of abused children had a parent with ADHD versus 33% of nonabused children,  $\chi^2(1, N = 28) = 5.32, p = 0.02$ .

To further investigate the relation between family history of ADHD, abuse, and ADHD symptoms, a model was tested in which it was predicted that family history of ADHD would be positively related to ADHD symptoms in children and that the relationship would be mediated by children's abuse experiences. Family history of ADHD was positively related to combined SNAP ADHD scores,  $r = 0.44, p = 0.02$ , and to reported abuse,  $r = 0.44, p = 0.02$ . Abuse was also related to combined SNAP ADHD scores,  $r = 0.39, p = 0.04$ . Next, evidence of mediation was found: The correlation between family history of ADHD and children's ADHD symptoms decreased after controlling for abuse,  $r = 0.33, p = 0.10$ .

## DISCUSSION

These preliminary results partially supported the hypotheses. This study was limited by the use of brief parent-report measures, small sample size, and lack of power to control for potentially relevant factors, including other psychological symptoms. The statistically significant findings in this small sample support the need for future studies with larger, representative samples and comprehensive measurement of symptoms and trauma history. To effectively diagnose and treat ADHD

in maltreated children, we must know the average age of onset, symptom profiles and rule-out disorders, and how abuse leads to ADHD symptoms in this population. Rigorous research into these issues is urgently needed.

## REFERENCES

- American Academy of Pediatrics. (2000). Clinical practice guideline: Diagnosis and evaluation of the child with attention-deficit/hyperactivity disorder. *Pediatrics*, *105*(5), 1158–1170.
- American Psychiatric Association. (1994). Diagnostic and statistical manual of mental disorders (4<sup>th</sup> ed.). Washington, DC: Author.
- Becker, K. A. (2002). Attention and traumatic stress in children (University of Oregon, Eugene, OR). *Dissertation Abstracts International: Section B: The Sciences and Engineering Vol 63*(6-B), Jan 2002, pp. 3038.
- Briscoe-Smith, A. M. & Hinshaw, S. P. (2006). Linkages between child abuse and attention-deficit/hyperactivity disorder in girls: Behavioral and social correlates. *Child Abuse and Neglect*, *30*, 1239–1255.
- Cuffe, S. P., McCullough, E. L., & Pumariega, A. J. (1994). Comorbidity of attention deficit hyperactivity disorder and posttraumatic stress disorder. *Journal of Child and Family Studies*, *3*(3), 327–336.
- Dulcan, M. K. & Benson, S. R. (1997). Summary of the practice parameters for the assessment and treatment of children, adolescents and adults with Attention-Deficit/Hyperactivity Disorder. *Journal of the American Academy of Child and Adolescent Psychiatry*, *36*, 1311–1317.
- Famularo, R., Kinscherff, R., & Fenton, T. (1992). Psychiatric diagnosis of maltreated children: Preliminary findings. *Journal of American Academy of Child and Adolescent Psychiatry*, *31*, 836–867.
- Ford, J. D., Racusin, R., Ellis, C. G., Daviss, W. B., Reiser, J., Fleischer, A., et al. (2000). Child maltreatment, other trauma exposure and posttraumatic symptomatology among children with oppositional defiant and attention deficit hyperactivity disorders. *Child Maltreatment*, *5*, 205–217.
- Gilliam, J. E. (1995). *Attention deficit/hyperactivity disorder test examiner's manual*. Austin, TX: Pro-Ed.
- Goldberg, L. R. & Freyd, J. J. (2006). Self-reports of potentially traumatic experiences in an adult community sample: Gender differences and test-retest stabilities of the items in a Brief Betrayal-Trauma Survey. *Journal of Trauma & Dissociation*, *7*(3), 39–63.
- Hinshaw, S. P. (2002). Preadolescent girls with attention-deficit/hyperactivity disorder: I. Background characteristics, comorbidity, cognitive and social functioning and parenting practices. *Journal of Consulting and Clinical Psychology*, *70*(5), 1086–1098.
- McLeer, S. V., Callaghan, M., Henry, D., & Wallen, J. (1994). Psychiatric disorders in sexually abused children. *Journal of the American Academy of Child and Adolescent Psychiatry*, *33*(3), 313–319.

- Peterson, G. (1998). Diagnostic taxonomy: past to future. In J. Silberg (Ed.), *The dissociative child* (2<sup>nd</sup> ed., pp. 3–26). Lutherville, MD: Sidran Press.
- Simmel, C., Brooks, D., Barth, R. P., & Hinshaw, S. P. (2001). Externalizing symptomatology among adoptive youth: Prevalence and preadoption risk factors. *Journal of Abnormal Child Psychology*, 29(1), 57–69.
- Swanson, J. M. (n.d.). *The SNAP-IV teacher and parent rating scale*. Retrieved January 11, 2008, from www.ADHD.net
- Voeller, K. K. S. (2004). Attention-deficit Hyperactivity Disorder (ADHD). *Journal of Child Neurology*, 19(10), 798–814.
- Weinstein, D., Staffelbach, D., & Biaggio, M. (2000). Attention deficit hyperactivity disorder and posttraumatic stress disorder: Differential diagnosis in childhood sexual abuse. *Clinical Psychology Review*, 20(3), 359–378.

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