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ADHD Versus PTSD in Preschool-Aged Children: Implications for Misdiagnosis

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Philadelphia College of Osteopathic Medicine

Department of Psychology

ADHD VERSUS PTSD IN PRESCHOOL-AGED CHILDREN:

IMPLICATIONS FOR MISDIAGNOSIS

By Klaudette D. Stewart

Submitted in Partial Fulfillment of the Requirements for the

Degree of Doctor of Psychology

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Dedication

I dedicate my dissertation work to my loving and supportive mother, Betty B. Holmes, who has stood by my side with constant words of encouragement, being a shoulder to lean on, being a practice patient, helping me formulate ideas, and listening to my dreams, to ensure that I got through the doctoral program. I honor her; she is my champion and greatest cheerleader. I pray her dreams are realized by me achieving this goal of earning my doctorate, which is just as much hers as it is mine.

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Abstract

Attention Deficit Hyperactivity Disorder (ADHD) has been one of the most diagnosed

disorders in children since it was included in the *Diagnostic and Statistical Manual of*

Mental Disorders−III (*DSM−III*) in 1980. The number of children who have been

diagnosed since that time has grown significantly, raising concerns about the

overwhelming number of young children being diagnosed and prescribed medication.

According to the literature, young children are diagnosed at a higher rate by pediatric

primary care physicians (PCPs) than clinical child psychologists (CCPs) because they are

taken to a PCP's office by a parent, rather than referred from a school environment,

where such behaviors would be presenting as problematic. There is a concern that PCPs

lack the knowledge and skill to properly diagnose ADHD, including the criterion that

symptoms be present in at least two environments, such as home and school. Because

young children are not in school, the potential for misdiagnosis is greater. PCPs and

CCPs have little to no training in diagnosing ADHD in young children, and there are no

criteria in the *Diagnostic and Statistical Manual of Mental Disorders−IV (DSM−IV)* for

children under age 7. Also *DSM−IV criteria* do not address differences in symptom

presentation between young children and school-aged children or between ADHD and

PTSD as a differential diagnosis. ADHD also presents an additional diagnostic dilemma

because the symptomatology overlaps with PTSD. PTSD could be overlooked and

therefore yield a misdiagnosis of ADHD. Proper skill and training are necessary for

PCPs and CCPs to make a diagnosis of ADHD by definitively ascertaining that all

vi

environmental/salient factors have been considered to rule out symptoms that may be transient due to adverse childhood experiences (ACEs) related to complex trauma or PTSD. The addition of PTSD for children 6 years and younger in the recent release of *DSM−5* in 2013 may help PCPs and CCPs to differentiate between ADHD and PTSD. This study investigates the differences between PCPs and CCPs in making a diagnosis of ADHD or PTSD in preschool-aged children, along with the ACEs each utilized in their decision-making process.

Table of Contents

List of Tables

Introduction

Statement of the Problem

In 1999, there were between 568,260 and 947,100 children in the United States under the age of 5 who showed early signs of attention deficit hyperactivity disorder (Fewell & Deutscher, 2002). In 2006, 4 to 5 million children aged 5 to 17 and some as young as 4 (Davis & Williams, 2011), were prescribed psychostimulants for behavioral control of ADHD (Breggin, 1999). There is growing public and professional concern (Rappley et al. 1999) that pediatric primary care physicians may not follow the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-IV*) guidelines in diagnosing ADHD in preschool-aged children, thereby leading to misdiagnoses (Fewell & Deutscher, 2002). This typically occurs because many parents and guardians consult with pediatricians regarding preschool-aged children, reporting that the children do not pay attention, are unable to sit still, and have short attention spans. Pediatricians often make a diagnosis of ADHD based on these reports (Blank, 2007; Breggin, 1999; Fewell & Deutscher, 2002; Rappley et al., 1999; Wolraich, 2006).

Such diagnoses are problematic because these same pediatric behaviors may be indicative of a history of traumatic experiences. Should this be the case, then many children are being misdiagnosed. Burke et al. and coworkers (2011) believe this misdiagnosis may be prevalent because pediatricians and caregivers may not be aware that adverse or traumatic experiences early in life can result in ADHD-like behaviors.

Furthermore, even if pediatricians know that a child has had a history of such experiences, they may not consider a differential diagnosis of PTSD because the current *DSM* has not established criteria for the presentation and symptomatology of PTSD in preschool-aged children. Therefore, identification and diagnosis may be difficult (Schreeinga, Zeanah, Myers, & Putnam, 2003) because childhood symptomatology may not fully meet the criteria for PTSD (Crusto et al., 2010; Glaser, 2000; Graham-Bermann & Seng, 2005; Gunnar & Quevedo, 2008; Margolin & Gordis, 2000; Nemeroff, 2004; Osofsky, 1995;).

Further, due to similarities in the symptoms found in ADHD and in PTSD, symptoms of PTSD may be misinterpreted as symptoms of ADHD (Szalavitz, 2011; Szymanski, Sapanski, & Conway, 2011). Additionally, making a discrete diagnosis may be a challenge for clinicians due to comorbidity of the two syndromes; and limitations of the diagnostic criteria, whether due to insufficient explication in the literature or difficulty of interpreting the criteria by the clinician (Gleason et al., 2007; Szymanski et al., 2011). Specifically, pediatric primary care physicians and clinical child psychologists often find it difficult to make a differential diagnosis between childhood ADHD and PTSD because symptoms of PTSD may include agitated or disorganized behavior, frightening dreams, and repetitive play. Conversely, symptoms of childhood ADHD include irritability, difficulty in concentration, and restlessness (Blank, 2007; Szymanski et al., 2011; Weinstein, Staffelbach & Biaggion, 2000). These symptoms may appear so similar that is difficult to disambiguate them.

When clinicians do diagnose combined PTSD and ADHD, treatment protocols tend to focus on addressing ADHD (Weinstein et al., 2000). This minimizes a focus on PTSD and its treatment, which has potential ramifications on the child's behavior and

development (Cuffe, McCullough, & Pumariega, 1994; Szymanski et al., 2011). Further

confounding the problem of making an accurate and useful diagnosis in these cases is the

tendency for some pediatric primary care physicians and clinical child psychologists to

view PTSD as being the result of ADHD or that the child is predisposed to PTSD because

of ADHD (Cuffe et al., 1994).

Currently, there are no diagnostic criteria to determine the presence of PTSD in

preschool-aged children. However, Zeanah (2010) states that this does not mean PTSD

does not exist among this group, but rather that clinicians believe that it is only conjecture

to claim symptoms in older children that are indicative of PTSD can be reliably attributed

to PTSD among younger children. Concern among psychologists over the absence of

PTSD diagnostic criteria for PTSD among preschool-aged children has prompted two

groups, the AACAP Task Force on Research Diagnostic Criteria and the Zero to Three

Diagnostic Classification Task Force, to develop instruments to assess PTSD in preschool-

aged children. The first group has created the Research Diagnostic Criteria: Preschool

Age. The second group has recently revised the Diagnostic Criteria (DC) 0-3R, which

addresses mental health problems with a focus primarily on infants and toddlers and their

relationships with caregivers (Egger & Emde, 2011). This second nosology is now

available to assist clinicians in distinguishing between ADHD and PTSD when diagnosing

the preschool-age group. Egger and Angold (2006) and Gleason et al. (2007) claim these

two nosologies include evidence-based criteria so that clinicians can reliably assess

children as young as 2 years of age for a diagnosis of PTSD.

Unfortunately, if primary care physicians and clinical child psychologists fail to

employ these two nosologies, preschool-aged children with PTSD may go undiagnosed or

be misdiagnosed (Gleason et al., 2007; Szalavits, 2011; Weinstein et al., 2000). When a

pediatric primary care physician is the diagnostician, even a straightforward diagnosis of

ADHD may lack validity since pediatric primary care physicians often may not use the

DSM−IV−TR criteria when evaluating the presence of ADHD (Wasserman, Kelleher &

Bocian,et al. 1999). A study from the Pediatric Research in Office Settings (PROS)

network reported that the American Psychiatric Association's *DSM−IV* criteria were only

used by 38% of the 3,900 primary care clinicians surveyed (Wasserman et al., 1999).

Presumably, the other 62% based their diagnosis on "clinical intuition" or some other

nonstandardized form of assessment (Rowland, Lesesne & Abramowitz, 2002).

When a preschool-aged child is diagnosed with ADHD, he or she is likely to begin

a psychotropic regimen that includes moderate increases in dosage if improvement is not

observed initially. In contrast, a psychopharmacological intervention is not recommended

when a preschool-aged child is diagnosed with PTSD. Instead, a psychotherapeutic

intervention is usually recommended (Gleason et al., 2007). Therefore, when a preschool-

aged child is improperly diagnosed with ADHD, the results may lead to

psychopharmacological interventions that could be harmful to brain development

(Gleason et al., 2007; Szalavitz, 2011; Szymanski et al., 2011). If PTSD is not treated, the

symptomatology may worsen and potentially lead to cognitive deficits and memory loss

when the child matures as reported by Bremner (Bremner, 2003). In addition, when the

child matures into an adult, he or she is at risk for developing bipolar disorder, depression,

substance abuse and adult PTSD because untreated PTSD during the preschool years may

result in maladaptive development (Bremner, 1998, 2003; DeBellis & Thomas, 2003;

McEwen, 2000; Salmon & Bryant, 2002; Teicher et al., 2003, 2004; Vythilingam et al., 2002; Weber & Reynolds, 2004).

Statement of Purpose

The purpose of this study is to determine if, when presented with case studies of preschool-aged children that have already been diagnosed with ADHD or PTSD, pediatric primary care physicians and clinical child psychologists are able to make appropriate diagnoses and are able to distinguish between cases of ADHD or PTSD.

Review of the Literature

Historical perspectives ADHD and PTSD.

Attention Deficit/Hyperactivity Disorder (ADHD).

History.

Hyperactivity within preschool-aged children was initially defined clinically in 1902 by George Still, M.D. In addition, the earliest record associated with stimulant use to help remedy hyperactivity was in 1937 by Bradley (Barkley, 2006; Cormier, 2008; Rowland et al., 2002). A distinctive quality of ADHD is its origins. The disorder was referred to as minimal brain dysfunction as a result of soft neurological discoveries and the expectation that neurological lesions might ultimately end up being identified (Clements, 1966; Cormier, 2008; Rowland et al., 2002).

Equally important, at the start of the 20th century, hyperactive children were being labeled as such, mainly because of the perception that they had a persistent lack of behavioral control (Ougrin, Chatterton, & Banarsee, 2010). In addition, other endeavors to connect attention deficits and behavioral disturbances to neurological problems were made as a result of the encephalitis outbreak of 1917-1918 (Rowland et al., 2002). As an

illustration, preschool-aged children that survived the infection displayed symptoms such as hyperactivity, temperament changes, and learning problems (Rowland et al., 2002), thereby encouraging clinicians to connect such behaviors to the outbreak. During the 1930s, minimal brain damage and minimal brain dysfunction were thought to result in conduct disruptions, a continuation of the clinical observations made after the encephalitis epidemic. In fact, researchers were also ascribing conduct problems to distress during labor and childbirth (Ougrin et al., 2010). Because of this, a major overhaul of the diagnosis as published in the *Diagnostic and Statistical Manual of Mental Disorders*, second edition *(DSM−II)* occurred, which referred to the disorder as hyperkinetic reaction of childhood disorder (American Psychiatric Association, 1967; Cormier, 2008).

Further evolution occurred, and the terms *hyperactive child syndrome* and *hyperactive reaction of childhood* were coined and remained diagnostic terms until 1980, when the term *attention deficit disorder* was introduced in the *DSM−III* (Ougrin et al., 2010). In addition, during 1987 modification of the *DSM−III*, the syndrome was described so that equivalent weight was given to inattention and hyperactivity difficulties (American Psychiatric Association, 1980; American Psychiatric Association, 1987; Cormier, 2008). More recently, the term clinicians favored, *attention deficit hyperactivity disorder*, was included in the *DSM−IV* in 1994 (Ougrin et al., 2010). In contrast, this change in nomenclature came about as the correlation between brain dysfunction and hyperactivity began to weaken (Cormier, 2008).

Although much research continues to be done to establish precise etiologic correlates with the disorder, none has been conclusive. ADHD is, therefore, best understood as including a number of behavioral signs and symptoms that reflect extreme

impulsivity, hyperactivity, and inattention (Rowland et al., 2002). The present criteria in

the *DSM−IV* for diagnosing ADHD include the most recent modification regarding

preschool-aged children, which included the presentation of the disorder's severity from

severe to *maladaptive,* while the number of symptoms used to make a diagnosis of ADHD

was reduced so that such an evaluation of ADHD in a school-aged child could be made if

the child displayed some symptoms before the age of 7. Further, the *DSM−IV* enumerates

three subtypes for ADHD: (a) predominantly inattentive type, (b) predominantly

hyperactive/impulsive type, and (c) combined type, which includes inattention and

hyperactivity/impulsivity symptoms (Cormier, 2008).

The APA currently describes ADHD as being a persistent, pervasive childhood

condition in which the individual displays a developmentally unacceptable activity level,

low stress threshold, impulsivity, inadequate organization, distractibility, and a failure to

maintain focus and attentiveness (American Psychiatric Association, 2000). ADHD is

linked to impairments in numerous areas of performance. Among them are poor

educational accomplishment and deportment at school, poor relationships with parents and

siblings, and faulty peer interactions (Barkley, 2006; Cormier, 2008; Root & Resnick,

2003). However, there is currently no single constellation of traits that can be used to

describe all people that have ADHD (Rowland et al., 2002).

ADHD is now considered to be among the most widespread neuropsychiatric

problems in school-aged children, believed to affect 3% to 5%, or close to 2 million,

according to the U.S. Department of Education (Fewell & Deutscher, 2002.) Employing a

3% to 5% estimate of this number among preschool-aged children, between 568,260 to

947,100 preschool-aged children may exhibit evidence of ADHD (Fewell & Deutscher, 2002).

Increasingly more preschool-aged children are being diagnosed with ADHD after their parents report their child's symptoms to their pediatrician. Typically, when a parent reports symptoms to the pediatrician, the pediatrician will inform the parent that the conduct is normal and that the child will outgrow it, or he or she will prescribe medication if a diagnosis of ADHD is made (Fewell & Deutscher, 2002). Before the modification of the ADHD criteria in the *DSM−IV* for diagnosing preschool-aged children, ADHD or attention deficit disorder (or ADD, as it was previously called) was rarely diagnosed in preschool-aged children. However, this may be due, in part, to the fact that very few pediatric primary care physicians and clinical child psychologists have obtained appropriate and sufficient training to make a determination of the condition in preschool-aged children consistent with the changes in these criteria (Fewell & Deutscher, 2002). Although practice guidelines for pediatricians (AAP, 2011) and practice parameters for psychologists (AACAP, 2007) have now been developed, direct training and supervision of clinicians regarding how to recognize these criteria are still lacking for preschool-aged children (Fewell & Deutscher, 2002).

Although the original view of a "minimal brain disorder" has been largely dismissed (Rowland et al, 2002), and much research has been done seeking to establish precise etiologic correlates based on newer perspectives regarding the disorder, the etiology remains elusive (Cormier, 2008; Rowland et al., 2002). For this reason, many clinicians argue that ADHD is best comprehended as a diagnosis in which number of behavioral signs and symptoms that represent extreme impulsivity, hyperactivity, and

inattention are recognized (Rowland et al., 2002). Because there is no etiologic finding

that can be used to describe all people that have ADHD, a major issue is whether ADHD

is an organic disorder or a compilation of a number of extreme behavioral signs and

symptoms of impulsivity, hyperactivity and inattention, but unrelated to a brain

dysfunction (Rowland et al., 2002).

Causes.

Especially relevant within the last 15 years is that substantial advancement has

occurred in understanding the etiology associated with childhood ADHD. Mostly because

of the ways it has been observed within the family, twin studies, and adoption research, it

is suggested that ADHD is a result of a combination of hereditary and neurological causes,

rather than being indicative of an either/or etiology. About one fourth to one third of

natural parents with an ADHD child have or have had ADHD themselves (Ougrin et al.,

2010).

Historically, ADHD signs and symptoms have been much less apparent in children

younger than 5 or 6 years of age. However, because an increasing number of preschool-

aged children are now engaged in academic preschool programs, it is not surprising that

recommendations for preschool-aged children to be evaluated for ADHD have recently

accelerated (Cormier, 2008; Wolraich, 2006). In the past, it had been thought that ADHD

symptoms remitted prior to or during the teenage years (Cormier, 2008; Resnick, 2000). It

is currently estimated that possibly 70% of preschool-aged children diagnosed with

ADHD go on to display developmentally unacceptable levels of inattention and/or

problems of impulsivity-hyperactivity throughout adolescence and adulthood (Biederman,

Mick, & Faraone, 1998; Cormier, 2008). Accordingly, there exists strong evidence, as a

result of hereditary and neurobiological studies, that ADHD is indeed a biologically established condition (Cuffe et al., 1994; Zametkin, 1989). Even though this certainty is gaining greater credence, the majority of all preschool-aged children having ADHD do not possess any diagnosed neurological problems (Ougrin et al., 2010).

Conversely, Ougrin et al. (2010) report that some researchers have taken an opposing view, that is, that nothing is organically wrong with preschool-aged children displaying these behaviors; rather their symptoms reflect poor parenting, chaotic household surroundings, or experiences of child abuse. In addition to the resoluteness of those holding this opinion, these investigators suggest that ADHD is simply a convenient (but inadequately explained) catch-all diagnosis to make a clinician's work easier (Rowland et al., 2002; Weinberg & Brumback, 1992). Nonetheless, mainstream research so far points to the view that the etiology of ADHD has equally important hereditary and environmental components, as the studies of identical and fraternal twins, and first degree family members mentioned previously suggest (Ougrin et al., 2010). Environmental effects, such as maternal anxiety, smoking while pregnant, poor quality of premature caregiving, and perinatal difficulties have also played a role in understanding the etiology of ADHD (Ougrin et al., 2010). If this is accurate, ADHD is not solely an organic problem, but is influenced by the environment, including family life, cultural perceptions of disease, and society's socioeconomic classification of families (SES), along with heritage and beliefs (Bryant, 2005).

ADHD in preschool-aged children.

Most noteworthy, prior to the refinement of the criteria in the *DSM−IV* from *severe* to *maladaptive* behavior persisting over a 6-month period, and the age of onset

including *some* symptoms causing impairment before 7 years of age, the diagnosis of

ADHD was rarely made prior to a child entering a school setting. Nowadays, however,

diagnosis in preschool-aged children is becoming more common (Davis & Williams,

2011). In a CDC study, diagnosis for children prior to the revised criteria showed little

indication of preschool-aged children being prescribed psychotropic drugs for ADHD. In

the study, 56% of children aged 4 to 17 years in North America having a diagnosis of

ADHD were treated with relief medication (Centers for Disease Control and Prevention,

2005; Davis & Williams, 2011). However, in a later study specifically focusing on

preschool-aged children, 57% of children 3 years and younger received psychotropic

medication (Rappley et al., 1999). The latter indicates a growth in the number of children

diagnosed with ADHD receiving psychotropic medication. Another investigation

revealed a threefold rise in the utilization of psychotropic medication in preschool-aged

children between 1991 and 1995 (Davis & Williams, 2011), corresponding with the

increase in ADHD diagnoses.

A central issue is that a childhood diagnosis of ADHD creates additional treatment

complications. Individual differences in conduct among normally developing preschool-

aged children sometimes make it a challenge to distinguish normal adjustments in conduct

from patterns that are pathologic or precursors to pathologic problems (Davis & Williams,

2011). Similarly, individual differences are an additional aspect that complicates

diagnoses. In fact, personal distinctions in conduct development involve interaction

between the child and his or her parents. In the same way, self-regulation, including focus

regulation, is usually an element of temperament-based reactivity (Davis & Williams,

2011; Rothbart, Derryberry & Posner, 1994; Rothbart, Posner, & Kieras, 2006).

More than anything else, too much over-identification of ADHD-type signs and symptoms can lead to misdiagnosing acceptable socialization behaviors and constructive parent-child connections (Davis & Williams, 2011). In contrast, based on the requirements pertaining to ADHD within the *DSM−IV−TR*, ADHD is often diagnosed in a child after *maladaptive* conduct (as opposed to the former rubric, *severe*) is present for a minimum of 6 months. This creates a finer line between "normal" and "abnormal" behavior for the clinician to determine. In addition, it becomes less difficult for a clinician to render an ADHD diagnosis now that the *DSM−IV* recommendations state that the diagnosis may be made if the child displayed *some* symptoms during their preschool-age years. Because of this, these diagnostic changes have resulted in less accurate evaluation rubrics that can diagnose the disorder in preschool-aged children (Fewell & Deutscher, 2002).

Another argument regarding the causes of an increase in childhood ADHD diagnoses may be attributed to growing numbers of very young children starting prekindergarten, thereby putting them under greater scrutiny by the educators in those programs (Davis & Williams, 2011). In the words of Davis and Williams (2011, p 145), one of the main proponents of this view, "an ADHD diagnosis is becoming more common in preschool-aged children." These authors further argue that what used to be considered ordinary development or typical adjustment in childhood is now being diagnosed as conduct disturbance (Davis & Williams, 2011). The issue for both these lines of reasoning, that the requirements for an ADHD diagnosis in children has been loosened and that more preschool-aged children are being evaluated, raises the issue of whether

preschool-aged children's ADHD diagnoses are accurate or whether many of these

diagnosed children are simply displaying ordinary developing preschool-aged behavior.

Posttraumatic Stress Disorder (PTSD).

History.

PTSD is an anxiety disorder that has a tendency to develop following a powerfully

frightening experience causing serious psychological damage to the psyche from

maltreatment, or witnessing an event that involves loss of life or harm associated with a

loved one, friend, or another person close to the individual (*DSM−IV*, 1994). PTSD was

first acknowledged during the latter part of the 1800s with research continuing through

World War II and up to the present (Tueller, 2004). Equally important, Sigmund Freud

and Pierre Janet are considered the first investigators to make a systematic study of the

symptoms associated with PTSD. Their research introduced the concept of *hysteria* that is

currently considered an indicator of PTSD (Beal, 1997; Tueller, 2004).

Tueller (2004) states that the earliest official authentication of PTSD was described

and documented in the very first *DSM*, released in 1952, which portrayed the disorder as

being an emotional stress reaction affliction that was termed gross stress reaction.

Subsequently, veterans who experienced combat were determined to have experienced

what became known as war or traumatic neurosis, combat trauma or fatigue, combat or

battle fatigue, thousand mile stare, and shell shock (Beall, 1997; Fullerton & Ursano,

1997).

The existence of PTSD in preschool-aged children is a new idea. The novelty of

preschool-aged PTSD lacks a method that can meet rigorous diagnostic requirements

needed to assess the condition in this age group. Furthermore, Blank (2007) claims that

attachment, character, memory, cognition, and affect regulation are necessary to fully

comprehend the characteristics of the disorder. The principle issue is that PTSD in

preschool-aged children is unlike traditional PTSD. Accordingly, preschool-aged children

are more likely to have characteristics of complex PTSD than traditional PTSD (van der

Kolk, 2005). For instance, traditional PTSD develops from one discrete event, whereas

complex PTSD develops from many traumatic experiences that occur continuously over a

period of time (van der Kolk, 2005). Additionally, recurring trauma may have an effect

on preschool-aged children during sensitive periods of neurological development owing to

organic emotional stress and memory impairment during the normal developmental years

of brain growth (Blank, 2007).

　　　　With this in mind, researchers currently understand childhood PTSD as occurring

during the preverbal years; its characteristics include impaired memory, delayed learning,

and an inability to modulate affect. However, Blank (2007) claims the $DSM-IV-TR$

criteria in many cases are not sufficient to competently diagnose PTSD in infants and

preschool-aged children. This point is often overlooked and could compromise accurate

diagnosing, which in turn would lead to less than ideal treatment of preschool-aged

children. To emphasize, the most effective techniques for treating PTSD in preschool-

aged children include the use of play therapy, behavioral therapy, psychoeducation, and

family support. The combination of this treatment is far different from that for children

diagnosed with ADHD. Still, PTSD can be manifested in various forms based on the

nature of the trauma itself (Blank, 2007). However, there are no definitive scientific tests

to determine the occurrence of PTSD, and the diagnosis is particularly difficult to make with preschool-aged children (Blank, 2007).

Causes.

Understanding the challenge of diagnosing childhood PTSD, it is crucial to take into account the unique features belonging to the child experiencing recurring trauma (Blank, 2007). The way to distinguish the severity of the trauma on the preschool-aged child is to weigh the length of time, amount, and intensity of the trauma. One method to diagnose and treat preschool-aged PTSD is to be sure the primary caregiver understands the danger of the trauma and to provide a history of possible traumatic events in the life of the child (Blank, 2007).

Assessing the developmental level of a child and understanding how it may be implicated as being affected, at least in part, by trauma and/or the actual existence of PTSD are particularly important because PTSD can take place in toddlers 9 months of age or older (Blank, 2007). Additionally, PTSD symptomatology may differ in the course of a toddler's physical, psychological, psychosexual, and social development, which creates further challenges for the clinician in making a correct diagnosis (Blank, 2007). Moreover, evidence of trauma may include irritability, physiologic dysregulation, angry reactions, withdrawal, clinginess, nightmares, and inappropriate touching. For this reason, the clinician must assess and consider character, age-appropriate cognitive performance, level of understanding, memory and spoken expression, as well as attachment and affect control (Blank, 2007).

PTSD's causes are generally understood to be a complex connection of surroundings, biology, and mind (Fullerton & Ursano, 1997, Tueller, 2004). Hence,

PTSD may be caused by the individual experiencing or witnessing natural calamities, injuries, and violent behaviors. Natural calamities might include earthquakes, tornadoes, and floods. Violent behaviors may be a result of a variety of traumatic encounters, including rape, violent physical attacks, being held hostage, experiences in war, witnessing a homicide or suicide, shootings, and robberies (Tueller, 2004).

Additional variables associated with PTSD are usually biological and depend upon the unique constitution of the child (Tueller, 2004). The National Institutes of Health (2002) has addressed the physiology of trauma by implicating the role of the hippocampus and how it handles short-term recollection, intrusive memories and feelings, and flashbacks. For instance, adjustments within the hippocampus take place during and following a traumatic occurrence, leading the body's hormones to inundate it. Therefore, individual constitutional differences may play a role in PTSD (National Institutes of Mental Health 2002; Tueller, 2004).

There are two major forms of PTSD, acute stress disorder (ASD) and complex PTSD. Both may be caused by the experience of or exposure to trauma. ASD may be attributable to minimal traumatic events, such as vehicle injuries, separation and divorce of parents, relocating, and witnessing a traumatic situation (Parkinson, 2000; Tueller, 2004). In contrast, complex PTSD includes being exposed to more severe trauma and can occur from several weeks to years after a trauma. Also, complex PTSD may be a result of long-term sexual abuse, family maltreatment, being held hostage or as a prisoner of war, or being a former cult member (Tueller, 2004).

The *DSM−IV−TR* describes two requirements that potentiate an event being traumatic. First, a person may encounter threat of demise or severe bodily harm. Second,

trauma may also result if a person witnesses such events happening to others. But in addition to the actual event precipitating the trauma, the way the person experiences the event also needs to be considered. A feeling of extreme dread, helplessness, or horror in response to the event needs to be present for PTSD to occur. In contrast to the way adults exhibit the effects of PTSD, preschool-aged children may manifest symptoms of exposure to trauma as disorganized, irritated conduct (Szymanski et al., 2011).

Nevertheless, trauma may occur as a result of situations that may not necessarily satisfy *DSM−IV−TR* criteria, specifically, homelessness, foster care placement, or incarceration of a parent (Applebaum & Burns, 1991; Szymanski et al., 2011). These latter situations are of primary concern because the experience of trauma that is long term or recurring can result in extensive psychological and biological repercussions for preschool-aged children (van der Kolk, 2005; Szymanski et al., 2011). This is supported by investigations made by Cicchetti and Toth (2005) that report that experiences of adverse environmental stressors result in diminished coping capabilities, reduced affect regulation, and reduced self-regulation involving behavior (Szymanski et al., 2011). These deficiencies affect modulating capabilities of the child and place him or her in danger of weakening the ability to control emotion and behavior. Signs of these liabilities may include anxiety, depression, dissociation, impulsivity, aggression, cognitive distortions, attachment issues, substance abuse, psychological instability, and developmental delays (Bergen, Martin, Richardson, Allison, & Roeger, 2003; Haugaard, 2004; Kaufman, 2008; Kearney, 2010; Putnam, 2003; Szymanski et al., 2011; van der Kolk, 2005).

PTSD in preschool-aged children.

Ironically, because responses of infants and preschool-aged children can be distinct from those of older children, and, given that the younger cohort group might not be capable of verbally explaining responses to frightening or harmful events, experts in early onset trauma once believed that the younger individuals were shielded from the effects of traumatic encounters (Scheeringa et al., 2003). Thus, even though the diagnosis of PTSD was articulated in 1980, it was generally not considered applicable to individuals that were of adolescent age or younger. This view was probably buttressed by the fact that PTSD was first used as a diagnosis to treat soldiers that experienced combat (Dyregrov & Yule, 2006).

Today, it is acknowledged that preschool-aged children and adolescents can acquire PTSD following life-threatening events (Dyregrov & Yule, 2006). Having said that, children under 10 with PTSD-like symptoms are still difficult to diagnose because assessment devices have not been sufficiently developed to determine PTSD within this age group (Dyregrov & Yule, 2006). Nevertheless, the assessment, evaluation, and diagnosis of children have improved because clinicians have become aware that when a child develops more sophisticated means to communicate, he or she also has the ability to better understand feelings, think concretely, respond logically, and understand and complete self-rating scales.

Although the incidence of childhood PTSD is not specifically known, we now have theories to help understand it. In fact, these theories have been crucial in creating a diagnostic tool that differentiates trauma in preschool-aged children from that of adults (American Psychiatric Association, 1987; Salmon & Bryant, 2002). Most noteworthy,

investigations by Salmon and Bryant (2002) have been critical in understanding the ability

of preschool-aged children to comprehend childhood PTSD as a result of their

development and employment of a detailed evaluation tool, which enables the

administrator to determine precisely how preschool-aged children responded to

posttraumatic events. To create this tool, Salmon and Bryant focused on designing an

instrument that could discern the following: (a) obtaining proof of events that could result

in PTSD within preschool-aged children; (b) identifying developmental distinctions

between child and adult responses to trauma; (c) locating primary problems that must be

accommodated inside a cognitive model of childhood PTSD; and (d) understanding

ramifications with regard to evaluation and remedy of childhood PTSD (Salmon &

Bryant, 2002).

Subsequent to the Salmon and Bryant study, many experts have observed how

behaviors and cognitions within preschool-aged children suspected of having PTSD

differed from adult presentations of the disorder. Their key discovery was that the

severity of PTSD varied depending on the intensity and chronicity of the trauma, the

child's closeness to the trauma, the personal effect on the child, and the length of time that

passed since the traumatic event (Salmon & Bryant, 2002). These variables, however, are

dependent on the child's ability to verbally articulate events and therefore have limitations

as assessment tools. On the positive side, Salmon and Bryant found that preschool-aged

children as young as 24 months could offer a short verbal description of a traumatic

encounter 2 years after the event (Salmon & Bryant, 2002). This is certainly helpful in

finding clues to finding the genesis of PTSD behaviors, although the reporting capabilities

of a preschool-aged child is not as sophisticated as the typical response obtained from a school-age child or adolescent when queried about a traumatic experience.

A major event in the validity of childhood PTSD (Osofsky, 1995) occurred in 1987 with the publication of the *Diagnostic and Statistical Manual of Mental Disorders−Revised* (American Psychiatric Association, 1987). The Association finally defined and described childhood symptoms of PTSD. Most noteworthy, it described PTSD in children as adverse reactions, which may vary in degree from child to child: from children who may display short-term annoyances to bothersome events in his or her surroundings to children presenting obvious signs and symptoms of PTSD, in particular, profound inhibition to explore and play freely (Osofsky, 1995). Other results of trauma included symptoms of reexperiencing the original trauma or repetitive play with trauma-centered themes (Osofsky, 1995).

To summarize, the (then) new *DSM−IV* articulated the symptoms of childhood PTSD to reflect disorganized or agitated behavior, kept repetitive play with trauma-themes, added frightening dreams with recognizable content of past experiences, as well as trauma-specific reenactments. The chief outcome of this new diagnosis was that the criteria remain in the *DSM−IV−TR,* which contains the recognized guidelines for assessing PTSD in preschool-aged children (*DSM−IV*, 1994; *DSM−IV−TR*, 2000). Unfortunately, the *DSM* still does not include a comprehensive description that can guide a clinician in assessing a preschool-aged child that may be presenting with PTSD. As an illustration, 12 criteria that can be used to assess traditional PTSD do not apply to preschool-aged children.

Kolko et al. (2009) point out that failure to accurately assess PTSD in children is a critical shortcoming because if it goes undiagnosed, it can permanently hinder a child's development. Without the resolution of trauma, a child cannot move onto the next developmental stage, and developmental psychologists by and large agree that a healthy child cannot skip a developmental stage. The most recent evidence of the long-term effects of childhood trauma is that if a child experiences trauma by age7, he or she will continue to perform at that developmental stage until or unless there is a reduction or resolution of the trauma symptoms, therefore impacting the long-term psychological health of the individual (Kolko et al., 2009).

Assessing and identifying ADHD and PTSD in preschool-aged children.

While the revision of the guidelines in the *DSM−IV* for making ADHD diagnoses in children was a major step forward, little to no training was provided to pediatric primary care physicians or clinical child psychologists for assessing, diagnosing, and treating this age group. The update relaxed the diagnostic criteria for preschool-aged children, while the *DSM−III* stated that clinicians could not make a diagnosis of ADHD unless the preschool-aged child presented with more severe forms of the symptoms than a school-aged child and more than 6 symptoms. Apparently, because of this narrow diagnostic definition, diagnoses of ADHD rarely occurred, while the relaxed criteria resulted in ADHD being more readily identified and diagnosed among this age group. Besides changes in the *DSM*, professional associations have also had an impact on the professional diagnosing of ADHD.

Information published by the American Academy of Child and Adolescent Psychiatry (AACAP) and the American Academy of Pediatrics (AAP) promulgated the

standards for managing children that presented with symptoms reflecting those that appear

in the new criteria (AACAP, 2007; AAP, 2011). The AACAP was the organization that

developed practice parameters on ADHD management and recommendations for the use

of stimulant medications. However, the AAP found that this information was not

disseminated to primary care providers, who ironically assess the majority of children with

suspected ADHD. As a result, the AAP developed evidence-based guidelines for the

diagnosis and treatment of children with ADHD that was distributed to physicians who

were not psychiatric specialists (Rushton, Fant, & Clark, 2004).

AACAP Practice Parameters.

The principle items, the clinical-oriented practice parameters delineated for

psychiatrists and psychologists, provide clinicians with the information (stated as

principles) needed to develop practice-based skills. Although empirical evidence may be

available to support certain principles, it is primarily based on expert opinion and clinical

experience. In the most recent AACAP (2007) practice parameter, recommendations for

best treatment practices stated in accordance with the strength of the underlying empirical

and/or clinical support are as follows: minimal standard (MS), which is evidenced based

and applies to minimal standards 95% of the time, clinical guideline (CG), which provides

strong empirical evidence 75% of the time, option (OP), based on emerging empirical

evidence, and not endorsed (NE), which is described as being ineffective or

contraindicated. Although there are 13 practice parameters, only the first five apply to

assessments for preschool-aged children: (a) Screening for ADHD (MS); (b) Meeting

criteria of the *DSM−IV−TR* to rule out symptoms that may be better accounted for by

other psychiatric disorders*,* interviews with the parent, preschooler, school, obtaining

information about functioning, evaluating for comorbid psychiatric disorders, and review of patient's medical, social, and family histories (MS); (c) Laboratory or neurological testing (NE); (d) Psychological and neuropsychological tests (although not mandatory) if the patient's history suggests low cognitive ability or achievement (OP); and (e) Evaluating the patient for the possible presence of comorbid psychiatric disorders (MS).

AAP Practice Parameters.

The 2011 guideline from the AAP represents a modification of previous iterations of those devised in 2000 and 2001 (AAP, 2011). This update provides recommendations for primary care physicians (PCPs) in evaluating children for ADHD from age 4 through 18. This document contains guidelines for diagnosis, evaluation, and treatment in a single assessment tool, whereas previous assessments needed to be separately presented. In addition, the 2011 version also includes recommendations for managing pediatric patients that exhibit some signs and symptoms of ADHD, but do not meet current diagnostic criteria for the condition that are not covered in the AACAP practice parameters (AAP, 2011). The Action Statements for Pediatric ADHD are: (a) PCPs should initiate an ADHD evaluation for any child aged 4 to 18 who has school or behavioral problems and symptoms resembling ADHD; (b) Symptoms and behavior must meet the criteria set forth in the *DSM−IV−TR* for a diagnosis of ADHD; (c) Physicians should rely primarily on information from parents, guardians, school personnel, and mental health specialists, and rule out all other causes; (d) Clinical evaluations should include assessment of conditions that might coexist with ADHD; and (e) ADHD should be viewed as a chronic condition.

It is important to note that the AAP (2011) addresses displaced preschool-aged children in their protocols by making appropriate recommendations to PCPs prior to

making a final diagnosis. It recommends that parents complete a parent training program before confirming an ADHD diagnosis for preschool-aged children. In addition, it suggests that parents consider placing their children in a qualified preschool program if they have not done so already. The intent is that the parent training can help the parent deal with age appropriate expectations of the child, while the preschool program has the benefit of the child being observed interacting with peers (AAP, 2011).

Despite the introduction of these guidelines whose intent is to more accurately make ADHD diagnoses is whether clinicians actually adhere to the recommendations when preschool-aged children present with symptomatology resembling ADHD. In 2004, Rushton, Fant, and Clark conducted a study to ascertain the use of practice guidelines among pediatricians. Their study focused on three areas of concern: clinicians' familiarity with the guidelines, incorporation of the guidelines in practice, and the use of the *DSM−IV−TR* when diagnosing. The researchers discovered that of 405 pediatricians who responded to the study, 91.5% were familiar with the guidelines, 78.1% stated they read and incorporated them, but only 55.4% used the *DSM−IV−TR* when diagnosing.

Handler and DuPaul (2005) conducted a similar study with clinical psychologists in an attempt to formulate best practice guidelines as described in the practice parameter and use of the *DSM−IV−TR* when diagnosing. Accordingly, best practices were drawn up to reflect a multi-modal approach that included an interview with the parent(s) and child; information from the school about the child's behavior, cognitive functioning, and academic achievement; standardized rating scales completed by the parent(s) and the teacher(s); and clinical observations of the child in the classroom and in less structured situations. Additionally, the researchers also recommended that clinicians be wary of

relying on laboratory measures given their poor ecological validity and their questionable predictive validity (Handler & DuPaul, 2005). In order to develop a best practices rubric, they examined clinicians who met the best practice guidelines, met best practices in their area of specialty, and used the $DSM-IV-TR$ criteria. They discovered that of the 96 clinical psychologists participating, 52.3% met best practice guidelines and 40.9% met them within their specialty. A considerable percentage of clinical psychologists (93.1%) reported using the $DSM-IV-TR$ when diagnosing.

Considering that numerous instigating factors can lead to PTSD in preschool-aged children, precise evaluation and identification of trauma symptoms is critical. With this in mind, preschool-aged children who encounter recurring trauma have been determined to experience a range of signs and symptoms with which the diagnostician should be familiar (Strickler, 2011). Moreover, comorbid psychological conditions such as mood disorders, behavioral issues, attachment difficulties, anxiety symptoms, and eating disorders play a significant role during the assessment process and should be investigated during an assessment of potential trauma (Strickler, 2001).

To illustrate the point, numerous challenges associated with evaluating the preschool-aged child are usually measured against his or her particular level of cognitive development. It has long been held that preschool-aged children typically fall within the preoperational thought stages of cognitive development (Piaget, 1964). Thus, their own understanding of potentially traumatic events and situations differs from adults because they do not have the ability to employ any but the most rudimentary forms of reasoning, thinking, organizing, and decision making. Therefore, valid evaluations of preschool-aged children that have experienced trauma must include techniques that take into consideration

how children differ cognitively from adults. Therefore, evaluation techniques that involve play are indicated because of children's cognitive and linguistic development (Blank, 2007; Strickler, 2001, 2007, 2011).

ADHD measures for preschool-aged children.

Indeed, given the authorized mandates that permit ADHD to be diagnosed in preschool-aged children, and their entitlement to particular services through their school district, it is essential to present these preschool-aged children with an early diagnosis when indicated. Together with the current clarification of these mandates (Part B of the Individuals with Disabilities Act [IDEA]) and Section 504 of the Rehabilitation Act of 1973 regarding assessment, there is an immediate need for dependable assessments and treatment plans of preschool-aged children suspected of having ADHD (Shelton & Barkley, 1993). At the same time, since Public Law 99-457 mandated developmental services for this age group, there has been an ever-increasing interest in the assessment and treatment of preschool-aged children (Shelton & Barkley, 1993).

Equally important is that while early assessments have been championed, there has been an ethical concern over the possibility of disproportionate diagnosing and over-pathologizing behaviors in preschool children (American Psychiatric Association, 1994; Barkley, 1995). Many preschool-aged children between the ages of 3 and 5 years tend to be inattentive, hyperactive, and impulsive at times; this is an aspect of their normal development. Therefore, the clinician must be meticulous in his or her interpretation of these behaviors before rendering an ADHD diagnosis (Fewell & Deutscher, 2002).

Educator rating scales of behavior are thought to be the single most significant factor in the evaluation of ADHD and are generally some of the most widely used

instruments for collecting school data. The ADHD Rating Scale (DePaul, 1990) is a scale that employs the 14 items listed in the *DSM−III-R−*for ADHD, providing a means of registering the number of observed symptoms, a total score, an inattention/restlessness score, and an impulsivity/hyperactivity score (Barkley, 1990).

The Child Attention Problem Scale (CAP) (Elderbrock, & Achenbach, 1984) is composed of 12 items taken from the Child Behavior Checklist Teacher Report Form (Edelbrock & Achenbach, 1984). Observers rate the severity of these 12 characteristics on a 3-point scale. This scale also has a total score, an inattention score, and an over-activity score.

Conner's Parent and Teacher Ratings Scales (CTRS-28) (Goyette, Conners & Ulrich, 1978) is a 28-item questionnaire that is used to assess a number of child behavior problems, and is widely used for clinical and research applications with children. This scale indexes three forms of behavior, oppositional, cognitive, and activity, and is normed so that it can be used reliably for different age groups. The scored results are designed to yield the presence or absence of four factors: conduct problems, hyperactivity, inattention-passive behavior, and a holistic ADHD Index. Each factor is placed on a scale and is normed separately from the other three (Loughran, 2003).

PTSD measures for preschool-aged children.

It is significant that the majority of trauma-specific measures assess trauma symptoms in children older than the specific population for this investigation. For this reason, these measures generally require some reading ability and therefore are valid for children around the age of 8 and older. Additionally, if the assessor uses the developmental stages as indicated by Piaget's (1964) theory, he or she must consider that

school-age children's operational developmental processes equip them with the ability to think concretely, beginning around the age of 7. Therefore, children in this age group would be more adept at using logic to process information. Conversely, children between the ages of 2 and 7 are in the preoperational stage (Piaget, 1964). This means they cannot manipulate and transform information in logical ways. For this reason, measures that are not appropriate for the age range of the children (from 3 to 6) will not be reviewed.

The Child Sexual Behavior Inventory (CSBI) is a 38-item parent-report measure that is designed to differentiate normal sexual behavior from clinical sexual behavior in 2- to 12-year-olds. It offers clinicians nine subscales based on the child's gender and age; describes what sexual behaviors can be expected; and what sexual behaviors are indicative of traumatic acting out (McKnight, 2004). These subscales include boundary problems, voyeuristic behavior, exhibitionism, self-stimulation, gender role behavior, sexual anxiety, sexual interest, sexual intrusiveness, and sexual knowledge (Bernt, 2004; McKnight, 2004).

The Children's PTSD Inventory is a 50-item clinician-administered, self-report interview that targets *DSM−IV* symptoms of PTSD. Its target age group is 6-to-18-year-olds, and it assesses five symptoms: aspects of avoidance and numbing, situational and exposure reactivity, distress and impairment, arousal, and re-experiencing (Saigh et al., 2000).

The Trauma Symptom Checklist for Preschool-aged Children was developed by Briere (2005). It is a 90-item parent-report measure that assesses trauma symptoms by using a number of subscales. These scales include anxiety, depression, aggression, traumatic intrusion, traumatic avoidance, traumatic arousal, dissociation, and sexual

concerns. There are also two validity scales within the instrument. The scores can be calculated for age groups of 3-to-4-year-olds, 5-to-9-year-olds, and 10-to-12-year-olds (Briere, 2005).

There continues to be much controversy in discerning signs, symptoms, and frequency rates of PTSD among preschool-aged children because it has only been within recent years that evaluation tools have been formulated to measure PTSD among them. Five standardized measures that have been employed in screening and diagnosing preschool-aged children at risk for PTSD are evaluated in relationship to their psychometric properties and clinical utility.

The most often cited standardized measure for evaluating children (past preschool age) with PTSD is the PTSD-Reaction Index (McNally, 1991; Sauter & Franklin, 1998). This 20-item semistructured interview is designed to be used with school-aged children and is reported here to underscore the lack of such generally accepted instruments for preschool-aged children. This index only considers self-reported signs and symptoms that are present at the time of the interview. This instrument would not be useful if applied to children with the diagnostic classification 0 to 3 because of their developmental stage. That is why methods that can more accurately diagnose PTSD in preschool-aged children are necessary (Sauter & Franklin, 1998).

Although many youth and parent interview protocols exist for school-aged children, and self-reported PTSD/PTS measures exist for children in this age group, there is no gold standard for this assessment. Moreover, research shows that parents may inaccurately report the intensity of PTS because when comparing their observations with a child's self-report, researchers have often found wide differences in the perceived severity

between the two (March, 1999). Granted that progress is being made in developing measures to assess PTSD in children, it is not yet clear exactly how best to use diagnostic strategies to advance understanding of the condition and assess treatment effects (March, 1999). In addition, the veracity of youth self-reports depends on numerous factors, including the child's developmental level, the content of the questions posed, the way in which queries are asked, and factors about the event itself. For this reason, clinicians and investigators increasingly use a multimodal, multi-informant approach for evaluation and diagnosis of psychiatric disorders in young people (AACAP, 2007). Nonetheless, debate remains over exactly how a child's and/or a parent's reporting should inform a diagnosis of PTSD (Hawkins & Radcliffe, 2006; March, 1999). As a result, the evaluation of PTSD in children and adolescents must ultimately be made within a theoretically sound understanding of the developmental and social matrices in which the trauma occurred and the PTSD eventuated (March, 1999).

The Pediatric Emotional Distress Scale (PEDS), 1999. Although many published instruments exist for assessing preschool-aged children's typical behavior problems, relatively few concentrate on distinct signs and symptoms associated with childhood trauma (Saylor, Swenson, Reynolds, & Taylor, 1999). There are numerous practical obstacles to proper assessment of preschool-aged children following a trauma. A distinctive factor is that parents and children are often overburdened by the emotional and physical tasks needed to recover (Saylor et al., 1999). Consequently, there exists a need for instruments that identify children as young as preschool-aged who may be in need of services. Because of this, PEDS is encouraging as a psychometrically sound screening measure of childhood behavior difficulties and posttraumatic symptoms for children under

5 years old. Furthermore, it offers superior critical data for making recommendations for further evaluations or interventions so that the parent and child can more effectively deal with the early and later stages of the traumatic event's aftermath. Additionally, this scale is sensitive to the distinct side effects of trauma on preschool-aged children (Saylor et al., 1999).

Pediatricians currently diagnosing ADHD in preschool-aged children may be at a disadvantage if they do not have the training of clinical psychologists in knowing and identifying the criteria for making ADHD and PTSD diagnoses. The latter group is trained to use standard proficiencies for identifying and assessing symptoms relating to diagnoses such as PTSD, which is a requisite for clinicians since their diagnoses will be based on their foundational understanding of PTSD or related disorders. Handler and DuPaul (2005) point out that clinicians believe that a pediatrician's medical training might prejudice the diagnosis to causes based on organic illness, in which case the treatment will warrant medication. The bases for this type of diagnosis would be far different than that of a psychologist whose training would encourage a psychological diagnosis, followed by a treatment plan that involves psychosocial intervention. Handler and DuPaul argue that "pediatricians are at a training disadvantage when diagnosing preschool-aged children." According to their view, psychologists use tools to arrive at a diagnosis that are beyond the purview of a pediatrician's training.

ADHD and PTSD Diagnoses.

ADHD: DSM−IV−TR diagnosis.

The particular guidelines by which preschool-aged children are being diagnosed as having ADHD are delineated in the *DSM−IV−TR*. The *DSM−IV−TR* lists three subtypes

of ADHD and provides the most straightforward and precise explanation for clinicians. The three subtypes are inattentive type, hyperactive-impulsive type, and a blend of the two (American Psychiatric Association, 2000).

A substantial concern should be that preschool-aged children identified as having ADHD typically present with symptoms of inattention or impulsivity that are far more extreme than those present in a normally developing preschool-aged child. Therefore, the evaluator of children younger than 5 or 6 should be prudent in making a diagnosis of ADHD because both inattention and hyperactivity-impulsivity are considered normal in children within that age group (*DSM−III*, 1980). The *DSM−IV−TR*, following the lead of the earlier version, advises that its criteria be used primarily for children between the ages of 7 and 10 (Greenhill, Posner, Vaughan, & Kratochvil, 2008). Therefore, for a diagnostician to apply the criteria for ADHD as described in either edition of the *DSM* to preschool-aged children, he or she would need to observe the child presenting extreme or severe examples of the behaviors.

The first subtype is evident primarily through inattentive behavior. It may be identified in the home, within school, and/or within social functions. Additionally, an ADHD child might appear distracted as well as unfocused, which can result in the appearance of forgetfulness and, on occasion, rebelliousness. Structured tasks have a tendency to need focused intellectual energy. This cognitive ability is challenging for ADHD children. They are often preoccupied by unrelated stimuli, which lead them to overlook the topic at hand and to resist guidance from authority figures (American Psychiatric Association, 1994).

The second ADHD subtype is hyperactivity-impulsivity. The features associated with hyperactivity are generally uneasiness, and the inability to remain focused for the same length of time as a child of the same age without ADHD. A hyperactive-impulsive child will struggle to remain in his or her chair and will run and leap even when instructed not to. Such children often speak continuously, make verbal outbursts at improper times, are unable to remain focused on even the simplest tasks, and are unable to wait their turn (American Psychiatric Association, 1994).

The third subtype of ADHD features a combination of signs and symptoms of the first two, displaying a combination of the inattentive and hyperactive-impulsive although subjects often display prominence of one type more than the other. In diagnosing children having ADHD, the *DSM−IV−TR* suggests that particular criteria will have to be present to meet at least one subtype prior to diagnosis, and be present before the child reaches his or her seventh year. Furthermore, symptoms have to persist for a minimum of 6 months. Additionally, there needs to be evidence that the behaviors are displayed in two or more settings, for example, school, the family home, in the community, or with peers. These symptoms must also impair or interfere with the completion of everyday daily activities such as home responsibilities, following instructions, completing academic work, and engaging comfortably in social interaction. Finally, one needs to demonstrate a combination of six signs and symptoms of inattentiveness, forgetfulness, fidgeting, as well as extreme activity as identified within a single subtype described in the *DSM−IV−TR* (American Psychiatric Association, 2000). Although the child may present with these signs and symptoms that suggest ADHD, the diagnosis must not be made if it is clinically determined that the child displays signs or symptoms or conduct that seems far more

characteristic of another condition such as a mood disorder, anxiety, or conduct disorder

(American Psychiatric Association, 2000).

There has been a concern regarding the number of 3- to 5–year-olds currently

being diagnosed with ADHD. The increased use of psychostimulants for behavior

management could indicate a greater incidence than was previously thought (CDC, 2013).

Conversely, perhaps the explanatory power of the diagnosis of ADHD in young children

is faulty; thus, while psychostimulants may be managing behavior, they may not be

managing ADHD. The editors of the *DSM−III* articulately describe the problem as

follows:

> Children in inadequate, disorganized, or chaotic environments may appear
>
> to have difficulty in sustaining attention and in goal-directed behavior. In such
>
> cases, it may be impossible to determine whether the disorganized behavior is
>
> simply a function of the chaotic environment or whether it is due to the child's
>
> psychopathology (*DSM−III*, 1980, p 43).

According to differential diagnosis considerations, preschool-aged children who

are reared in environments such as the one described above will respond with unusual,

exaggerated behaviors that mimic ADHD. The issue then becomes whether these

behaviors in preschool-aged children are better accounted for by environmental

influences.

PTSD: DSM−IV−TR diagnosis.

Even though the *DSM−IV−TR* offers a basis to diagnose signs and symptoms of

trauma in all age groups, there are four specific criteria that present differently with

preschool-aged children than with other age groups (2000). Equally important, Criterion

A, the stressor, and Criterion B, intrusive recollection, appear to be areas that are distinct and most recognizable with preschool-aged children when making a PTSD diagnosis (Schreeinga et al., 2003). Further, all criteria of the PTSD diagnosis apply to preschool-aged children when assessing for PTSD. However, preschool-aged children's presentation in that particular area will not match the criteria in the way described. This is mainly because preschool-aged children may not have the cognitive or reasoning resources available to accurately convey what occurred (Schreeinga et al., 2003). In the same way, due to age-related differences in presentation, training in understanding this age group is necessary to help assure accurately.

The first criterion, A, the stressor is intended to assist in determining whether the person has in fact been exposed to a trauma as well as to understand how that exposure is affecting overall functioning. In criterion A-2, preschool-aged children will present intense fear, helplessness, or horror as disorganized or agitated behavior. This is an important distinction because this display can mimic hyperactive behavior.

Criterion B, intrusive recollection, is heavily implicated in preschool-aged children. This criterion focuses on how the preschool-aged child reexperiences the trauma; the child needs to present only one of the three indicators to satisfy diagnosing requirements in this category. The first criterion, B-1, describes how the preschool-aged child reexperiences intrusive recollections of an event and how, through repetitive play, it may be displayed in themes rather than in the way it manifests in older children or adults, which is through recurring images, thoughts, and perceptions. In criteria B-2, the intrusive recollection is identified in the preschool-aged child in frightening dreams with symbolic content rather than distressing dreams of what happened. Criterion B-3 is the intrusive

recollection identified through the preschool-aged child trauma-specific reenactment. The two additional areas in criterion B are psychological distress and physiological reactivity to exposure to internal and external cues.

Criterion C, avoidant/numbing, requires at least three markers to be considered a diagnosable symptom; it is also the most difficult criterion to detect in a preschool-aged child. The goal is to understand the persistent avoidance of stimuli associated with the trauma (Schreeinga et al., 2003). This requires utilization of responsiveness in the preschool-aged child. However, the mode of expression can be just the opposite. Instead of avoidance or numbing, clinginess and separation anxiety or a return of previous aged behavior like whining, nighttime enuresis, or encopresis is often the response to trauma (Schreeinga et al., 2003).

Criterion D, hyperarousal, is another area where the preschool-aged child can meet the diagnostic requirement, but it can often be mistaken for ADHD criteria (Weinstein et al., 2000). This criterion needs two markers to meet the PTSD diagnosis and includes sleeplessness, irritability, anger outbursts, and exaggerated startle responses. Adding to the complexity of disambiguating ADHD symptoms from those of PTSD is that these behaviors can be confused with the hyperactivity criteria of ADHD (Weinstein, et al., 2000).

Criterion E requires that the symptoms persist for more than 1 month, and criterion F is met if the disturbance causes clinically significant distress or impairment in important areas of functioning.

Diagnostic dilemma.

Diagnosing ADHD in preschool-aged children.

Diagnosing ADHD is not a clear-cut undertaking, especially with preschool-aged children. In addition, contributing to the diagnostic complexity associated with ADHD is the overlapping of signs and symptoms with disorders such as posttraumatic stress (American Psychiatric Association, 1994; Weinstein et al., 2000). Both disorders can manifest with symptoms that include problems with focusing, disorganized or agitated behavior, and impulsivity (Blank, 1994; Weinstein et al., 2000). Indeed, psychiatric comorbidity also complicates the diagnosis, since the disorder seems to coexist with mood conditions, anxiety symptoms, and learning disabilities (Weinstein et al., 2000).

DSM−IV−TR field studies indicate that for most preschool-aged children, particularly inattentive children, signs and symptoms tend not to be evident before the child has spent some time in school because these symptoms are more likely to develop once schoolwork has become more challenging (Rowland et al., 2002). For this reason, the diagnosis of ADHD must be made in a developmental framework. Signs and symptoms are viewed as being present and significant if they are really greater than what is typical of a child of the same age and cognitive stage (Cantwell, 1996; Rowland et al., 2002). Additionally, lack of behavioral control in a new unfamiliar environment presents challenges to any young child (Davis & Williams, 2010).

Similarities in symptoms of preschool ADHD and PTSD make the training and expertise of those who diagnose ADHD problematic. To illustrate the point, pediatricians and other primary care providers are often called upon to render an ADHD diagnosis, not psychologists nor even psychiatrists (Bussing, Zima, & Belin, 1998; Rowland et al.,

2002). A major reason for this, according to Rowland et al. and coworkers (2002) and

Fewell and Deutscher (2002), is that preschool-aged children are not yet in the school

environment and therefore are not being assessed by teachers. Moreover, parents are

bringing their children into the pediatrician's office for other reasons, such as shots or

checkups, and then complain about their child's behavior, without considering that the

behavior may have a psychological component apart from physical health issues (Fewell

& Deutscher, 2002). Consequently, pediatricians, who may not have had training in the

ADHD diagnoses, may be put in a position to make a psychological assessment although

they may not have sufficient training to do so. The result can be inaccurate assessments.

Research from the Pediatric Research in Office Settings (PROS) network revealed that the

American Psychiatric Association's *DSM* criteria had been utilized by only 38% of the

3,900 clinician's surveyed (Rowland et al., 2002; Wasserman, Kelleher, & Bocian, 1999).

Most probably, the other 62% primarily based their diagnoses on clinical intuition or

perhaps other sorts of nonstandardized methods (Rowland et al., 2002). For this reason,

the increasing number of preschool-aged children being prescribed stimulant relief

medication to treat ADHD has raised issues about whether diagnoses made by

pediatricians are accurate (Rowland et al., 2002). This may have been the prompt that

made the American Academy of Pediatrics decide, in 2000, to publish practice guidelines

recommending that pediatricians use *DSM−IV−TR* based resources and guidelines

whenever they carry out ADHD assessments (Rowland et al., 2002).

     Much of the research literature points out that excessive activity levels, instead of

inattention, may be the best indicator of ADHD in preschool-age children (Fewell &

Deutscher, 2002). Distinctive factors such as environmental experiences, substandard

parenting abilities, and behaviors including anxiety, mood disorders, and oppositional

defiant disorders can result in conduct that resembles ADHD (Fewell & Deutscher, 2002).

Nevertheless, just about all preschool-aged children tend to be active, energetic, and, on

occasion, inattentive. Certainly, the problem then becomes being able to ascertain

whether these conducts are rare or pervasive in the child (Fewell & Deutscher, 2002).

Above all, such behaviors could be pervasive owing to recurring traumas rather than to an

organic disorder. Therefore, it is crucial for early childhood instructors and treatment

providers to avoid reaching premature assessments by considering that every child can be

sidetracked or inattentive and the behaviors are not necessarily indications of ADHD

(Fewell & Deutscher, 2002).

Similarly, anytime a child exhibits sporadic behaviors that are usually not

developmentally acceptable, a diagnostician should consider that these might be learned

responses. Although they may appear ADHD-like, the fact that the child might express

these types of ADHD-like signs and symptoms does not mean ADHD is present (Fewell

& Deutscher, 2002).

A proper assessment for children suspected of having ADHD is a multistep,

multidisciplinary procedure that results in a diagnosis based on clinical judgment. A

thorough diagnosis should include an extensive health-related evaluation along with a

client history obtained through self-report; interviews with individuals who regularly

observe or interact with the child; reports of the child's behavior in various naturalistic

settings and in varied circumstances. Besides information the diagnostician gathers via

interviews, he or she should also obtain rating scales from guardians and educators that

instruct the interviewee to rate diagnostic descriptors concerning observations adults have

made regarding the child within 6 months of the assessment (Fewell & Deutscher, 2002).

It is particularly valuable for the evaluator to utilize a battery of assessment tools

that will help in determining whether attention or conduct difficulties of the preschool-

aged child are a result of ADHD or something else, or whether the difficulties result from

a combination of factors (Rowland et al., 2002). For this reason, the diagnosis of ADHD

is dependent upon developing a well-defined historical past of signs and symptoms that

reflect hyperactivity, impulsivity, or inattention. Again, ADHD typically does not present

in isolation, but with some other (comorbid) condition (Rowland et al., 2002). For

example, estimates of comorbidity of ADHD and anxiety disorders are around 27%

(Biederman, Newcorn, & Sprich, 1991; Rowland et al., 2002).

With this in mind, distinguishing comorbid conditions so that the diagnostician

accurately attributes a particular symptom to one of the comorbid conditions is

problematic (Rowland et al., 2002). Rowland et al. claim that the most trusted conduct or

symptom checklists to evaluate ADHD are the Child Behavior Checklist (CBCL) and the

Conner's Parent and Teacher ratings scales (Rowland et al., 2002). Conversely, Ougrin et

al. (2010) claim that mental health specialists such as a doctor of clinical psychology

(Psy.D. or Ph.D.) who specializes in treating children should conduct a diagnosis to

determine the presence of ADHD. This recommendation is based on the assumption that

these professionals will be familiar with the *DSM−IV−TR*, have clinical training that

includes work with ADHD children, and have a level of knowledge about mental health

disorders that other specialists lack (AAP Subcommittee, 2011; Bryant, 2005; Pliszka,

2007).

A central goal to accurate diagnoses of ADHD in preschool aged children is to be able to distinguish ADHD from developmentally appropriate childhood behaviors. This issue has prompted investigators to recommend that a developmentally based classification system is needed when diagnosing the possibility of ADHD in preschool-aged children (Davis & Williams, 2010). Davis and Williams declare that descriptions should evaluate the caliber and intensity of conduct in addition to the rate of recurrence to distinguish among preschool-aged children that simply present early ADHD-like signs and symptoms, and those more likely to have the disorder. This would allow for a better understanding of whether the child has ADHD or is simply exhibiting individual differences within the boundaries of normal development (Davis & Williams, 2010).

Diagnosing PTSD in preschool-aged children.

In 1994, the Zero to Three organization detailed *traumatic stress disorder* within its handbook that classifies psychological health and developmental conditions of infancy and early childhood. They have termed this classification *DC: 0-3*. Furthermore, research was conducted to compare the *DSM−IV* criteria with the new DC: 0-3 classification in infants (later broadened to include preschool children). The results of this study indicated that the *DSM−IV* criteria were largely useless in obtaining a PTSD diagnosis (Blank, 2007). Because of this, the chief researcher for the Zero to Three group reasoned that the *DSM* shortcomings were that verbalization of signs and symptoms are necessary for almost half of the *DSM−IV* requirements, and the age group in the study did not have the developmental capability to verbalize (Blank, 2007). Similarly, the Scheeringa et al. (2003) study proposing alternative criteria for preschool-aged children indicated that the B criteria group of the PTSD diagnostic requirements may be solely trauma-specific for

diagnosing preschool-aged children (Blank, 2007). Studies such as those by Zero to Three

and Scheeringa et al. concluded that there exists evidence that changes are warranted in

the *DSM−IV* requirements to determine diagnoses of infants, toddlers, and preschoolers

(Blank, 2007).

Another important conclusion reached by these researchers is that presentations of

trauma symptoms in preschool-aged children are not static; however, the *DSM−IV* criteria

seem to assume that they are. In fact, the previous studies revealed that when presented

over time, symptoms can appear in different combinations. Therefore, unknown or

unreported trauma symptoms are what makes diagnosing PTSD in preschool-aged

children so challenging (Blank, 2007). To address this challenge, evaluation of PTSD in

infants, toddlers, and preschoolers ought to include the following guidelines: (a) acquire a

comprehensive historical past of the trauma with the non-offending parent or caregiver

present; (b) acquire a chronological background of any new signs and symptoms, such as

irritability; determine whether the child reverts to learned behaviors like enuresis or

encopresis that predated the actual trauma; (c) ascertain the consequence the actual trauma

has on the attachment behavior for the child and caregiver(s); (d) use play therapy as a

means of evaluating the toddler; and (e) consider any medical-legal implications (Blank,

2007). An additional evaluation instrument should be introduced, if possible, to delineate

if signs and symptoms are linked to the trauma or whether they are preexisting diagnoses

which could impact the way the trauma is presented (Blank, 2007).

The American Psychiatric Association recommends that clinicians remain vigilant

for warning signs of PTSD. These are found in three key areas: intrusive memories from

an event which can be described by recurring and vivid recollections, or nightmares;

continual, posttraumatic play; and dissociative signs and symptoms such as numbing of responsiveness, withdrawal from activities, trouble getting to sleep, poor concentration, frustration and temper reactions (American Psychiatric Association, 2000; Cuffe et al., 1994). Typically the onset of these conditions may be immediate and intense or delayed for several weeks or even years.

A diagnosis of PTSD may be problematic because chronically traumatized sufferers may refuse to acknowledge difficulties with recall (Cuffe et al., 1994). Indeed, this might be especially true of preschool-aged children. Traumatized preschool-aged children are usually diagnosed with various diagnoses depending on the child's frame of mind on the day he or she is evaluated (Cuffe et al., 1994; Terr, 1991). Among common diagnoses of these children are conduct disorder, borderline personality, major affective disorder, attention deficit hyperactivity disorder, phobic disorder, and dissociative disorder. In addition, traumatized preschool-aged children have signs and symptoms associated with hyperarousal and hypervigilance. These symptoms are frequently observed with problems in attention and hyperactivity, and therefore, these children are often misdiagnosed with ADHD (Cuffe et al., 1994).

Complex PTSD or recurring trauma.

Complex PTSD, or recurring trauma, relies on a variety of clinical affirmations and a developmental conceptual theory that states preschool-aged children diagnosed with this form of trauma are intermittently subjected to interpersonal trauma (Strickler, 2011; van der Kolk, 2005). Van der Kolk, who defined this construct, describes children being subjected to multiple interpersonal traumas or adverse experiences (Whitfield, 1998), which is congruent with the Felitti et al. (1998) hallmark study. Complex trauma is

different from PTSD in that with the former, one traumatic experience builds upon another, while the patient with PTSD has residual trauma that is caused by one acute traumatic episode (van der Kolk, 2005). When individual adverse events "congeal" in the individual, complex trauma is indicated. For this reason, PTSD occurs if the traumatic episode remains untreated (van der Kolk, 2005; Whitfield, 1998).

Complex trauma is indicated when the dysfunction of the adverse event becomes integrated and entrenched as a routine in a child's day-to-day life, causing multiple dysfunctions and difficulties in relationships over time (Fischer & van der Kolk, 2000). In fact, preschool-aged children who have suffered complex trauma exhibit signs and symptoms associated with developmental trauma disorder, which resembles ADHD (Streeck-Fischer & van der Kolk, 2000; Strickler, 2011). These children participate in recurring reenactments of their trauma by withdrawing or bullying others. Furthermore, they often have intense learning difficulties and numerous bodily ailments (Streeck-Fischer & van der Kolk, 2000; Strickler, 2001).

Preschool-aged children confronted with persistent trauma are generally viewed as oppositional or unmotivated because of a fight/flight/freeze mechanism. They grow up to become overly compliant or accommodating and lack mental engagement in social interactions, ultimately becoming disorganized and self-destructive (Strickler, 2011). In addition, persistently traumatized preschool-aged children often experience hyperarousal, even though the traumatic experiences are no longer actual threats. Hyperarousal is a fruitless attempt to avoid recalling the original traumatic events. The result of this hypervigilance may be the possession and/or display of unmanageable anger, frustration, and despair. They also display chronic somatic conditions, are usually oversensitive to

bodily contact, are poorly coordinated, participate in regressed behavior, and may communicate oddly or incoherently, for example, by producing idiosyncratic sounds.

Additionally, they may possess weak body tone, display pseudoseizures, tics, facial grimaces, and respond to stimuli with exaggerated or inhibited startle responses (van der Kolk, 2000). Even under normal, nontraumatic conditions, traumatized preschool-aged children will use play as a method to work through the trauma. This strategy then becomes a standard coping mechanism for them. Clinical presentations of these reactions are a combination of these disintegrated responses and trauma-specific reactions (Streeck-Fischer & van der Kolk, 2000; Strickler, 2011). Quite often these preschool-aged children detach their psyche from reality as a response to the pain endured during the traumatic event. In the same way, this strategy often disrupts their capacity to take part in group play and other fun-based activities.

Another distinctive quality among persistently traumatized preschool-aged children is frequent exhibit of inappropriate affect, restricted behavior, or frozen happiness. In fact, they frequently exhibit inflexible or limited play, which may be observed in their hesitancy to engage in imaginative or make believe play. They also exhibit disorganized attachment to caregivers, which is displayed as lack of awareness and connectedness to them. They also lack resilience to emotional stress, have impaired help-seeking behaviors, affective lability, and tend to seek seclusion from others (van der Kolk, 2005). Traumatized toddlers and preschool-aged children are at increased risk of brain shrinkage, memory loss, and dysregulation of affect. In fact, this risk impacts the regions of the brain responsible for regulating psychological responses to emotional stress, normal speech development, the ability to think abstractly, and to make long-range plans. If left

untreated, these children, when reaching school age, tend to be disorganized, show a lack

of understanding, and display helplessness, withdrawal, or anger when confronted by

emotional stress. Abnormal brain development can also affect the maturation process

among children that survive complex trauma (Cook et al., 2005; Strickler, 2011).

Environmental influences: recurring trauma/adverse childhood experiences.

Preschool-aged children that have encountered trauma frequently display conduct

problems with or without signs and symptoms of mood disorders (Ford et al., 1999;

Strickler, 2011). Such forms of conduct are efforts to produce emotional "armor" when

the individual perceives vulnerability (Ford et al., 1999). However, conduct problems in

traumatized preschool-aged children quite often present as attention deficit hyperactivity

disorder (ADHD) (Ford et al., 1999; Strickler, 2011).

Trauma interacts in a very distinct way with behavioral disorders. Simply stated,

the feelings associated with trauma, such as anxiety and fear, frequently exacerbate

oppositional conduct present in preschool-aged children. This makes the individual prone

to additional trauma, such as perceived vulnerability to becoming revictimized (Ford et al.,

1999; Strickler, 2011). Additionally, hyperarousal and intrusive imagery, along with other

forms of reexperiencing, can stimulate hostility and exacerbate oppositional behavior.

Detachment and numbing can also result from trauma, which is often misidentified as

defiance and then may be associated with oppositional defiant disorder (ODD) (Strickler,

2011). Equally important, reexperiencing emotions associated with hyperarousal

frequently interfere with attention and hyperactivity regulation in preschool-aged children

with ADHD (Ford et al., 1999; Strickler, 2011). The impact of behaviors in these

preschool-aged children poses a diagnostic dilemma since it becomes difficult to

disambiguate behaviors resulting from ADHD from those of PTSD, specifically PTSD resulting from recurring trauma.

Observation of behavior is critical in order to connect diagnostic criteria when diagnosing PTSD. Whether preschool-aged children encounter only one adverse traumatic event or experience several or many, they have a tendency to exhibit the four principal signs and symptoms of PTSD observed as coping strategies (Burke, Hellman, Scott, Weems, & Carrion, 2011; Szymanski et al., 2011). These include vigilance against potential life threatening events, reexperiencing past events, avoidance, and hyperarousal. In addition, they reexperience the actual trauma by means of repeated and intrusive ideas that occur as they play, or trauma may be reflected in their artwork (Ogawa, 2004; Terr, 1991; Strickler, 2011).

Preschool-aged children may be exposed to a variety of traumatic experiences including divorce, witnessing family violence, living with parents with substance addictions, or experiencing physical and sexual abuse. These have been labeled adverse childhood experiences (ACEs) by the Kaiser Permanente Adverse Childhood Experiences (ACE) Study (Felitti et al., 1998). Adverse childhood experiences can occur at any time during a child's development. Experiencing even one can have detrimental effects. These experiences may also change the trajectory of a child's developmental path, leading to mental health disorders manifested in behavioral and emotional changes in adulthood (Felitti et al., 1998).

The term *adverse childhood experiences* (ACEs) was coined during a study conducted by Felitti et al. (1998) in a primary care setting to assess the long-term impact on adults of abuse and household dysfunction during childhood. This study led to a

burgeoning of findings indicating adverse health outcomes for adults that experienced

emotional abuse, physical, or sexual abuse, emotional neglect or physical neglect, and

household dysfunction—domestic violence, alcohol or substance abuse, mental illness,

parental separation/divorce, and incarceration (Felitti et al., 1998).

One of the ways ACEs is important occurs when diagnosing ADHD and complex

PTSD in preschool-aged children. According to Rappley et al. (1999), the childhood

disorder garnering the most attention is ADHD. This is mainly due to the prevalence of

psychotropic medications that primary care physicians prescribe for the treatment of

ADHD in preschool-aged children (Rappley et al., 1999). Conversely, these children may

have complex PTSD or recurring trauma (ACEs) that fits the criteria for the diagnosis of

PTSD (Conway, Oster, & Szymanski, 2011). However because of the lack of ability to

detect complex trauma, primary care physicians often make inaccurate diagnoses

(Rowland et al., 2002).

Adverse childhood experiences (ACEs).

Since Felitti's 1998 landmark study, researchers have associated ACEs with

complex PTSD or recurring trauma (Conway et al., 2011). Bessel van der Kolk (2005),

one of the world's leading trauma experts, developed the term *complex trauma*, which

suggests that environmental insults that occur early in life pose significant risk to the

child's ability to focus and pay attention because such trauma distorts the child's social,

emotional, neurological, physical, and sensory development. In fact, the sharing of

symptoms between ADHD and PTSD among preschool-aged children illustrates the

potential difficulty in making differential diagnoses associated with PTSD and ADHD

(Conway et al., 2011; Ford et al., 2000; Wozniak et al., 1999).

Although the original ACE study (Felitti et al., 1998) included broad categories of child maltreatment, such as abuse, neglect, and family dysfunction, recently researchers have incorporated events such as multiple moves, inconsistent discipline, and conditional love (Steele & Raider, 2001; Strickler, 2011); attempted or completed homicide or suicide, the death of a family member, including pets (Strickler, 2011); and neighborhood violence (Burke et al., 2011; De Bellis, 2001). In other words, these authors suggest that proper assessment of ACEs in a preschool-aged child's development and environment is imperative prior to diagnosing, as it will impact the decision of making a diagnosis of PTSD or ADHD.

To illustrate this point, Burke et al. (2011) recognized that the groundbreaking study by Felitti et al. (1998) provided a rationale for a new study with preschool-aged children. Burke and colleagues based their study on Felitti's original ACE study showing that adults endorsing ACE scores of 4 or more were much more likely to suffer from various chronic diseases than adults who endorsed 0 ACE categories (Felitti et al., 1998). These results demonstrated that there could be a benefit to more accurate diagnosing by observing ACEs from a pediatric perspective.

The rationale for the Burke et al. study had two components: (a) there was no prior study that examined ACE categories among pediatric samples, and (b) no prior study established a similar relationship between endorsement of ACE categories and psychological symptoms in young children that could also lead to groundbreaking information about preschool-aged children (Anda et al., 2008; Felitti, 2002; Felitti et al., 1998). Therefore, the aim for the Burke et al. study was to investigate the prevalence of ACEs in a pediatric population in order to determine whether they could develop a deeper

understanding of time of onset and the impact of trauma on development. The study

hypothesized that further investigation of ACEs might help identify children at risk for

chronic diseases and/or psychological problems during later adolescence and adulthood,

thereby demonstrating the need for accurate early identification of ACEs.

       Equally important, Burke et al. studied the relationship between the prevalence of

ACE categories in an urban population and the psychological and physical outcomes of

learning and behavior problems as identified by the primary care physician. These

correlations were chosen because the children in the study had been identified as having

risk factors for adult chronic conditions (Huntington & Bender, 1993), matching the

environmental stressors adults stated they faced in the Felitti et al. original ACEs study in

1998. The Burke et al. study also indicated that learning/behavior difficulties are

associated with the later development of depression, anxiety, bullying, and suicidality.

       In order to measure environmental factors in childhood resembling the original

Felitti et al. study, Burke et al. selected youth who lived in and around Bayview Hunters

Point in San Francisco because it was recognized as an area where preschool-aged

children were at high risk for exposure to ACEs. The violence in this area is noted as the

leading cause of years of life lost (Northern California Council for the Community, 2004).

Because of the area's history, Burke et al. hypothesized that the majority of youth in this

community would possess one or more ACE criteria and that an ACE score of $\geq$4 would

be associated with a greater chance of a child's being diagnosed with learning and/or

behavior problems and/or obesity.

       Most noteworthy regarding the Burke et al. study were its findings in comparison

to the Felitti et al. ACE study findings. Felitti's original study indicated that the greater

the number of ACEs during childhood, the greater the risk of later health and social

problems in adulthood (e.g., ACE of 0 = minimal risk; 4 or more ACEs = extreme risk)

(Felitti et al., 1998). Similarly, the findings in the Burke et al. study sample indicated that

67.2% (n = 471) of the participants had experienced at least one or more of the nine ACE

categories (i.e., an ACE score ≥ 1), while 12% (n = 84) had experienced at least four. The

study also demonstrated that 3% of the participants with an ACE score of 0 had

learning/behavior problems, while 51.2% of participants with an ACE score ≥ 4 showed

learning/behavior problems. These results, along with current knowledge of the effects of

adverse childhood experiences (complex PTSD or recurring trauma), help demonstrate the

need for obtaining a detailed history and review of the child's environment before making

a diagnosis of ADHD. The learning and behavioral problems being observed could

indicate complex PTSD rather than ADHD.

Implications of ACEs for childhood behavior.

The impetus for this study was based on the profound concern by Rappley et al.

(1999) for the number of preschool-aged children being prescribed medication following a

diagnosis of ADHD. The question arose whether there could be a better explanation for

the increase in ADHD diagnoses of this vulnerable age group. As previously noted, there

is a controversy whether ACEs influence preschool-aged children's behavior. Some argue

that the behaviors are due to ADHD. From this perspective, these behaviors are based on

a biologically based brain dysfunction that requires medication management (Rappley et

al., 1999). Conversely, others argue that the behaviors are the result of exposure to ACEs

(Burke et al., 2011). In the words of Conway, Oster and Szymanski (2011, p 62.), "ACEs

are recurrent traumas leading to PTSD." According to this view, chronic exposure to

environmental assaults becomes complex trauma and will eventually meet the full criteria for PTSD (van der Kolk, 2005). The most significant issue then is whether ACEs, biology, or both, influence preschool-aged children's behavior.

With the indicated risks that ACEs lead to adult mental and physical health maladies, it is important to recognize their signs and symptoms in preschool-aged children, as indicated by the Burke et al. (2011) study, prior to reaching adulthood. However, the ability to distinguish ADHD from PTSD in preschool-aged children via ACEs requires discerning developmentally appropriate behavior. For example, developmentally appropriate preschool-aged children are active, experiential, and exploratory beings; therefore, it is natural for them to be rambunctious. As a result, they are expected to outgrow such behaviors. At the same time, without understanding situational context, such behaviors can be confused with ongoing exposure to adverse environmental experiences and insufficient parenting, factors that can result in behaviors that mirror ADHD (Fewell and Deutscher, 2002). Over the decades, it has been well known by child experts that children are adversely impacted by bad parental behavior (van der Kolk, 2005). What is changing, however, is the increasing understanding that poor parental behaviors can adversely affect the child's brain, especially during the period from birth through early childhood (Felitti et al., 1998; van der Kolk, 2005). Since the Felitti et al. (1998) landmark study, the goals now are not only to understand future outcomes of adults, but to establish methods to reduce the impact of environmental factors on preschool-aged children so as to circumvent future maladies (Burke et al., 2011). Therefore, it is necessary to examine how to distinguish ADHD from PTSD in preschool-aged children utilizing Felitti et al. (1998) ACEs as a guide.

According to Felitti et al., of particular concern is that children's first years of life could be rife with neglect, abuse, or family dysfunction. The Felitti et al. study demonstrated that if children are exposed to neglect, or erratic unpredictable attention, physical abuse, sexual abuse, emotional abuse, family alcohol or drug abuse, domestic violence, or mental illness of a parent, the child subsequently adjusts to life in a way differently from other children. The Felitti et al. original study addressed three major areas that included 10 adverse childhood experiences. The three major areas were (a) household dysfunction, which included family and violence, parental alcohol or drug addiction, parental mental illness, parental separation/divorce, and incarcerated family member/crime; (b) abuse including emotional abuse; physical abuse, and sexual abuse; and (c) neglect which included emotional and physical neglect. In addition, the Burke et al. (2011) study demonstrated that it is imperative to identify such behaviors early in a child's life in order to discern behaviors indicative of either environmental influences or those organic in nature. If the assault is in fact environmental, preschool-aged children will respond with maladaptive behaviors. In other words, the Felitti et al. study can offer a superlative map for distinguishing ADHD from PTSD in preschool-aged children. To illustrate the point, preschool-aged behaviors should be viewed from a social context through the experiences of the child, rather than assuming the behaviors are maladaptive and meet criteria of a childhood behavioral disorder. Thus, Felitti's 10 ACEs described in the 1998 study can now be explained as crucial factors for identifying recurring trauma or complex PTSD in preschool-aged children. To better illuminate how ACEs can assist in distinguishing between ADHD and PTSD, an examination of each individual ACE is required.

Household dysfunction.

Preschool-aged children who observe domestic/family violence exhibit difficulties with interpersonal relationships, develop psychological stress and impaired cognitive performance. However, behaviors that are a result of recurring traumatic events are often assessed in children diagnosed with ADHD as indicated in criterion D, clinically significant impairment in social and academic functioning (*DSM−IV−TR*). Throughout preschool and early elementary school, children who exhibit these types of signs and symptoms are difficult to diagnose (Liberman, Van Horn, & Ippen, 2005).

A family generally encounters problems whenever one of its members has a chemical addiction problem (Carmichael & Lane, 1997). It is thought that preschool-aged children of alcoholics experience stress as a result of observing behaviors that are a result of addictions. These same children exhibit signs and symptoms connected with aggression, lack of control, and impulsivity (Carmichael & Lane, 1997). Such symptoms often lead to feelings of humiliation, sadness, fears of desertion, thoughts of worthlessness, and psychological lability. Often, these preschool-aged children will be untrusting, will attempt to fulfill inflexible role requirements, and display problems with self-control and self-regulation (Carmichael & Lane, 1997). These types of behaviors are also frequently assessed in children diagnosed with ADHD indicated on criterion A, clinically significant impairment in social and academic functioning (*DSM−IV−TR*).

Even though every child's experience is unique, if he or she lives with a mother or father that has a severe mental illness (SMI) or PTSD, the child may experience shamefulness, lonesomeness, and become frightened (Sherman, 2007). Whenever anyone within the home has mental health problems, everybody can be impacted. Younger

members of the family frequently become parentified by taking on the caretaker role of

their parents, while also experiencing anxiety, frustration, humiliation, and even

hopelessness (Sherman, 2007).

Youth growing up with parents that struggle with psychological difficulties have

increased probabilities of experiencing behavioral/emotional difficulties because of

hereditary variables and difficult psychosocial encounters in the environment (Nicholson,

Biebel, Katz-Leavy, & Williams, 2004; Sherman, 2007). They may be prone to

developmental delays, poorer academic functioning, and difficulties with peers (Sameroff

& Seifer, 1983; Sherman, 2007; Weintraub & Neal, 1984). These symptoms can be

mistaken for a behavioral disorder, often leading to a presumption that they meet criterion

D of ADHD, clinically significant impairment in academic, occupational and social

functioning *(DSM--IV-TR)*. Changes in family constellations and configurations may

also cause adjustment problems in the child that can impact memory, learning ability,

impulse control, and comprehension (Sherman, 2007). In addition, should the child have

to be separated from the parent while hospitalized, he or she may experience problems

with memory, comprehension and impulse control, thereby mirroring criterion A of

ADHD, clinically significant impairment in social and academic functioning

(DSM--IV-TR).

Preschool-aged children whose mothers and fathers separate and divorce can

frequently develop low self-esteem and experience, anger, guilt, anxiety, worry, and

sadness. They are inclined to encounter additional behavioral problems through

interpersonal relationships and show deficiencies in educational skills when contrasted

with peers that live in two-parent households (Kenny, 2000; Strickler, 2011). Preschool-

aged children with histories of parental break up or divorce may display significant

episodes of acting-out as well as general maladjustment problems (Felner, Ginter, Boike,

& Cowen, 1981; Felner, Stolberg, & Cowen, 1975). According to the Felner et al. (1981)

study of divorce, preschool-aged children were evaluated by their teachers as having

poorer academic abilities than others. Feelings of inadequacy, frustration, and the lack of

peer sociability also give rise to acting-out. Symptoms such as these have their genesis in

the family environment, but often lead the child to meet criteria A and D of ADHD,

hyperactivity-impulsiveness, frustration, and clinically significant impairment in

academic, occupational and social functioning

(DSM--IV-TR).

Several investigators posit that living within crime-infested communities, families

living in poverty or households with drug abuse and physical violence tend to be of greater

consequence to children of incarcerated parents than the direct effect of the parent's

imprisonment (Gabel & Shindledecker, 1993; Miller, 2006). The literature also contends

that there is a high likelihood that a large number of children who experience cognitive

delays and developmental regression, and display unacceptable coping strategies, do so for

the same environmental reasons (Child Welfare League of America, 1998; Miller, 2006).

Johnston (1995c) indicated that 2-to-6-year-old children could be the most affected by

separation from their mothers, a cohort that is most likely to be placed in foster care. A

preschool-aged child separated from his or her incarcerated parent can feel overwhelmed,

which can change the trajectory of the child's educational development and sociability.

Such preschool-aged children often have difficulty coping in the classroom setting.

Behaviors such as these often meet criterion D for ADHD, clinically significant

impairment in academic, occupation and social functioning *(DSM−IV−TR).*

Criminality in the family may cause a preschool-aged child to regress to more

primitive behaviors, especially if the child witnessed the arrest of a family member

(Myers, Smarsh, Amlund-Hagen, & Kennon, 1999). The child will likely have difficulties

effectively completing developmental steps like developing attachments, building trust,

developing autonomy, motivation, productivity, and attaining an identity (Miller, 2006;

Seymour, 1998). Preschool-aged children of incarcerated parents may experience PTSD

symptoms that are more severe than those of children whose parents have died (Breen,

1995; Miller, 2006). Preschool-aged children of incarcerated parents continue to long for

the relationship they lost. The preschool-aged child whose parent is deceased is better

able to resolve the separation, mourn the loss, and eventually move on (Miller, 2006).

Abuse.

Emotional maltreatment occurs within a majority of physical abuse circumstances,

but the effect on development is different from other types of maltreatment (Claussen &

Crittenden, 1991; Kaplan, Labruna, & Pelcovitz, 1999). Emotional abuse and neglect are

probably the most common types of maltreatment suffered by preschool-aged children.

Emotional maltreatment has been generally regarded as significantly less detrimental

compared to physical maltreatment. In addition, it is usually tougher to assess in contrast

to physical abuse, which often will provide visible signs of injury (Kaplan et al., 1999).

However, the investigation by Kaplan et al. (1999) suggests that emotional maltreatment

could affect long-term psychological functioning when compared to other forms of

maltreatment. Regression analyses have indicated that emotional abuse is a more

substantial predictor (opposed to physical maltreatment) of a myriad of difficulties. Signs of these difficulties may include internalizing and externalizing maladaptive behaviors, social impairment, low self-esteem, suicidal behavior, and current and prior psychiatric diagnoses and hospitalizations (McGee, Wilson, & Wolfe, 1997; Mullen, Martin Anderson, Romans & Herbison, 1996; Kaplan et al., 1999; Vissing, Straus , Gelles, & Harrop, 1991;). Such behaviors often lead the child to meet criterion D of ADHD, clinically significant impairment in social and occupational functioning *(DSM−IV−TR)*.

Corcoran (2000) observed that physically maltreated preschool-aged children typically exhibit behavioral problems that include deficiencies in interpersonal relationships, competencies, impulsivity, and focus. These difficulties subsequently lead to poor educational accomplishment, often because children fear their peers or adults will discover or learn about the physical abuse. In these cases, the fear is that the discovery could result in the child's removal from the parent and home. These children often present with sadness, frustration, and poor self-esteem (Corcoran, 2000).

Mistreated preschool-aged children are likely to display anxiety and inattention, and may seem weak or passive when troubled (Horton & Cruise, 1997). Additionally, physically maltreated children have a tendency to lack motivation in educational settings and frequently exhibit problems with tasks that require intellectual challenges in the classroom (Corcoran, 2000). Physically abused preschool-aged children do not usually articulate problems at home while they are in the classroom. However, when they lose motivation in the classroom and display learning problems, their behaviors often meet criterion D for ADHD, clinically significant impairment in academic, occupation and social functioning *(DSM−IV−TR)*.

Preschool-aged children generally will replicate the adult offender's actions by sexually acting out (Rasmussen & Cunningham, 1995). Preschool-aged children that exhibit problems as a result of sexual maltreatment can display poor self-esteem, anxiousness, sadness, worry, hypervigilance, elevated arousal, frustration, alienation, lack of control, self-injury, greater belief that the world is threatening, and feelings that they are damaged or worthless (Horton & Cruise, 1997). The behaviors displayed by preschool-aged children, although traumatic, are often viewed as behaviors indicative of ADHD (e.g., hypervigilance = hyperactivity). Such preschool-aged children often meet criterion A-2 hyperactivity of ADHD: (frustration and elevated arousal) *(DSM−IV−TR)*.

Neglect.

Preschool-aged children that have been psychologically mistreated or ignored endure numerous difficulties and impairments (Glaser, 2002). Emotional abuse and neglect represent an ongoing connection involving the parent/caregiver and the child rather than being the result of a single event or a number of recurring events. The connections may be destructive simply because there is no one to assist with the child's psychological/emotional health and development. Emotional abuse and neglect can consist of omissions in addition to commissions without any abusive physical contact (Glaser, 2002).

Glaser (2000) has identified a number of types of emotional maltreatment. These may be verbal and nonverbal aggressive rejecting/degrading, terrorizing, exploiting/corrupting, denying, isolating, and the neglect of providing necessities (Glaser, 2002). These forms of emotional neglect cause a preschool-aged child to become stressed, worried, and restless. They also promote conduct problems associated with opposition,

attention seeking, academic underachievement, inadequate peer relationships, and disregard of physical appearance (Glaser, 2002).

There are numerous similarities between the effects of emotional abuse and neglect and physical neglect. The latter consists of a lack of supervision (Barnett, Manly, & Cicchetti, 1993; Glaser, 2002), which often results in the absence of necessities being provided to the child to ensure that the child is in the home at a safe hour, eats healthful food, completes homework assignments, and leaves for school on time (Glaser, 2002; Maslow, 1948). The consequence of this form of neglect can lead a child to develop chronic emotional states of distress, worry, and uneasiness. Typical conduct problems in these cases are the same as emotional neglect (Glaser, 2002). This type of neglect carries the burden which often resembles criteria A 1 and 2 and clinically significant impairment in academic and social functioning criterion D of ADHD *(DSM−IV−TR)*.

Representativeness heuristic (non-ACEs).

Although pediatricians and clinical child psychologists are required to use the *DSM−IV* criteria when assessing and diagnosing ADHD, many do not. Conversely, many use non-clinical assessment methods. As previously discussed, pediatric research in office settings (PROS) conducted a study that indicated that *DSM−IV* criteria were only being used by 38% of 3,900 primary care clinicians surveyed (Wasserman et al., 1999). Wasserman et al. presumed from the PROS data that the remaining 62% of primary care physicians surveyed based their diagnoses on "clinical intuition" or some other nonstandardized form of assessment (Rowland et al., 2002).

Clinical prototypes (non-ACEs) or intuitions are non-systematic assessments doctors use in order to arrive at a diagnosis (Bruchmuller, Margraf, & Schneider, 2012).

The Bruchmuller et al. (2012) study revealed that clinicians use prototype diagnosing or hunches that may match features of a person who has been diagnosed previously with a disorder. Non-ACEs determined to be used by clinicians when diagnosing ADHD are age, race, gender, socioeconomic status, previous diagnosis, and insurance. These psychological intuitions are methods of following hunches or applying a prototype, or beliefs to arrive at a diagnosis rather than using sanctioned diagnostic criteria. According to Bruchmuller et al. clinicians who use this method forgo useful and practical assessment and diagnosing techniques for speedy results. Such intuitions cannot be rationally justified (Bruchmuller et al., 2012; "Intuition", 2013).

The Bruchmuller et al. study labeled these prototypes as representative heuristics and further demonstrated that clinicians are likely to diagnose based on such heuristics and vague rules of thumb rather than following recognized diagnostic criteria. Representativeness heuristic is a form of decision making where the clinician views the patient as having similar salient features as other ADHD children (Bruchmuller et al., 2012; "Representativeness Heuristic," 2013). The problem with representativeness heuristic assessment is that the diagnoses are probably wrong. In addition, assessments such as these that subsequently result in an ADHD diagnosis might lead clinicians to overlook certain exclusion criteria (Bruchmuller et al., 2012).

The impetus behind Bruchmuller et al. study was based on the vast number of children being diagnosed with ADHD and the overwhelming ratio (9:5) male:female receiving the diagnosis (Bruchmuller et al., 2012; Gershon, 2002). The numbers suggest that more boys than girls receive diagnoses for ADHD. Furthermore, differences between the percentage of boys receiving an ADHD diagnosis and that of girls was primarily

explained based on the expression of the disorder between the two genders rather than anything else. For example, girls with ADHD show fewer conduct problems and are less impulsive than boys (Bruchmuller et al. 2012; Hartung, Lynam, Martin, & Milich, 2002; Newcorn et al., 2001). Although the assumption may be that boys are more likely to have ADHD, a recent study conducted by Biederman et al. (2005) failed to find any gender differences in the expression of ADHD between boys and girls. Because of this dilemma, the Bruchmuller et al. study measured the tendency of clinicians to diagnose ADHD in boys more readily than in girls even if each gender exhibits the same symptoms.

The Bruchmuller et al. study is based on the PROS data indicating that in clinical routine clinicians do not firmly adhere to the diagnostic criteria of the *DSM−IV*, but have the tendency to use clinical judgment that is affected by heuristics and biases (Bruchmuller et al., 2012). In addition, clinicians base their unqualified judgments primarily on principles of likeness (Tversky & Kahneman, 1974) without taking other evidence into consideration. Such practices indicate that all diagnostic criteria are not weighed equally. In contrast, clinicians weigh diagnostic criteria according to their subjective assumptions about ADHD (Bruchmuller et al., 2012; Kim & Ahn, 2002). Moreover, the use of heuristics is a possible explanation for a potential misdiagnosis or overdiagnosis of ADHD, as clinicians use a prototypical approach when diagnosing (Bruchmuller et al., 2012), such as applying partial *DSM−IV* criteria, then rendering the full diagnosis, even though it does not fully meet *DSM−IV* criteria.

The Bruchmuller et al. study sought to determine whether clinicians based their ADHD diagnosis primarily on the most noticeable symptom criteria and therefore rendered a diagnosis of ADHD, leading to either an inaccurate or inappropriate diagnosis.

In addition, they wanted to conclude whether boys received an ADHD diagnosis more frequently than girls even if the girls' symptoms exhibited were the same. The findings of their study confirmed that boys are diagnosed more frequently than girls even though the presentation of symptoms are the same. Findings also indicated an influence on gender, demonstrating that the odds of clinicians rendering a diagnosis of ADHD for a boy were more than twice as high than they were for a girl. In addition, the gender of the child was a significant predictor of a diagnosis of ADHD, concluding that representativeness heuristic plays a large role in how a significant number of clinicians diagnose the disorder.

It is well known that nearly 65% to 85% of pediatric and family physicians render the initial diagnosis of ADHD in primary care settings (Fremont, Nastasi, Newman, & Roizen et al., 2008; Morley, 2010). This appears to be done due to the lack of referral resources to specialty services for a suspected child for appropriate assessment, diagnosis, and treatment for ADHD (Leslie & Wolraich, 2007; Morley, 2010). Because of this, diagnosis and treatment are left in the hands of primary care physicians. In addition, 70% of primary care physicians have been found to use inappropriate methods of diagnosing ADHD, such as using the child's behavior on the day of the visit as a measure to diagnose (Lanham, 2006; Morley, 2010). In the same way, disparities such as race, gender, socioeconomic status, previous diagnosis, and insurance are factors that create additional variability in diagnosing (Morley, 2010).

Concerned with patient characteristics contributing to a diagnosis of ADHD in primary care practices, Morley (2010) conducted a vignette-based factorial web survey. Two social factors were investigated to determine the probability of a diagnosis of ADHD in children by primary care physicians. The findings of the study indicated that neither

race nor insurance status appeared to be an independent predictor of a diagnosis.

However, similar to findings in the Bruchmuller et al. (2012) study, boys were a strong

predictor of an ADHD diagnosis and nearly three times more likely to be diagnosed than a

girl (Morley, 2010; Stevens, Harman, & Kelleher, 2005).

Since there are no definitive organic markers that can determine an ADHD

diagnosis, and given the increasing rates that a diagnosis is being made for preschool-aged

children, how can an increase be rationalized? Are health professionals more astute in

identifying symptoms? Are they being overly influenced by the plethora of information

about the signs and symptoms of ADHD so that their diagnoses become self-fulfilling

prophecies based on their expectations? In other words, are clinicians anticipating an

ADHD diagnosis when observing certain behaviors without making thorough evaluations?

Though ADHD is a valid diagnosis, the rates of the diagnosis in preschool-aged children

is unusual and a cause for concern, particularly when signs and symptoms of ADHD

overlap or may suggest PTSD symptoms. Additionally, the socio-cultural milieu of

poorer children are rife with incidents that can lead to PTSD, but have the highest

incidence of ADHD diagnoses.

The symptoms in preschool-aged children that result in the diagnosis of ADHD

arise, in part, from environmental factors like domestic violence, physical abuse, sexual

abuse, substance abuse, and foster care placement. Although interpreted as ADHD

symptoms, they are not necessarily reflective of ADHD, but may be a result of PTSD.

Besides the fact that preschool-aged children with PTSD or ADHD may display external

behaviors, it may be hard for clinicians to disambiguate due to similar symptomatology.

Without being able to accomplish the task of distinguishing between ADHD and ordinary

childhood behavior, too much over-identification of ADHD-type signs and symptoms can hinder recognizing developmentally acceptable socialization, which further muddles a diagnosis, and pushes it even further away from a plausible PTSD diagnosis. What may be overlooked is that preschool-aged children are more vulnerable to the effects of trauma and are more likely to develop perseverative behaviors as a reaction to environmental trauma than other age groups.

In addition, the current *DSM* is sorely deficient in providing a way to assess PTSD in preschool-aged children, because very young children do not possess the communication skills necessary to report behaviors and cognitions that would be helpful in assessing their condition. Though the *DSM−IV* has attempted to include the particular symptoms that may indicate a diagnosis of PTSD, it fails to include a sufficiently broad spectrum of symptoms that could result in a more robust diagnosis if they were included in the assessment. Additional symptoms like bed-wetting, a lack of curiosity about their immediate environment, or developmentally inappropriate activities would be more inclusive of a diagnosis for preschool-aged children. In short, the broad spectrum of behaviors, demeanors, communication style, fantasy life, anxiety, depression, and developmental delay, etc., that could indicate signs and symptoms of PTSD are simply not addressed in the diagnostic criteria.

The presence of only cursory guidelines that the *DSM* provides for examining possible PTSD in preschool-aged children is complicated by the fact that they rely heavily on the signs and symptoms of adult PTSD, which are not reliable or valid when applied to preschool-aged children. This is because of a number of reasons: (a) atypical behaviors and cognitions in adults are easier to diagnose; (b) the "universe" of behaviors and

cognitions of adults with PTSD are both narrower in scope than those in preschool-aged children and easier to discern than those in preschool-aged children; (c) it is far easier to take a case history of the individual, and for the individual with PTSD to articulate his or her feelings; and (d) experiences that result in PTSD among adults are more readily available because there is usually a more elaborate and specific record of events that cause the PTSD, such as military records, criminal records, and academic records, none of which assists a clinician in diagnosing preschool-aged children. Because of the lack of definitive compatible symptoms with PTSD, this type of uncertainty may lead clinicians to lean on what is familiar when diagnosing disruptive childhood behavior, ADHD.

Regardless, it does a disservice to children that may be suffering from PTSD to simply take the attitude that the clues to their behaviors and emotions are in a preverbal "black box" in which evidence may exist but is doomed to remain unknowable. It is also a disservice to provide a diagnosis of questionable validity because traumatic events may have occurred during a preverbal stage of development, and conclude that the child does not have the competency to draw correlations between traumatic events and symptoms that arise as a result of them. Without reliable criteria to diagnose this group, preschool-age children with PTSD may slip between the diagnostic cracks or may be misdiagnosed due to behavioral similarities to ADHD, therefore matching a presumed prototype. The result could be dooming a child to a life colored by the deleterious effects of PTSD.

A full battery of testing to arrive at an appropriate diagnosis is necessary, whether a pediatric primary care physician or clinical child psychologist does the evaluation. Though families may turn to pediatricians as the first professionals in seeking an opinion regarding their child's behavior, a referral to a competent mental health professional in

psychological diagnoses is necessary. This is important because of the nature of PTSD. PTSD may have comorbid psychological conditions like mood problems, behavioral issues, attachment difficulties, anxiety symptoms, and eating disorders (Strickler, 2001). Moreover, medical professionals and psychological professionals have two different foundations of training and seek to resolve symptoms differently. To continue with two separate standards of practice for how ADHD is diagnosed does not benefit the preschool-aged child. Since pediatrics and psychology view ADHD through different lenses, the danger of obtaining diverging diagnoses is a strong possibility. Due to the severity of outcomes imposed on the developing brain of a preschool-aged child, no clinician should be called upon to provide services outside the scope of their training. If the expectation that a clinical child psychologist should not be called upon to diagnose and treat otitis media (middle ear infection) in a preschool-aged child, a pediatrician should not be called upon to diagnose and treat ADHD or PTSD in a preschool-aged child.

Overlapping signs and symptoms of the two disorders are another issue. The symptoms are vastly similar and create a diagnostic dilemma. Symptoms of focusing, disorganized or agitated behavior, and impulsivity (ADHD) are often confused with hyperarousal and hypervigilance (PTSD) in preschool-aged children and likely result from recurring traumatic experiences in the environment, rather than biological characteristics. Because of the complexity in discerning whether a child exhibits symptoms of ADHD or PTSD, or both, there needs to be further discussion of whether the current *DSM* criteria provide competent guidelines for clinicians to render an accurate assessment from among the three possible diagnoses. Moreover, it is necessary to complete a full psychosocial assessment of the child's environment and family dynamics prior to rendering a diagnosis.

This is significant because misdiagnoses can lead to unhelpful treatments or even mistreatments, and consequently failed outcomes.

The evolution of preschool-aged children's behaviors is just coming to the forefront and yielding a clearer perspective on the etiology of symptoms, which can better describe their constellations of behavior now recognized as ADHD, as recurring trauma or complex trauma. In doing so, mistaken psychostimulant treatment protocols can be averted and directed toward empirically-based treatments such as trauma-focused cognitive behavioral therapy (TF-CBT) as the treatment protocol. Adverse childhood experiences (ACEs) have become prominent in understanding the etiology of preschool-aged childhood behavior. Because of this, it is widely recognized that recurring trauma or complex PTSD incur from ACEs and produce behaviors that mimic traditionally known childhood disorders such as ADHD. In addition, ACEs from chronic environmental assaults, combined with family biological characteristics, influence a preschool-aged child's behavior and possibly lead to disruptive behavior. Preschool-aged children are resilient, but trauma created due to ACEs disrupts normal thinking and behavior of a developing child's brain, therefore reduces resilience. This is important because when ACEs are recognized as potential traumatic experiences, they can direct the clinician's diagnosis and treatment based on trauma exposure, rather than treatment focusing on medication for the behavior.

Research Questions and Hypotheses

Clinical child psychologists and pediatric primary care physicians are the gatekeepers of mental health care services for preschool-aged children. We therefore question, do they make the "appropriate" diagnosis when presented with ADHD and PTSD symptomology of preschool-aged children with behavioral difficulties?

Additionally, we wanted to understand the method of how clinical child psychologists and pediatric primary care physicians arrived at their diagnosis. Therefore, we queried, if when presented with similar symptomology of preschool-age children with behavioral difficulties, what salient ACEs factors (i.e., neglect, emotional, physical, and sexual abuse, separation from parents, and witnessing domestic violence) (Felitti et al., 1998) and non-ACEs factors (i.e., age, race, gender, insurance, and social economic status) (Fewell & Deutscher, 2002) are used to determine a diagnosis of PTSD or ADHD?

The first research question explored the foundations of the ADHD diagnosis and followed the practice parameters for determining a diagnosis. The practice parameters for the AACAP and the AAP require the diagnosing clinician to rule out all possible diagnoses or comorbidities prior to reaching the ADHD determination (American Academy of Child and Adolescent Psychiatry, AACAP, 2007; American Academy of Pediatrics, AAP, 2011).

H_1: The frequency of an ADHD diagnosis will be greater than the

frequency of a PTSD diagnosis.

H_{1a}: When the presentation is "true" ADHD, PCPs will more often

diagnose ADHD and CCPs will more often diagnose ADHD.

H_{1b}: When the presentation is "true" PTSD, PCPs will more often

diagnose ADHD and CCPs will more often diagnose PTSD.

H_{1c}: When the presentation is "subthreshold" ADHD, PCPs will more

often diagnose ADHD and CCPs will more often diagnose ADHD.

H_{1d}: When the presentation is "subthreshold" PTSD, PCPs will more

often diagnose ADHD and CCPs will more often diagnose ADHD.

H_{1e}: When the presentation is a neutral childhood diagnosis (e.g.

adjustment disorder), PCPs will more often diagnose ADHD and

CCPs will diagnose adjustment disorder.

The second research question focused on the salient factors (ACEs and non-ACEs)

clinical child psychologists and pediatric primary care providers use to determine the

selection of PTSD or ADHD as diagnoses for preschool-age children. Rushton, Fant, and

Clark (2004) assert that many pediatric primary care physicians do not use the *DSM−IV*

and AAP practice guidelines when assessing preschool age children. The clinicians'

orientation seems towards utilizing age, race, gender, insurance, social economic status,

and verbal reports (non-ACEs) as primary support in determining their diagnoses (Fewell

& Deutscher, 2002). Handler and DuPaul (2005) assert that many clinical child

psychologists utilize rating scales, extensive historical backgrounds, psychological testing,

and resources from specialized training to definitively identify and support their diagnoses

(ACEs).

H_2: Pediatric primary care physicians use non-ACEs when determining a diagnosis

of ADHD or PTSD as compared to clinical child psychologists who use

ACEs.

H_{2a}: Non-ACEs will predict PCPs' diagnosis of "true" ADHD,

while ACEs will predict CCPs' diagnosis.

 H_{2b}: Non-ACEs will predict PCPs' diagnosis of "true" PTSD,

while ACEs will predict CCPs' diagnosis.

H_{2c}: Non-ACEs will predict PCPs' diagnosis of "subthreshold"

ADHD, while ACEs will predict CCPs' diagnosis.

H_{2d}: Non-ACEs will predict PCPs' diagnosis of "subthreshold"

PTSD, while ACEs will predict CCPs' diagnosis.

H_{2e}: Non-ACEs will predict PCPs' diagnosis of a neutral

childhood diagnosis (e.g., adjustment disorder), while ACEs

will predict CCPs' diagnosis.

Method

Overview

This research was conducted to determine if, when presented with similar symptomatology, pediatric primary care physicians and clinical child psychologists were able to distinguish between ADHD and PTSD in preschool-aged children (ages 3 to 5). This distinction was necessary given the refinement of the language criteria in the *DSM−IV* from *severe* to *maladaptive* behavior persisting over a 6-month period and the age of onset to include *some* symptoms causing impairment before 7 years to make the diagnosis of ADHD (American Psychiatric Association, 1994; Fewell &Deutscher, 2002). The change in language and symptom changes seem to have resulted in an increase in ADHD diagnoses of preschool-aged children and a corresponding increase of treatment with psycho-stimulants (Rappley et al., 1999) for behavioral control to help assure readiness for grade school (Wolraich, 2006). There was a growing concern that pediatric primary care physicians were not using the *DSM−IV* in diagnosing, leading to possible misdiagnoses (Fewell &Deutscher, 2002). Wolraich, (2006) stated that a misdiagnosis of ADHD in preschool-aged children often leads to unnecessary prescribed psychotropic medications and ineffective treatments.

Research Design

The present work used a cross-sectional design with five vignettes. The vignette method allowed the researcher to manipulate descriptors regarding symptoms, environment, family history and composition. Such features were methodically controlled in order to evaluate the factors that affect respondents' judgments (Martin, 2006). The

cross-sectional design allowed for the comparison of diagnosing differences between pediatric primary care physicians and clinical child psychologists (Hall, n.d.).

Participants

The participants in this study included 16 pediatric primary care physicians and 17 clinical child psychologists, all of whom work or have worked with preschool-aged children. A database containing all licensed medical professionals in the United States, Doctor Database.com, was utilized to sample prospective participants. Information regarding prospective participants in the databases compiled by Doctor Database uses demographic, practice location, specialty, and license type of medical professionals submitted to state and government authorities in order to practice.

Inclusion/Exclusion Criteria

To be eligible to participate in this study, pediatric primary care physicians were required to be board certified in pediatrics and hold a M.D. or D.O. degree. Clinical child psychologists that participated were required to be licensed and have a Ph.D. or Psy.D. degree in clinical psychology and work with preschool-aged children. Finally, each participant was required to have worked with and diagnosed ADHD and PTSD in preschool-aged children.

Recruitment

Prospective participants meeting the criteria were sorted from the downloaded Doctor Database to create a mailing list. Three thousand recruitment letters were sent to prospective pediatric primary care physicians and clinical child psychologists, 1,500 each. The Physician Database for Pennsylvania contained 4,778 prospective Pediatricians. The Therapist Database (clinical child psychologists) for Pennsylvania (173) indicated a

paucity of clinical child psychologists; therefore, surrounding states (New Jersey and New York - 878) were sampled to achieve the expected number of participants. California (444) was added in order to reach 1,500 participants. Mailing lists were created from a downloaded Excel file. The recruitment letters provided a brief description of the study, purpose of the study, along with the criteria for participation, and the SurveyMonkey URL link to access the study. The letter also contained instructions regarding the automatic redirect that returned the survey to the researcher following its completion.

Instruments

The five vignettes in this study were piloted and validated by utilizing a team of five mental health professionals who described themselves as clinical child psychologists and psychiatrists who diagnose children and adolescents and work with ADHD and PTSD in preschool-aged children. Evaluators worked independently and were e-mailed the SurveyMonkey link to access the five vignettes with the exact instructions a participant would receive. Each case was numbered, and evaluators were unaware of the actual diagnosis during the pilot phase. Results from evaluators were then compiled by the researcher and distributed to each evaluator. Evaluators were also sent the diagnosis of each vignette, and how each was constructed to meet the *DSM−IV* criteria. Evaluators were then asked to review any diagnosis missed and how could it meet the *DSM−IV* better. Feedback was gathered via independent discussion with the researchers. Recommendations were recorded and distributed for a consensus diagnosis for each case. The vignettes that attained agreement in diagnosis were validated as the case diagnosis.

Five scenarios resulted from the validation team; one of each "true" ADHD and PTSD conditions, one of each subthreshold ADHD and PTSD conditions, and one neutral

childhood disorder condition. The vetting of the cases ensured strong interrater reliability and validity of each case presented to the participants.

Measures

The vignettes were the measures for this study and included information on somatic, psychiatric, social, and functional aspects of the patient. The information was presented as coming from the patient's history. The vignettes did not include laboratory tests, psychological tests or other diagnostic procedures. By choosing similar multi problem vignettes, the number of ACEs versus non-ACEs that influenced variation in diagnostic practices maximized other sources of difference, such as specialists' training.

The vignettes employed in this research were derived from five cases observed by licensed specialists at an outpatient facility committed to trauma-informed behavioral health services to children. In an effort to protect the confidentiality of the preschool-aged children that served as case histories, the investigator created pseudonyms and modified demographic information that might potentially lead to their identification. The details within the outpatient records have been used to develop a passage outlining each scenario. All five of the conditions utilized parent reports such as the Child Behavioral Checklist and University of California, Los Angeles (UCLA)-PTSD Index. "True" and subthreshold conditions were used to simplify the identification of ACEs utilized in the decision making process of diagnosing preschool-aged children. Each "true" ADHD and PTSD vignette was developed to ensure that each vignette met the criteria delineated in the *DSM−IV−TR*.

Procedures

Prospective participants were sent a recruitment letter (Appendix A) inviting them to participate in the study. The recruitment letter gave a brief description, purpose of the study along with the criteria for participation and an email address regarding the researcher. Respondents meeting the inclusion criteria accessed the SurveyMonkey URL link. After entering the SurveyMonkey URL Link, prospective subjects were given instructions for completing the vignettes, length of time to complete, and how to return completed data.

Each participant received the same five vignettes. After the SurveyMonkey URL link was opened, the participant was given further instructions for answering the questions for each vignette (Appendix C) and completing the demographic questionnaire. Following the introduction, the participant clicked "next" to enter the study module. Participants viewed a vignette that they diagnosed and selected all salient factors (ACEs and non-ACEs) that assisted them in arriving at their "best" diagnosis. The remaining vignettes followed in succession with the same format. SurveyMonkey was the web-based instrument used for this study. It is one of the world's most popular online survey tools. It allowed the researcher to obtain sought-after data by developing customized surveys with response validation and custom redirect after the survey was completed.

Upon the completion of the diagnostic tasks, participants were requested to complete a questionnaire that asked for information regarding their education, specialty area, number of years in practice, and training foundation for making behavioral diagnoses with preschool-aged children. Participants were instructed not to reveal specific names of training institutions, work affiliations, or any other information that could compromise

their anonymity. Participants were also asked to assess their own level of comfort with the treatment of early childhood behavioral conditions.

Statistical Analyses

Clinical child psychologists and pediatric primary care physicians are responsible for diagnosing preschool-aged children who present with childhood behavioral difficulties and making the appropriate diagnosis. To test the first hypothesis, i.e., that the frequency of an ADHD diagnosis will be greater than the frequency of a PTSD diagnosis, five chi-square analyses were conducted to determine the frequencies of observed versus expected diagnoses of the child described in the vignettes by pediatric primary care physicians and clinical child psychologists.

To test the second hypothesis, i.e., that pediatric primary care physicians would more often use non-ACEs when determining a diagnosis than clinical child psychologists, five binary logistic regression analyses were conducted to predict what ACEs or non-ACEs contributed to a diagnosis of ADHD or PTSD. This model used a hit or miss success scale in discriminating ADHD from PTSD.

The *t test* is a universally used technique to assess the differences in means between two groups. This test was utilized to compare differences between the two sample groups in their educational and training background, specialty area, and years of practice making behavioral diagnoses of preschool-aged children.

Results

Table 1 shows the results from a between-subjects *t*-test to compare the means of

clinical child psychologists and pediatric primary care physicians in variables working

with preschool-aged children. Each area of comparison indicated no difference between

the mean score between clinical child psychologists and pediatric primary care physicians.

Table 1.

*t Test Differences of Means Comparison Between Clinical Child Psychologists
and Pediatric Primary Care Physicians*

Category	Clinician Group	*n*	Mean	Leven's Test for Equality of Variance	t Test of Equality of Means	Mean Difference
Clinician	CCP	17	1.7	.397		.831
	PCP	16	.88			
Specialty	CCP	17	1.0	.167		.000
	PCP	16	1.0			
Years'Exp	CCP	17	16.2	.003		-2.96
	PCP	16	19.2		.121.	
ADHD Age	CCP	17	7.5	.740		.342
	PCP	16	7.2			
PTSD Age	CCP	17	7.4	.941		.099
	PCP	16	7.3			
ADHD/Month	CCP	17	4.4	.103		-1.78
	PCP	16	6.2			
PTSD/Month	CCP	17	2.5	.866		.033
	PCP	16	2.4			
ADHD Eval	CCP	17	9.2	.737		-.761
	PCP	16	9.9			
PTSD Eval	CCP	17	5.3	.412		1.23
	PCP	16	4.1			

*Note. ADHD = attention deficit hyperactivity disorder; PTSD = posttraumatic stress disorder; CCP= clinical child
psychologist; PCP =pediatric primary care physician; n = number; Exp = experience; Eval = evaluations.*

Hypothesis: The frequency of an ADHD diagnosis will be greater than the frequency of a PTSD diagnosis.

As shown in Table 2, 4 chi-square tests were individually performed on vignettes 1 through 4 for comparing the diagnoses of clinical child psychologists and pediatric primary care physicians. Vignettes 1 (ADHD), 2 (PTSD*st*) and 4 (ADHD*st*) have *p* values > .05. No differences were found between clinician groups and selection of diagnosis with vignette 1 (X^2 (1, $N = 28$) = 2.2, p = .136), vignette 2 (X^2 (1, $N = 28$) = .90, p = .343, and vignette 4 (X^2 (1, $N = 28$) = 2.8, p =.097). Vignette 1, true ADHD, had a nearly equal ratio, 13 appropriately diagnosed and 15 inappropriately diagnosed.

Vignette 3 (PTSD) had a significant difference between clinician group and diagnosis, X^2 (1, $N = 28$) =5.2, p = .023. Twelve of 13 clinical child psychologists made the vetted (PTSD) diagnosis, whereas eight of 15 pediatric primary care physicians made the vetted (PTSD) diagnosis. A chi-square analysis could not be performed on vignette 5 (RAD) because neither clinical child psychologists nor pediatric primary care physicians made the vetted diagnosis.

Ambiguous symptomatology and diagnosing.

The respondent data ($N = 28$) from clinical child psychologists and pediatric primary care physicians when presented with similar symptomatology for ADHD and PTSD, vignettes 2 (PTSD*st*) and 4 (ADHD*st*), indicates they made inappropriate diagnoses. Many selected a diagnosis of other childhood disorders, such as oppositional defiant disorder, autism, adjustment disorder, and disruptive behavioral disorder. Also, five clinical child psychologists and three pediatric primary care physicians selected the

subthreshold diagnosis ADHD for vignette 2; three clinical child psychologists and six

pediatric primary care physicians selected the subthreshold diagnosis PTSD for vignette 4.

Table 2.

Chi-Square Analysis Results: Primary Diagnostic Selection

Vignette	Diagnosis	Clinician Group	n	Diagnosis Appropriate	Inappropriate	X^2	p (.05)
1	ADHD	CCP	13	8	5		
		PCP	15	5	10		
		Total	28	13	15	2.2	0.135
2	PTSD*st*	CCP	13	0	13		
		PCP	15	1	14		
		Total	28	1	27	0.9	0.343
3	PTSD	CCP	13	12	1		
		PCP	15	8	7		
		Total	28	20	8	5.2	0.023
4	ADHD*st*	CCP	13	4	9		
		PCP	15	1	14		
		Total	28	5	23	2.8	0.097
5	RAD	CCP	13	0	13		
		PCP	15	0	15		
		Total	28	0	28	N/A	N/A

Note. Five participants skipped answering vignettes. Df = 1. ADHD = attention deficit disorder; ADHDst = attention deficit disorder subthreshold; PTSD = posttraumatic stress disorder; PTSDst = posttraumatic stress subthreshold; RAD = reactive attachment disorder; CCP = clinical child psychologist; PCP = pediatric primary care physician.

Vignette 3: significant diagnosing differences.

Table 3 shows the chi-square analysis for diagnostic difference between the groups

in vignette 3. The cross-tabulation identifies the percentage and significant difference

between clinical child psychologists' and pediatric primary care physicians' diagnostic

accuracy. Sixty percent of clinical child psychologists appropriately diagnosed PTSD, whereas 40 % of pediatric primary care physicians appropriately diagnosed PTSD. Conversely, 12.5% of clinical child psychologists inappropriately diagnosed versus 87.5% of pediatric primary care physicians, a significant difference of 75% and diagnosing relationship.

Table 3.

Diagnosing Relationship and Percentages

Designation Vignette 3 Crosstabulation

Designation		Inappropriate	Appropriate	Total
CCP	Count	1	12	13
	% within vignette	12.50%	60%	
PCP	Count	7	8	15
	% within vignette	87.50%	40%	
Total	Count	8	20	28
	% within vignette	100%	100%	100%

Note. Five participants skipped answering vignette 3. CCP = clinical child psychologist; PCP = pediatric primary care physician.

Secondary and tertiary diagnosis selections.

As shown in Table 4, a chi-square test was individually performed on vignettes 1 through 5 for clinical psychologists' and pediatric primary care physicians' diagnostic selection of the vetted diagnosis in a secondary or tertiary position for that vignette (e.g., for vignette 2 (PTSD*st*): oppositional defiant disorder, adjustment reaction with aggression, PTSD). No relationship was found between clinician group and selection of

diagnosis with vignette 1 (X^2 (1, N =28) = 2.1, p = .150), vignette 2 (X^2 (1, N = 28) = 2.9, p

=.088), vignette 3 (X^2 (1, N = 28) = 1.7, p =.191), or vignette 4 (X^2(1, N = 28) =.080, p =

.778. A chi-square analysis could not be performed on vignette 5 because neither group

selected the appropriate diagnosis.

Table 4.

Chi-Square Analysis Results: Secondary or Tertiary Diagnostic Selection

		Clinician		Diagnosis			
Vignette	Diagnosis	Group	n	Appropriate	Inappropriate	X^2	p (.05)
1	ADHD	CCP	13	11	2		
		PCP	15	9	6		
		Total	28	20	8	2.1	0.150
2	PTSD*st*	CCP	13	0	13		
		PCP	15	3	12		
		Total	28	3	25	2.9	0.088
3	PTSD	CCP	13	12	1		
		PCP	15	11	4		
		Total	28	23	5	1.7	0.191
4	ADHD*st*	CCP	13	5	8		
		PCP	15	5	10		
		Total	28	10	18	0.08	0.778
5	RAD	CCP	13	0	13		
		PCP	15	0	15		
		Total	28	0	28	N/A	N/A

Note. Five participants skipped answering vignettes. Df = 1. ADHD = attention deficit   disorder; ADHDst = attention deficit disorder subthreshold; PTSD = posttraumatic stress disorder; PTSDst.= posttraumatic stress subthreshold; RAD = reactive attachment disorder; CCP= clinical child psychologist; PCP = pediatric primary care physician; X^2 = Chi-square.

Hypothesis 2. Pediatric primary care physicians will more often use non-ACEs when determining a diagnosis than clinical child psychologists, who will more often use ACEs.

Use of ACEs and non-ACEs in combined groups.

Table 5 shows the percentage and number of ACEs and non-ACEs identified in each vignette by both clinical child psychologists and pediatric primary care physicians. In vignette 1, neither clinician group selected an ACE to discern the vetted diagnosis of ADHD. Of the 30 participants who answered the question, respondents who selected a non-ACE chose teacher report (76.7%, $n = 23$), parent report (96.7%, $n = 29$), and child observation (86.7%, $n = 26$).

Table 5.

Percentage and Number of ACEs and Non-ACEs Used: Combined Groups

		Vignette 1		Vignette 2		Vignette 3		Vignette 4		Vignette 5	
	Dx	ADHD		PTSD*st*		PTSD		ADHD*st*		RAD	
	Response	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*
Factors											
ACEs											
Dom violence				10.7	3	3.8	1	7.6	2	15.2	4
Wit homicide								88			
Wit suicide								7.6	2		
Death of pet											
Emot neglect				21.4	6	46.2	12	3.8	1	19	5
Phys neglect				67.9	19	23.1	6	15.2	4		
Par Separation				57.1	16	3.8	1	11.4	3	19	5
Par incarceration						30.8	8				
Par addiction						42.3	11				
Par mental illness				42.9	12	3.8	1			38	10
Emot abuse						57.7	15	7.6	2	19	5
Phys abuse						80.8	21			19	5
Sex abuse						92.3	24				
Non-ACEs											
Age				35.7	10	15.4	4	15.2	4	53.2	14
Gender		56.7	11	3.8	1	7.7	2	3.8	1	3.8	1
Econ status		6.7	2	3.8	1	38.5	10				

		Vignette 1		Vignette 2		Vignette 3		Vignette 4		Vignette 5	
	Dx	ADHD		PTSD*st*		PTSD		ADHD*st*		RAD	
	Response	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*
Previous dx Insurance				3.8	1			11.4	3	11.4	3
TPOs											
Teach report		76.7	23	39.3	11	30.8	8	91.2	24	11.4	3
Par report		96.7	29	96.4	27	84.6	22	79.8	21	91.2	24
Child obs		56.7	26	78.5	22	84.6	22	68.4	18	76	20
Answered questions			30		28		26		25	95	25
Skipped			4		6		8		9		9
Vetted dx selected			13		1		19		5		0
				ADHD				PTSD			
Subthreshhold			0		8				9		

Note. Dx = Diagnosis; % = percent; n = number; ADHD = attention deficit disorder; ADHDst = attention deficit disorder subthreshold; PTSD = posttraumatic stress disorder; PTSDst.= posttraumatic stress subthreshold; RAD reactive attachment disorder; ACEs= adverse childhood experiences; NON-ACEs = non-adverse childhood experiences; TPOs = teacher report, parent report and child observation; Dom = domestic; Wit = witness; Emot = emotional; Phys = physical; Par = parent; Econ = economic

Vignette 3 shows a significant number of ACEs utilization: emotional abuse (57.7%, *n*= 15), physical abuse (80.8%, *n* = 21), and sexual abuse (92.3%, *n*= 24). The use of non-ACEs was considered by some respondents to make the vetted diagnosis (PTSD): parent report (84.6%, *n* = 22) and child observation (84.6%, *n* = 22).

Use of ACEs and non-ACEs by clinical child psychologists.

Table 6 shows the ACEs and non-ACEs selected by clinical child psychologists for each vignette. Clinical child psychologists did not identify any ACEs for vignette 1; however, they identified teacher, parent and child observation (TPOs) greater than 50% of the time: teacher report (80.0%, *n* = 12), Parent Report (100.0%, *n* = 15), and child observation (73.33%, *n* = 11) as the primary method for discerning the vetted diagnosis (ADHD, *n* = 8). In vignette 2, clinical child psychologists identified two ACEs greater than 50% of time when discerning the vetted diagnosis (PTSD*st*): parent's separation

(50.0%, *n* = 6) and parent's incarceration (58.33%, *n* = 7) and two TPOs greater than 50%

of the time: parent report (86.71%, *n* = 13) and child observation (91.67%, *n* = 11). The

vetted diagnosis of PTSD was not chosen by any.

Table 6.

Clinical Child Psychologists' Selection of ACEs and Non-ACEs

	Dx	Vignette 1 ADHD		Vignette 2 PTSD*st*		Vignette 3 PTSD		Vignette 4 ADHD*st*		Vignette 5 RAD	
	Response	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*
Factors											
ACEs											
Dom violence				16.67	2					7.69	1
Wit homicide								76.92	10		
Wit suicide								7.69	1		
Death of pet								7.69	1		
Emot neglect				8.33	1	30.77	4	15.38	2	7.69	1
Phys neglect						15.38	2				
Par Separation				50.00	6	7.69	1	15.38	2	7.69	1
Par incarceration				58.33	7	15.38	2			7.69	
Par addiction				33.33	4	38.46	5				
Par mental illness											
Emot abuse						46.15	6	7.69	1	7.69	1
Phys abuse						76.92	10			30.77	4
Sex abuse						84.62	11			23.08	3
Non-ACEs											
Age		26.67	4	33.33	4	6.67	1	15.38	2	38.46	5
Gender						6.67	1	7.69	1		
Econ status										7.69	1
Previous dx						38.46	5	15.38	2		
Insurance											
TPOs											
Teach report		80.0	12	33.33	4	23.08	3	92.31	12	23.08	3
Par report		100.0	15	86.71	13	76.92	10	92.31	12	84.11	11
Child obs		73.3	11	91.67	11	84.62	11	92.31	12	76.92	10
Answered questions			15		12		15		13		13
Skipped			2		4		4		4		4
Vetted dx selected			8		0		11		4		0
Subthreshhold					ADHD 5				PTSD 3		

In vignette 3, clinical child psychologists identified two ACEs greater than 50% of the time: emotional Abuse (46.15%, *n* = 6), physical abuse 76.92%, *n* = 10), and sexual abuse (84.62%, *n* = 11) and two TPOs greater than 50% of the time: parent report (76.92%, *n* = 10) and child observation (84.62%, *n* = 11) to discern the vetted diagnosis (PTSD, *n* = 11). In vignette 4, clinical child psychologists identified one ACE greater than 50% of the time: witnessing homicide (76.92%, *n* = 10) and all TPOs greater than 50% of the time: teacher report (92.31%, *n* = 12), parent report (92.31%, *n* = 12), and child observation (92.21%, *n* = 12) to discern the vetted diagnosis (ADHD*st*, *n* = 4). In vignette 5, no ACEs were used greater than 50% of the time; however, two TPOs were: parent report (84.11%, *n* = 11) and child observation (76.92%, *n* = 10). The vetted diagnosis of RAD was not made by any participants.

For vignette 4, respondents (*n* = 25) identified one ACE, witnessing homicide (88.0%, *n* = 22), as a discerning factor; however, TPOs were significantly used as discerning factors by respondents making the vetted diagnosis (ADHD*st*): teacher report (96.0%, *n* = 24), parent report (84.0%, *n* = 21), and child observation (72.0%, *n* = 18). For vignette 5, non-ACE, patient's age, was used (56.0%, *n* = 14), and TPOs, parent report (96.0%, *n* = 24) and child observation (80.0%, *n* = 20) were used considerably by all respondents (*N* = 25). The appropriate vetted diagnosis (RAD) was not made by any participants. Overall, clinical child psychologists used 93 ACEs, 23 non-ACEs, and 150 TPOs to appropriately make the vetted diagnosis of each vignette 24 times.

Use of ACEs and Non-ACEs by pediatric primary care physicians.

Table 7 shows the ACEs and non-ACEs selected by pediatric primary care physicians for each vignette. In vignette 1, pediatric primary care physicians did not identify any ACEs; however, they identified TPOs greater than 50% of the time to make the appropriate diagnosis: teacher report (73.33%, $n = 11$), parent report (93.33%, $n = 14$), and child observation (100.0%, $n = 15$). In vignette 2, pediatric primary care physicians identified three ACEs greater than 50% of the time to make the appropriate diagnosis: parent's separation (80.0%, $n = 12$), parent's incarceration (66.67%, $n = 10$), and parent's mental illness (53.33%, $n = 8$). Two TPOs were used greater than 50% of the time: parent report (93.33%, $n = 14$) and child observation (73.33%, $n = 11$). In vignette 3, pediatric primary care physicians identified five ACEs greater than 50% of the time: emotional neglect (58.33%, $n = 7$), parent's separation (50.0%, $n = 6$), emotional abuse (75.0%, $n = 9$), physical abuse (75.0%, $n = 9$), and sexual abuse (100.0%, $n = 13$). TPOs were identified greater than 50% of the time: teacher report (50.0%, $n = 6$), parent report (91.67%, $n = 11$), and child observation (91.67%, $n = 11$).

In vignette 4, pediatric primary care physicians identified one ACE greater than 50% of the time to make the appropriate diagnosis: witnessing homicide (100.0%, $n = 11$). TPOs were used greater than 50% of the time: teacher report (100.0%, $n = 11$), parent report (81.82%, $n = 9$), and child observation (54.55%, $n = 6$). In vignette 5, pediatric primary care physicians identified one ACE greater than 50% of the time: parent's mental illness (72.73%, $n = 8$) and one non-ACE greater than 50% of the time: age (72.73%, $n = 8$). Two TPOs were used: parent report (100.0%, $n = 11$) and child observation (72.73%, $n = 8$). The vetted diagnosis of RAD was not made. Overall, pediatric primary care

physicians used 158 ACEs, 39 non-ACEs, and 145 TPOs to appropriately make the vetted

diagnosis of each vignette 15 times.

Table 7.

Pediatric Primary Care Physicians' Selection of ACEs and Non-ACEs

		Vignette 1		Vignette 2		Vignette 3		Vignette 4		Vignette 5	
	Dx	ADHD		PTSD*st*		PTSD		ADHD*st*		RAD	
	Response	%	n	%	n	%	n	%	n	%	n
Factors											
ACEs											
Dom violence				6.67	1	8.33	1	18.18	2		
Wit homicide								100	11	18.18	2
Wit suicide										9.09	1
Death of pet											
Emot neglect				33.33	5	58.33	7	18.18	2	27.27	5
Phys neglect						41.67	5				
Par Separation				80.00	12	50.00	6	9.09	1	27.27	3
Par incarceration				66.67	10	41.67	5				
Par addiction						8.33	1				
Par mental illness				53.33	8					72.73	8
Emot abuse						75.00	9	9.09	1	9.09	1
Phys abuse						75.00	9				
Sex abuse						100.0	13				
Non-ACEs											
Age		40.00	6	40.00	6	25.00	3	27.27	3	72.73	8
Gender		13.33	2	6.67	1	8.33	1			9.09	1
Econ status				6.67	1						
Previous dx Insurance				6.67	1	41.67	5	9.09	1		
TPOs											
Teach report		73.33	11	46.67	7	50.00	6	100.00	11		
Par report		93.33	14	93.33	14	91.67	11	81.82	9	100.00	11
Child obs		100.00	15	73.33	11	91.67	11	54.55	6	72.75	6
Answered questions			15		15		12		11		11
Skipped			1		1		3		5		5
Vetted Dx selected			5		1		8		1		0
Subthreshhold				ADHD	3			PTSD	6		

Table 8 shows logistic regression analysis results for predicting the diagnosis ADHD or PTSD via ACEs or Non-ACEs use. Employing a 0.05 criterion of statistical significance, one of the vignette predictors for vignette 2 (PTSD*st*) for ACEs had a *p* value of 0.013. The odds ratio Exp(B) shows that clinical child psychologists and pediatric primary care physicians are 0.385 more likely to select PTSD as a diagnosis when the following ACEs are utilized: domestic violence, patient's emotional neglect, parental separation, parental incarceration, and parental mental illness.

Table 8.

.Logistic Regression Predicting Diagnosis from ACEs and Non-ACEs Selection

Vignette	Diagnosis	Predictor	*B*	Wald x2	*P*	Odds Ratio Exp(B)
1	ADHD	ACEs	-0.268	0.530	0.467	0.765
		Non-ACEs	-0.170	0.169	0.681	0.843
2	PTSD	ACEs	0.954	6.140	0.013	0.385
		Non-ACEs	0.023	0.003	0.954	1.020
3	PTSD	ACEs	-0.282	1.530	0.217	0.754
		Non-ACEs	0.065	0.020	0.888	1.070
4	ADHD	ACEs	0.659	1.620	0.203	1.930
		Non-ACEs	-1.190	3.050	0.081	0.304
5	RAD	ACEs	N/A	N/A	N/A	N/A
		Non-ACEs				

Table 9 shows the logistic regression analysis of the sum of the ACEs and non-ACEs used when clinical child psychologists and pediatric primary care physicians made the primary vetted diagnosis. The appropriate/inappropriate is from the base model and displays the category (ACEs or non-ACEs) that appears most when making the vetted diagnosis. The base model also predicts the percentage of times this will occur when applied in a similar way. Results for vignette 2 (PTSD*st*) are significant, *p* = .013, and apply to the number of ACEs utilized that predict PTSD. The predicted model indicated that this would occur 71.4% of the time; however, Naglekerke R^2 (.375), (most commonly

Table 9.

Logistic Regression: Sum of ACEs and Non-ACEs

Vignette	Dx	Resp.	ACEs/Non-ACEs Selected	Sum ACEs/Non-ACEs	Observed App.	Observed Inapp.	Model Predicted	Nagelkerke R^2	% Correct	*p* (.05)
1	ADHD	0	0	ACEs	13	17	56.7	0.000	56.7	0.467
		30	90	Non-ACEs						
2	PTSD	20	56	ACEs	8	20	71.4	0.375	78.6	0.013
		28	73	Non-ACEs	8	20	71.4	0.000	71.4	0.954
3	PTSD	25	97	ACEs	19	7	73.1	0.088	76.9	0.217
		26	68	Non-ACEs	19	7	73.1	0.001	73.1	0.888
4	ADHD	21	34	ACEs	9	14	60.9	0.099	60.9	0.203
		24	67	Non-ACEs	9	14	60.9	0.234	65.2	0.081
5	RAD	13	32	ACEs	N/A	N/A	N/A	N/A	N/A	N/A
		23	57	Non-ACEs	N/A	N/A	N/A	N/A	N/A	N/A

Note. Five participants skipped answering vignettes. ADHD = attention deficit disorder; PTSD = posttraumatic stress disorder; ACEs= adverse childhood experiences; NON-ACEs = non-adverse childhood experiences; App. = appropriate; . inappropriate; Dx = diagnosis.

used as representing improvement of the mode. *Values closer to 1 represent a good fit*)

improved the outcome and predicted a correct diagnosis 78.6% of the time. Results for

vignettes 1, 3 and 4 were not significant ($p > .05$).

Discussion

The aim of this study was to compare differences in the diagnosing of ADHD and

PTSD among pediatric primary care physicians and clinical child psychologists of

preschool-aged children. The study hypothesized that ADHD would be diagnosed with

higher frequency than PTSD. The hypothesized higher frequency of an ADHD versus

PTSD diagnosis was not borne out in this study. The results indicated an equal

distribution of frequency between an ADHD and PTSD diagnosis of 29 selections.

In contrast, only 62% of the diagnoses of ADHD were appropriate, and 72% for

PTSD were appropriate. This is a significant finding, as it is congruent with the most

recent CDC (2011) report regarding the increase of ADHD diagnosing and suggests strong

implications for further support of the findings of the Rappley et al. (1999) study of

misdiagnosing preschool-aged children. Equally important, it suggests a greater potential

for misdiagnosing when clinical child psychologists and pediatric primary care physicians

are presented with symptomatology that could present as ADHD or PTSD.

In addition to a higher frequency of an ADHD diagnosis, it was hypothesized that

the greatest number of ADHD diagnosing clinicians of preschool-aged children would be

pediatric primary care physicians rather than clinical child psychologist due to the

pediatricians' role as the gatekeepers of children's health. Likewise, this frequency

postulation led to five subhypotheses predicting whether clinical child psychologists

would be more accurate in diagnosing cases than pediatric primary care physicians when

presented with ambiguous scenarios that could be interpreted as either ADHD or PTSD. The data illustrated that the process being used by both groups resulted in diagnoses that were no more accurate than a selection of random diagnoses.

Generally speaking, the expectations of determining whether clinical child psychologists were more accurate in diagnosing cases of preschool-aged children than pediatric primary care physicians were met in this study. The findings indicated that clinical child psychologists were 50% more accurate identifying and diagnosing the vetted diagnosis PTSD in preschool-aged children than pediatric primary care physicians. The overall variances between the two groups, per vignette, were not astounding, but were interesting. Vignettes with straightforward symptomatology (true ADHD-vignette 1 and true PTSD-vignette 3) presented as easiest to diagnose and gained the highest number of appropriate responses of the 5 vignettes.

A key finding in this study was that clinical child psychologists and pediatric primary care physicians appeared to be better able to identify symptoms relating to true PTSD in preschool-aged children than they did true ADHD for this age group. In fact, true PTSD garnered the highest appropriate responses of the two true vignettes. As a result, the selection of the vetted diagnosis of true PTSD was statistically significant. This is striking, as it suggests that participants more readily identified a PTSD diagnosis than they did an ADHD diagnosis. In contrast, the most recent CDC (2013) report revealed an alarming increase in the number of ADHD diagnoses for children aged 4 to 17 years over a 10-year period (Centers for Disease Control and Prevention, 2013). Another key point, clinical child psychologists made the ADHD diagnosis as frequently as pediatric primary care physicians, although at a reduced error rate.

Notably, a powerful indication of variance in appropriate diagnosing differences between clinical child psychologists and pediatric primary care physicians was demonstrated through the crosstabulation test of statistical significance for vignette 3 (true PTSD). The test demonstrated the percentage of variance for appropriate and inappropriate diagnosing of PTSD for both groups. Notably, 75% of pediatric primary care physicians inappropriately diagnosed true PTSD in preschool-aged children. Conversely, 20 % of clinical child psychologists inappropriately diagnosed true PTSD.

Differences such as these regarding inappropriate and appropriate diagnosing between groups are significant, considering most preschool-aged children are taken to their pediatric primary care physician by their parents when there is a behavioral disturbance (Ougrin et al., 2010). Although pediatric primary care physicians were successful at appending the true PTSD diagnosis at a high rate, the validation from the crosstabulation in this study demonstrates that there is a wide margin of error leading to implications for misdiagnosis.

Equally important, the true ADHD (vignette 1) diagnosis for preschool-aged children appeared to present more of a diagnosing challenge for clinical child psychologist and pediatric primary care physicians. In general, 50% of both groups diagnosed ADHD appropriately, and 50% of both groups diagnosed it inappropriately. Although vignette 1 was vetted as a true diagnosis for ADHD, appending this diagnosis appeared to cause caution in appending an ADHD diagnosis for this age group as indicated from free text comments (Appendix D) from participants. For example, "fear of labeling a child at such a young age" or "prefer to wait and see instead of making a diagnosis that would follow him or her so early." Such hesitancy could also be due to lack of specialized training in

diagnosing preschool-aged children with ADHD (Appendix C, Table 12). That is to say,

clinical child psychologists indicated that the average age group seen in their office with

ADHD was 6 to 11 (37.5%) (Appendix C, Table 10), and pediatric primary care

physicians indicated 6 to 11 (41.7%) average age (Appendix C, Table 11), indicating that

their diagnosing experiences with preschool-aged children were minimal. The

presentation of ADHD is different in preschool-aged children than it is in school-aged

children (Rowland et al., 2002). Because of this, it appears that the lack of understanding

of the ways PTSD and ADHD present in the younger group of children may be related to a

lack of training among both groups (Appendix C, Table 12), thereby, leading to a greater

chance for misdiagnosis.

     All things considered, the prediction that clinical child psychologists would be

more accurate in diagnosing cases than pediatric primary care physicians when presented

with scenarios that could be interpreted as either ADHD or PTSD was not validated in this

study. In effect, when both groups were presented with ambiguity, the ability to

distinguish ADHD from PTSD decreased, possibly due to the overlapping of

symptomatology that exists between the two diagnoses. In fact, both subthreshold

diagnoses, PTSD*st* (vignette 2) and ADHD*st* (vignette 4), were the diagnoses that

contained several indicators that resembled or overlapped with ADHD and PTSD

symptomatology. It also appears that if the diagnosing clinician was not familiar with the

DSM−IV−TR criteria for PTSD or ADHD or did not use the manual when diagnosing

vignettes 2 and 4, his or her ability to diagnose with accuracy was compromised; therefore

ambiguity may have led to diagnoses other than those vetted. Furthermore, of 28

clinicians, only 4% appropriately selected the vetted diagnosis PTSD*st*, and 18%

appropriately selected the vetted diagnosis ADHD*st*. All things considered, the difficulty

for these experienced clinicians may be due to the lack of specialized training and/or work

experience with preschool-aged children (Appendix C, Table 12); lack of exposure and

experience working with extreme preschool-aged behaviors and childhood PTSD in

preschool-aged children (Appendix C, Tables 10 and 11); lack of understanding the

relevance and impact of ACEs on preschool-aged children; and failure to use the

DSM−IV−TR as advised by their governing organizations (AACAP, 2007; AAP, 2011).

The findings regarding whether or not clinical child psychologists and pediatric

primary care physicians selected appropriate diagnoses may not be generalizable due to

the small sample size and self-selection. The non-generalizability may also be due to the

vetting process of the vignettes and the possibility that they may not portray the diagnoses

as intended. However, in this study it appears that both groups do better in selecting

appropriate diagnoses when presented with a true representation of ADHD and PTSD

symptomology than they do when the symptomatology is presented with ambiguity.

Although selecting an appropriate diagnosis of a true representation of ADHD and PTSD

may be true, it was noted either an ADHD or PTSD diagnosis was made, even though the

full criteria were not met. Such behavior may be due to representative heuristics

(Bruchmuller et al., 2012), where clinicians use more clinical judgment and biases than

adherence to the *DSM−IV* criteria. Likewise, diagnosing solutions like representative

heuristics are taught in medical schools as a support to illness scripts; however, they often

lead to a larger window for misdiagnosing (Bruchmuller et al., 2012).

The final diagnosis, reactive attachment disorder (RAD) was vignette 5. This

diagnosis was a "neutral" diagnosis intended to determine whether clinical child

psychologists and pediatric primary care physicians would recognize the symptomatology of a known childhood behavioral disorder. In fact, the diagnosis was intended to be without similarities or overlapping symptomatology that could be construed as ADHD or PTSD.

Clinical child psychologists and pediatric primary care physicians performed less well than expected when diagnosing this vignette. In the final analysis, no clinician made the vetted diagnosis, although one clinician did make an ADHD diagnosis. The reason for such low responses could be the manner in which the vignette was written rather than the clinician's method of formulating the diagnosis. In light of this finding, it encouraged questions regarding types of assessment used when diagnosing preschool-aged children and may indicate unfamiliarity with the *DSM−IV-TR* and childhood diagnoses that affect preschool-aged children as well as a lack of understanding of preschool-aged children, their development, and how ACEs can impact a child's behavior.

In contrast to participants selecting ADHD or PTSD for the item, *"Please make the best possible diagnosis,"* there were several who either indicated their diagnosis as a rule-out, possible, or ADHD or PTSD*,* but listed it as secondary, tertiary, or other position, suggesting more information may be needed. The function of such a model and validity demonstrated that diagnosing by way of guessing does not improve outcomes, suggesting that the clinicians ($n = 13$) may have been guessing or drafting potential diagnoses rather than actually making a diagnosis. Likewise, the data illustrated that this decision model actually decreased the overall accuracy of the diagnosis that was previously selected as primary (Table 1), and such a model would have led to much poorer outcomes for the preschool-aged child because the appropriate diagnosis would not have been selected.

Equally, it did not appear that the clinicians were sure what diagnosis to make, further supporting the hypothesis for misdiagnosis.

The second research question regarding ACEs and non-ACEs focused on how each was utilized by clinical child psychologists and pediatric primary care physicians when diagnosing ADHD and PTSD in preschool-aged children. In addition, the utilization was expected to be an indicator for selecting either an ADHD or PTSD diagnosis. The hypothesis stated that clinical child psychologists would utilize psychosocial factors (ACEs), such as domestic violence, physical neglect, and parental incarceration, more often than would pediatric primary care physicians, who would utilize demographic factors (non-ACEs), such as age, race, and gender more often (Fewell & Deutsther, 2002, Handler & DuPaul, 2005).

The results were vastly different from what was posited and significant. Pediatric primary care physicians were expected to utilize more non-ACEs when making a diagnosis. Notably, this hypothesis was borne out. Surprisingly, however, pediatric primary care physicians utilized the greater number of ACEs than clinical child psychologists by 58%. The reason for this increase in utilization of ACEs may be due to pediatric primary care physician's medical training using illness scripts. Accordingly, illness scripts specify that the diagnostician scrutinize predisposing factors as the first premise when diagnosing (Miller, Bhatnagar, & Kohlwes, 2013). Pediatric primary care physicians may have discerned ACEs as predisposing factors as the initiating phase towards a diagnosis. The hypothesis regarding clinical child psychologists' utilization of ACEs more often than pediatric primary care physicians was not borne out. In fact,

clinical child psychologists utilized fewer ACEs and non-ACEs than pediatric primary

care physicians overall.

In light of this, the group that performed better at selecting the appropriate

diagnoses was not the group that utilized the greatest number of ACEs or non-ACEs.

Pediatric primary care physicians were observed utilizing the greatest number of ACEs

and non-ACEs, but performed less well than clinical child psychologists in selecting the

appropriate diagnoses for all vignettes. Observations of how each group interrelated

ACEs or non-ACEs with an ADHD or PTSD diagnosis did not demonstrate that an

increase in one area caused a direct connection to the other. In fact, clinical child

psychologists achieved better outcomes in diagnosing than pediatric primary care

physicians, while using fewer ACEs and non-ACEs than pediatric primary care

physicians. The utilization of fewer ACEs and non-ACEs by clinical child psychologist to

diagnose may be due to clinical training, which does not depend on pathophysiology and

clinical findings to diagnose. In addition, they may have greater familiarity of the

DSM−IV−TR than pediatric primary care physicians. The outcome indicates a variance of

53% of an appropriate diagnostic selection by clinical child psychologists than pediatric

primary care physicians.

The overwhelming selection of ACEs and non-ACEs by pediatric primary care

physicians over clinical child psychologists may be attributed to educational and clinical

training (Charlin, Tardif, & Boshuizen, 2000). Medical professionals use illness scripts

for clinical reasoning to arrive at a diagnosis. Illness scripts are composed of three

elements: predisposing factors, pathophysiology, and clinical findings. Furthermore,

clinical training for medical doctors includes the use of heuristics (Miller , Bhatnagar, &

Kohlwes, 2013), as clinical intuition and hunches are expected. In light of this, it appears

that pediatric primary care physicians may be using the ACEs as predisposing factors

when conceptualizing each vignette case and then making the diagnosis using heuristics.

Furthermore, pathophysiology and clinical findings were not included in the vignette case,

which means that the ability to diagnose efficiently may have been reduced for primary

care physicians since those items are included in illness scripts (Miller et al., 2013).

Conversely, clinical child psychologists do appear to make the appropriate diagnosis using

fewer ACEs, but the process or model used was vague. Markedly, clinical child

psychologists appeared to lean heavily on TPOs and potentially used a significant amount

of clinical judgment based on years of experience (21 years and above; 30.3 %, (Appendix

C, Table 10), which appeared to be used as their foundation for diagnosing (Bruchmuller

et al., 2012).

Even though a significant number of ACEs were used by pediatric primary care

physicians and clinical child psychologists, the ability to predict an ADHD or PTSD

diagnosis from ACEs or non-ACEs use was unable to be validated. Vignette 2 (PTSD*st*)

was indicated as statistically significant; however the prediction was not due to

participants selecting PTSD as the diagnosis overwhelmingly, but to both groups selecting

the exact same 10 ACEs. As a result, the data was skewed because the model failed to

connect the ACEs with the diagnosis. Rather, the ACEs were significant because of the

decision making of both groups, which was in opposition of only six participants that

selected the appropriate diagnosis.

The *t* test (Table 1), a comparison of differences between clinical child

psychologists and pediatric primary care physicians, compared the means of specific

aspects between the two groups. Variables compared were educational training, area of specialty, years of experience, and years of clinical practice working with preschool-aged children presenting with ADHD and PTSD and making behavioral diagnoses. The mean comparisons in each area described revealed no difference between the two groups (Schmidt, Norman, & Boshuizen, 1990). This indicated that clinical child psychologists and pediatric primary care physicians were equal in every area of comparison for a fair assessment of skills in diagnosing preschool-aged children.

Implications

One implication of this study was the significant differences between clinical child psychologists and pediatric primary care physician methods for accurately making an ADHD or PTSD diagnosis for preschool-aged children. This difference may be due to each group's educational training. As an illustration, clinical child psychologists' and pediatric primary care physicians' educational and clinical training is vastly different (Handler & DuPaul, 2005); clinical child psychologists may be more accustomed to using standard proficiencies and batteries of tests for identifying symptoms relating to diagnoses (Handler & DuPaul, 2005). Pediatric primary care physicians may be more accustomed to using illness scripts to inform a diagnosis, where the expectation and action of how to proceed is embedded in the script (Charlin et al., 2000). Illness scripts appear to be an asset in the medical model, but only apply through a partial rendering of a behavioral health diagnosis.

A second implication is the identification and expansion of the subspecialties that exist in clinical psychology and pediatrics. Within the clinical psychology specialty, there is the subspecialty clinical child & adolescent, and within pediatrics, there is the

subspecialty, developmental and behavioral (AACAP, 2007; AAP, 2011). Clinical child

psychology is very new to the clinical psychology genre. It is only seventeen years old,

having been officially recognized as a subspecialty by the APA in 1998 and acknowledged

as a new division (Division 53) in 2000 (M. Erickson, APA Division 53, CCAP,

4/18/2015.

Clinical psychology has been practiced for nearly 120 years, that is, since 1896

(Benjamin, 2005), and is still not as well known as its medical counterpart, psychiatry. In

light of this, it is conceivable that clinical child psychology has less recognition than

clinical psychology. Because of this, there is a need for more exposure of clinical child

psychologists to increase treatments for children, especially, preschool-aged children.

Greater identification of the subspecialty, clinical child psychology, in doctoral programs

may benefit diagnoses. Moreover, the process of referring to subspecialists that have

specialized training may result in better diagnoses of preschool-aged children presenting

with ADHD or PTSD. Rappley et al. point out that if the status quo remains unchanged,

inadequate diagnostic practices, such as guessing or trial and error models, followed by

psychostimulant therapy for ADHD may fail to result in better outcomes for preschool-age

children.

A third implication was the availability of the subspecialties that exist in clinical

psychology and pediatrics. This study revealed a disparity in the number of clinical child

psychologists when compared to pediatric primary care physicians. The number of

clinical child psychologists that treat 3- to 5-year-olds (Thomas & Holzer, III, 2006) is

even fewer than those that treat older children. Based on the responses of participants

(Appendix C, Table 13), those that work within the clinical child specialty primarily work

with all children and adolescents (36.4%) and none with preschool-aged children.

However, 12.1% indicated working with early childhood children. The number and

availability of specialists working with preschool-aged children is significantly low. As

an example, the number of licensed clinical psychologists identifying as clinical child

psychologists in Pennsylvania is only 132. Other states had only small numbers of

professionals in this specialty, New Jersey with 55 and New York with 259. The paucity

of licensed clinical child psychologists is not only regional. California, the state with the

largest population, has the largest database of licensed clinical psychologists with 7,853;

however, only 409 were clinical child psychologists (Doctordatabase.com, October,

2014).

Pediatric primary care physicians are considered the generalists of pediatrics

(Brosco, 2011). The Doctor Database contained 4,778 prospective primary care

pediatricians in Pennsylvania. However, those that agreed to participate in the study

lacked experience diagnosing behavioral disorders in children aged 3 to 5. Pediatrics has

a subspecialty, developmental pediatrics, which focuses on developmental and behavioral

problems. Such a specialized practice would be ideal for parents coping with children with

behavioral problems. Although a good idea, the number of pediatricians in the state of

Pennsylvania in this subspecialty are only 22, further illuminating the view of a need to

increase exposure of subspecialties.

The pediatric primary care physicians in this study reported that the average age

group treated for behavioral disorders ranged from 6 years of age to 11, with diagnoses

reported as follows: ADHD (41.7%) and PTSD (29.2%) (Appendix C, Table 11). As a

result, the number of pediatric primary care physicians experienced with diagnosing

preschool-aged children with behavioral disorders is significantly less than what was originally estimated. The paucity in both subspecialties creates a shortage in the availability of these professionals for parents, schools, and government agencies. The lack of available clinical child psychologists or developmental pediatricians leads consumers to seek pediatric primary care physicians for direct care of preschool-aged children's behavioral and emotional issues, such as ADHD and PTSD. Williams and Davis (2010) indicated that it is very difficult to distinguish between the two disorders in this age group. In addition, specialized training could possibly reduce over-identification of ADHD-type signs and symptoms that can lead to misdiagnosing for this age group (Williams & Davis, 2010).

A fourth implication of the study was what it suggested about specialized training for work with preschool-aged children. This study suggested that both clinical child psychologists and pediatric primary care physicians may be less familiar with diagnosing children aged 3 to 5. Both groups indicated having experience diagnosing ADHD and PTSD, 37.5% for ADHD and PTSD 29.2% among clinical child psychologists (Appendix C, Table 10) and ADHD, 41.7% and PTSD 29.2% (Appendix C, Table 11) for pediatric primary care physicians. However, these data were only for diagnoses for school-aged children ages 6 to 11. Appendix C, Table 12 illustrates that for clinical child psychologists, only six reported obtaining advanced training from a postdoctoral fellowship in clinical child psychology, a requirement of the American Board of Clinical Child and Adolescent Psychology (ABCCAP) to become board certified as a clinical child psychology specialist. Furthermore, postdoctoral training requires 3 years of work in clinical child and adolescent psychology (Clinicalchildpsychology.com) in order to fully

be trained with effectiveness to treat this age group. The remaining clinical child

psychology participants did not indicate advanced training in clinical child psychology

other than one participant who listed participation in a relevant conference. Similarly,

pediatric primary care physicians did not report receiving advanced training for

diagnosing and treating mental health disorders in preschool-aged children other than that

received during their pediatric residencies.

Another consideration is that the level of experience with school-aged children

appears not necessarily to transfer over to preschool-aged children when diagnosing. In

addition, the goal of board certification in clinical child and adolescent psychology

(ABCCAP) (Clinicalchildpsychology.com) may further help to define the subspecialty,

creating better chances that diagnostic outcomes for children would be more accurate.

Another implication regarding specialized training would be the reduction in the reliance

on clinical intuition, a "fallback" strategy for clinicians with limited knowledge of

preschool-aged children (Bruchmuller et al., 2012).

Although not implied by the study results, it may be beneficial to integrate

behavioral health care for diagnosing and treating preschool-aged children by creating a

bridge between services of clinical child psychologist and pediatric primary care

physicians. This would be beneficial in reducing the risk of childhood behavioral

disorders through early detection and prevention. Likewise, providing psychological

services to families could encourage strategies to build resilience in the presenting child

and lead to a prevention model. Clinical child psychologists are sorely underutilized,

possibly due to the subspecialty being fairly recent (M. Erickson, APA Division 53,

CCAP, 4/18/2015). Many pediatric primary care physicians may not be aware of the

subspecialty and how a partnership could benefit the pediatric profession.

Statistically significant results from this study (Table 2 and Table 8) highlight

methods clinical child psychologists and pediatric primary care physicians use to diagnose

ADHD and PTSD in preschool-aged children. The methods of minimally or overly

identifying ACE factors demonstrate and encourage the development of improved

protocols that can lead to better diagnosing outcomes using ACEs as the foundation for

diagnosing. For practitioners, it may be helpful to include an addendum so that PTSD for

children younger than 6 is included as a disorder when making a differential diagnosis for

ADHD (Williams & Davis, 2010). It is important for caregivers and educators, and

especially practitioners to understand that ACEs that present in ADHD-like symptoms

may be confounded or confused with PTSD. Such understanding could prompt the

consideration of PTSD as a possible diagnosis to explain a child's behavior instead of an

automatic suspicion of the presence of ADHD. The *Diagnostic and Statistical Manual of

Mental Disorder* (5th ed.; DSM−5; American Psychiatric Association, 2013)*,* was

introduced as the latest diagnostic tool for defining a mental health disorder. This updated

edition includes changes to the ADHD criteria and the addition of PTSD for children 6

and younger (APA, 2013).

It is important to consider that the *DSM−5* ADHD diagnosis change was an

improvement for determining the disorder's presence in preschool-aged children and

should have an impact on establishing the number of cases of preschool-aged children

according to age of onset. This is due to the change in the latest edition of the *DSM* which

indicates one criterion of ADHD as presenting prior to age 12 rather than the age set at 7

and younger in the previous edition. This appears more realistic because a preschool-aged child is still progressing through normal developmental changes (APA, 2013).

In addition, PTSD in preschool-aged children was added to the *DSM−5*. This addition attempts to include differences between older children and preschool-aged children by removing some criteria such as the inability to recall and a sense of a foreshortened future, while adding social withdrawal behavior and increased frequency of negative emotional states (APA, 2013). The changes are improvements, but are so limited that without training and understanding of childhood development, complex PTSD/ACEs could be missed or misinterpreted during diagnosing.

The *DSM−5's* addition of PTSD for children age 6 and younger fails to include a sufficiently broad spectrum of symptoms that could result in a more robust diagnosis. To illustrate, symptoms such as bed-wetting, a lack of curiosity about their immediate environment, or developmentally inappropriate activities would be more inclusive of a diagnosis for preschool-aged children. Thus, the broad spectrum of behaviors, demeanors, communication style, fantasy life, and developmental delay that could indicate signs and symptoms of preschool-aged PTSD are simply not addressed in the new diagnostic criteria (Schreeinga et al., 2003).

Historically, ADHD signs and symptoms have been much less apparent in children younger than 5 or 6 years of age (Cormier, 2008; Wolraich, 2006) until recent years (CDC, 2013). The traditional rationale for this was that contemporary behavioral features now considered maladaptive used to be rare among preschool-aged children. Ougrin et al. (2010) report that there was previously a general disbelief that anything was physiologically wrong with preschool-aged children. Rather, maladaptive behaviors were

thought to be a combination of poor parenting, chaotic household surroundings, or perhaps experiences of child abuse. Considering the precepts of ACEs, this premise is plausible. This is significant because preschool-aged children rarely present symptomatology where observational reports match the *DSM* explicitly, which would satisfy the requisites for differential diagnoses (Schreeinga et al., 2003). Likewise, such processing necessitates further investigation or understanding of a child's environment and stage of development. The study also indicated that less difficult cases, where preschool-aged presentations were more aligned with true representation from the *DSM−IV−TR* description, a diagnosis was made. The *DSM−IV−TR* criteria offer the clinician latitude owing to the ambiguity of the criteria, thereby making it easier to make an acceptable diagnosis. The *DSM−IV−TR* structure creates an opportunity for misdiagnosis by stating that *"the diagnosis may be made if the child displayed* _some symptoms_ *during their preschool-age years."* Some symptoms pertaining to rendering a diagnosis are not definitive and give the diagnostician room for error. In this study, 29 clinical child psychologists and pediatric primary care physicians made an ADHD diagnosis, but only 18 of those were correct (Table 2). As described above, less accurate evaluation rubrics were likely used for diagnosing the disorder in preschool-aged children (Fewell & Deutscher, 2002).

Another problem in diagnosing preschool-aged children with PTSD was that the presenting symptoms did not match the *DSM−IV−TR* symptoms, or even the newly revised *DSM−5* symptoms for children 6 and younger. The reason, according to van der Kolk (2005), is that preschool-aged children are more likely to have characteristics of complex PTSD/ACEs than traditional PTSD. Accordingly, complex trauma is different from PTSD in that one traumatic experience builds upon another rather than the trauma

being caused by one acute traumatic episode as indicated with childhood PTSD. The inclusion of this criterion in the *DSM−5* continues to be problematic. Theoretically, with complex trauma the adverse event becomes integrated and entrenched in a child's day-to-day life, causing multiple dysfunctions and difficulties in his or her relationships over time (Fischer & van der Kolk, 2000). With this in mind, the vignettes presented in this study detailed multiple dysfunctions and difficulties (ACEs). Clinical child psychologists and pediatric primary care physicians may have been familiar with PTSD as it is presented in acute episodes, such as the way it was presented in vignette 3. As a result, vignette 3 garnered the highest number of correct responses, nearly all > 50%, for emotional abuse, physical abuse and sexual abuse (van der Kolk, 2005). In contrast, complex trauma or ACEs does not fit neatly into *DSM−IV−TR* packaging or illness scripts. In other words, only a small number of the clinicians appeared to have taken into account the unique features belonging to the child experiencing the recurring trauma (Table 5) (Blank, 2007).

Limitations

There were fewer participants than expected, which subsequently reduced the study's power and strength. The goal was to sample 1,500 in each group, clinical child psychologists and pediatric primary care physicians, with the expectation of acquiring 50 participants in each group. What actually occurred was that only 34 entered the study, with one individual being disqualified for not possessing a doctoral level or medical doctor degree. Several factors may have caused such a low number of participants. First, this study revealed that there is a paucity of clinical child psychologists throughout the United States in general, and even fewer who diagnose and treat preschool-aged children. In fact, the American Psychological Association (APA) Division 53, Clinical Child and

Adolescent Psychology, was formally recognized by the APA Commission for the

Recognition of Specialties and Proficiencies in 1998, and later granted division status in

2000 (M. Erickson, APA Division 53, CCAP, 4/18/2015). Understanding that clinical

child psychology is only 15 years old, the number of clinical psychologists that belong to

this subspecialty is probably very small. Additionally, the subspecialty is probably not yet

well known, whereas clinical psychologists are known to treat the entire family, not just

one segment of the family.

       To further illustrate, Appendix C, Table 13 shows that 36.4% of clinical child

psychology participants stated that their area of specialty was all children and adolescents,

not just preschool-age (18.2%). In order to reach the 1,500 goal, the type of specialty had

to be expanded to include school psychologists and family psychologists. Adding these

two groups to the pool created an even greater limitation because of the presumed lack of

specialized experience, potentially adding more confounding variables to diagnostic

outcomes. There is the possibility that it is not possible to determine the number of true

clinical child psychologists among the 17 that participated. For example, Appendix C,

Table 10 shows that clinical child psychologists stated that the average age of children

they diagnosed was 6 to 11.

       Pediatric primary care physicians present a different limitation for this study.

Primary care pediatricians conceivably treat all childhood developmental age groups from

0 to 18, but there was no indication of the percentage of preschool-aged children the

pediatricians in this study diagnose and treat with behavioral or emotional disorders. It is

only within the last decade that the primary care arm of the pediatric specialty has been

called upon to address behavioral disorders due to the overabundance of ADHD cases

(CDC, 2013). Because of this, it is possible that many pediatric primary care physicians have not been prepared or trained to diagnose effectively disorders such as ADHD or PTSD, especially in preschool-aged children, other than by the training provided by the ADHD clinical practice guidelines for the diagnosis, evaluation and treatment implemented in 2011 (AAP, 2011). Although it is assumed that pediatricians treat all childhood developmental age groups, it is clear from the participants in this study that they had more experience diagnosing ADHD and PTSD with some age groups than with others (e.g., school-age and adolescent groups) (Appendix C, Table 14). To this end, pediatrics (48.5%) is listed for 16 participants as an area of specialty, but it is not exactly clear whether their experiences extend in equal proportion across all age ranges. The assumption and expectation were that they would be equally capable in diagnosing behavioral and emotional disorders for developmental age groups.

A second limitation was the inability of participants to observe the child prior to rendering the final diagnosis. This limitation was significant, especially as it pertained to preschool-aged children. As a key point, each participant indicated that child observation was the salient factor (non-ACE) they would use to make their diagnosis. This limitation could be the defining factor for poor performance, as the vignettes only offered a representation of a case, but not face-to-face interaction with the actual child. Thus, participants were not able to observe or interview the actual patient. Child observation is critical when diagnosing preschool-aged children because it provides a component important to effective diagnosing that verbal reporting from parents or teachers lacks. This limitation is congruent with the AACAP practice parameter, which indicates that part of the assessment process for making a diagnosis of ADHD is to interview parent or

guardian, patient, and school in order to garner more robust information regarding the

child's behaviors as they relate to family background, history, environment, and

functioning (Campbell, 2006; Practice Parameters of the American Academy of Child and

Adolescent Psychiatry, 2007; Rushton et al., 2004). This information is essential when

considering any ACEs that may impact the child's functioning and helps to rule out

comorbid disorders.

A third limitation was that there was minimal assessment information regarding

scoring. Although information was provided in the vignettes regarding a particular test

that was administered, only the name of the test was identified. In effect, information on

scoring and how the child behaved during the particular test was not. Knowledge of the

features of a particular test and how it would be used to help determine a suspected

diagnosis was the chief factor relied on in deciding the validity of using the test with the

selected evaluators. This proved to be a shortcoming for some participants. One clinical

child psychologists stated that she would not make a diagnosis for vignette 1 (ADHD)

without additional information, such as behavioral checklists and some developmental

testing to determine functional age (Appendix D). Her hypothesis was correct, and so was

her diagnosis. If the scoring had been provided, it may have made a significant difference

in how other participants diagnosed each vignette. To that end, participants were given

limited information to diagnose the vignettes and did not use any other tools other than

referring to the *DSM−IV−TR*.

Although this particular clinical child psychologist made the correct diagnosis, she

was correct in stating the need for further supporting evidence in addition to a teacher and

parent report. Moreover, there is a possibility that other participants felt limited with the

lack of assessments and/or scoring provided. All things considered, clinical child psychologists were at an advantage over pediatric primary physicians by virtue of the differences in their training. Specifically, clinical child psychologists are assumed to be more familiar with assessments and questionnaires as effective tools for gathering information to rule out or help determine an accurate identification of a disorder (Campbell, 2006; Handler & DuPaul, 2005).

A fourth limitation was generalizability. Although the goal of this study was to examine differences between clinical child psychologists and pediatric primary care physicians, the researchers recognize that this study may not be generalizable, because, in addition to its small sample size, it did not include others who work with and diagnose preschool-aged children, such as physicians' assistants (PAs), licensed clinical social workers (LCSWs), or licensed professional counselors (LPCs). Based on the number of therapists in Doctor Database that was used in three states in the northeast (36, 417) and one state in the west (17,818), there is a high likelihood that a large majority of treating professionals for this age group are not clinical child psychologists (http://doctordatabase.com). In addition, the manner in which vignettes were vetted may have presented problems for participants when diagnosing preschool-aged children and, therefore, may not have measured what was expected.

The fifth limitation was volunteer bias, previously referred to in this document as self- selection bias. Given that each participant volunteered for this study, participants confident about their diagnosing skills may be overrepresented in the study. In light of this, of the 33 participants, 10 clinical child psychologists indicated that they had 21 or more years of experience (30.3%) (Appendix C, Table 13), and 9 pediatric primary care

physicians indicated that they had 21 or more years of experience (27.3%) (Appendix C,

Table 14). In addition, preschool-aged children are a challenge to diagnose. With that said,

it is possible that, because of the newness of the subspecialty, and few training

opportunities available to learn how to diagnose and treat preschool-aged children,

experience may have been a factor for those who chose to participate.

The relevance of this study as it relates to psychology in general is that it raises

questions about expertise in diagnosing preschool-age children for ADHD and PTSD and

should encourage an open discussion regarding better methods and better diagnosing

criteria (Campbell, 2006). This point is particularly relevant when one considers the rise in

ADHD diagnoses in young children, and the relatively new acknowledgement that PTSD

can present in preschool-aged children.

Future Directions

Future research might include conducting studies with pediatric primary care

physicians and clinical child psychologists to determine if they develop greater acuity

when conducting interviews, observations, or assessments. Such research should be done

in a supportive environment that emphasizes the potential benefits for at-risk children and

for clinicians themselves, who may become better diagnosticians. It might also help

contribute to raising awareness among medical and mental health professionals that

improved diagnoses of preschool-aged children can prevent a lifetime of misdiagnoses for

the individual as he or she matures. Positive results in these areas could complement,

enhance, and expand the validity of this vignette-based study.

Future research could also integrate behavioral health services with referral

services for ADHD and PTSD. Better integration could lead to more rigorous and

accurate communication between health providers who work in teams or between social

service organizations and community mental health facilities that refer their clients to

specialists in child psychology and to pediatricians. This could help government agencies

make better decisions regarding the implementation of integrated behavioral health

services, which, in turn, has the potential of speeding up the treatment process and

reducing costs.

Future research might include the development of an instrument that would be

useful in clinical practice by enabling the child/patient to contribute information that may

be helpful in diagnosing, whether the clinical practice be in an integrative behavioral

health setting or private practice for clinical child psychologists and pediatric primary care

physicians diagnosing preschool-aged children. More accurately diagnosing PTSD in

preschool-aged children is a goal that has been recommended by a number of researchers

in the field (Sauter & Franklin, 1998). Such an instrument may be indicated because, as

demonstrated in this study, clinical child psychologists and pediatric primary care

physicians seem to depend heavily on parent reports to determine a diagnosis for a

preschool-aged child, as the children in this population cannot verbally articulate their

experiences or feelings. This factor makes the parent report necessary; it also serves as the

best gauge to understand family constellations and family history (Schreeinga et al.,

2003). A self-reporting instrument could reduce this diagnosing barrier by reducing the

ambiguity of traits and behaviors that could confound the diagnoses of ADHD and PTSD.

Additional benefits of improved diagnostic tools for psychologists and

pediatricians could be in communicating advances in detecting preschool-aged ADHD or

PTSD to parents, Head Start programs, pre-Head Start programs, prekindergarten

programs, and child welfare agencies responsible for the emotional and behavioral well-being of children in their care. Greater awareness might include public and professional promotion of the importance of clinical child psychologists with expertise in diagnosing and treating preschool-aged emotional and behavioral disorders. Greater visibility and respect for this subspecialty as a possible career choice could expand the numbers of future professionals entering the field, thereby increasing the amount and availability of doctoral level training. The result would be recognition of the importance of clinical child psychology in the curriculum. Besides promoting clinical child psychology as a specialty, enhanced diagnostic tools could attract professionals to attend advanced annual training curricula. This would increase the exposure of current clinical child psychologists to the most recent advancements within this specialty.

Currently, there is a dearth of studies on preschool-aged ADHD and a lack of recognition of PTSD in preschool-aged children. The uniqueness of diagnosing preschool-aged children is unlike that in any other age group. In ADHD, symptoms could be due to normal development and in PTSD symptoms could be due to recurring traumatic events or adverse childhood experiences (ACEs). Arriving at an accurate diagnosis may be difficult, but it is critical as it will determine proper treatment (Weinstein et al., 2002).

ACEs are recurring traumas that are experienced by preschool-aged children through dysfunctional, chaotic, and disruptive family environments. Often, the symptom presentation resembles disruptive behaviors as seen with ADHD, and subsequently diagnosed as ADHD, yet the behaviors upon closer examination may not evolve from biological characteristics. Because of this, it is important to be clear in recognizing the

presentation of such behaviors in conjunction with histories of preschool-aged children. Otherwise, it is impossible to render an accurate diagnosis.

A shift has begun towards better recognition of trauma (ACE) symptoms in preschool-aged children (Burke et al., 2011), but not necessarily for pediatric primary care physicians and clinical child psychologists. Identifying PTSD associated with ACEs early in this age group is critical, as not identifying it may lead to compromised school-age learning, poor memory, academic failure, and disruptive behavior. Early identification may also prevent the fully evolved diathesis of PTSD. Environmental factors are often overlooked as events affecting the preschool-aged child's well-being, or they are viewed only as part of family history. Additionally, ACEs are not described as being as prevalent as they actually are in the *DSM−IV* criteria. If clinicians cannot identify trauma, they cannot diagnose trauma and, consequently, cannot treat trauma.

As shown in this investigation, clinical child psychologists and pediatric primary care physicians alike use unreliable methods (non-ACEs) for assessing and diagnosing ADHD in preschool-aged children (Bruchmuller et al., 2012). Similarly, methods such as diagnosing after a few prominent symptoms are identified, incorporating a hunch, or using a best guess clinical judgment have all been identified as possible contributors to the rise in ADHD diagnosing in the 3-to-5-year-old age group (Bruchmuller et al., 2012).

The results of this study confirmed that clinical child psychologists and pediatric primary care physicians applied diagnostic techniques that reflected their training. Each profession has the goal of choosing the best treatment to obtain the best outcomes for a quality of life that will help the child reach developmental milestones from infancy through early adolescence. Members of each profession approach diagnosing in vastly

different ways, but neither is ideal. This is a serious issue because an inaccurate diagnosis of a preschool-aged child could have deleterious effects on his or her future development, as the treatment for ADHD is vastly different from PTSD.

In order to provide the care necessary to help preschool-aged children meet developmental milestones in a healthy way, clinical child psychologists and pediatric primary care physicians responsible for their care should be required to be well informed and well trained with this age group prior to attempting to diagnose and treat. In the final analysis, when misdiagnosed with ADHD, and subsequently treated with medications like Ritalin or Adderall, the regimen may actually hurt a preschool-aged child rather than heal. The potential harm to the child is unacceptable. Because of these concerns, the importance of this study was to identify how well pediatric primary care physicians and clinical child psychologists were able to distinguish between ADHD and PTSD (complex PTSD/ACEs) in preschool-aged children with the goal of making a diagnosis. In the end, increasing the odds of diagnosing behavioral and childhood disorders accurately increases the odds for the next generation to have the bright future it deserves.

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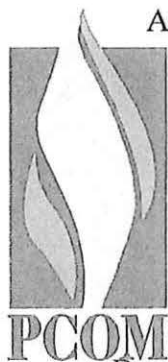
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PCOM

Appendix A

Dear Clinician:

Clinical Child Psychologist Recruitment Letter

Your expertise with pre-school aged children (age 3 to 5) is invaluable and greatly appreciated. We are conducting a study and need your help. The purpose of this study is to help us better understand the factors that influence diagnosing when preschool-aged children present with behavioral problems in clinical practice. It examines how clinicians make mental health diagnostic decisions for this age group.

In order to participate, simply type the URL link below exactly as written into your search/address bar. You are eligible if you are a licensed Ph.D., Psy. D., Ed.D., or M.A. in clinical psychology and have experience diagnosing this age group. Return of a completed survey will constitute consent. You will have two weeks to complete the survey. You are free to withdraw from this study at any time before ending by exiting the survey once started. If you do complete to the end, the survey will automatically return to the researcher.

If you agree to participate in the study, you will read a brief clinical vignette and answer two questions. Each question requires a response in order to advance. There is also an area to provide supporting information. There are five vignettes total. In addition, you will also be asked demographic questions and questions about your professional experience. The entire study should take 20 minutes to complete.

This is an anonymous and voluntary survey. Please *do not* include your name or any identifying information on your survey. The patients identifying information in the vignettes have been changed significantly. Any resemblance to another person may be purely coincidental. All results from this survey will be summarized in aggregate form and sent to you upon request.

If you have questions about this research study, please contact Dr. Beverly White, Psy.D. at Philadelphia College of Osteopathic Medicine (215)871-6497 or Beverlywh@pcom.edu. If you have questions about their rights as a research participant, you may contact the Research and Compliance Specialist in Philadelphia College of Osteopathic Medicine's Office of Research and Sponsored Programs at (215) 871-6782.

Thank you very much for your help with this project.

SurveyMonkey URL Link

https://www.surveymonkey.com/s/PreschoolVignettes

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Appendix A

Pediatric Primary Care Physician Recruitment Letter

Dear Clinician:

Your expertise with pre-school aged children (age 3 to 5) is invaluable and greatly appreciated. We are conducting a study and need your help. The purpose of this study is to help us better understand the factors that influence diagnosing when preschool-aged children present with behavioral problems in clinical practice. It examines how clinicians make mental health diagnostic decisions for this age group.

In order to participate, simply type the URL link below exactly as written into your search/address bar. You are eligible if you are a board certified M.D. or D.O. in pediatrics and have experience diagnosing this age group. Return of a completed survey will constitute consent. You will have two weeks to complete the survey. You are free to withdraw at any time before ending by exiting the survey once started. If you do complete to the end, the survey will automatically return to the researcher.

If you agree to participate in the study, you will read a brief clinical vignette and answer two questions. Each question requires a response in order to advance. There is also an area to provide supporting information. There are five vignettes total. In addition, you will also be asked demographic questions and questions about your professional experience. The entire study should take 20 minutes to complete.

This is an anonymous and voluntary survey. Please *do not* include your name or any identifying information on your survey. The patients identifying information in the vignettes have been changed significantly. Any resemblance to another person may be purely coincidental. All results from this survey will be summarized in aggregate form and sent to you upon request.

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Thank you very much for your help with this project.

SurveyMonkey URL Link

https://www.surveymonkey.com/s/PreschoolVignettes

Appendix B

Study Vignettes

<u>**Vignette 1 - Jaquan**</u>

A 3 ½-year old Hispanic American boy named Jaquan is in your office for a visit. Jaquan's last visit was 8-months ago in his pediatrician's office. Jaquan's problems in preschool are primarily aggression with peers and wild uncontrollable behavior. His preschool teacher has recently asked to consider removing him from school. Jaquan's mother also complained about his frequent temper tantrums and defiance reporting that he does not like taking "no" for an answer. His overly active behavior is described as, always on the go, constantly moving. He has a tendency to get overly excited and out of control, and not waiting his turn, especially when around other children. Jaquan's mother reported that he was an active infant with irregular sleep patterns and had no feeding problems. Jaquan had no problem being calmed in early infancy, but after 6-months he resisted physical contact. After age 1 her concerns were on Jaquan's excessive high activity level and his difficulty settling down. By age 3 her concerns also included his aggression with peers, short attention span, excitability, and discipline problems. Jaquan's parents are middle class, well-educated professional parents who are extremely patient. They set clear and relatively consistent limits. Jaquan and his family live in a quiet

residential neighborhood with his father, younger brother of 1 and stay at

home mother. His parent's do not appear to be having any marital discord.

Upon observation, Jaquan has a short attention span, fidgetiness, need for

structure, and tendency to leave his seat frequently. During free play

Jaquan was more interested in locked cabinets than playing with a toy.

Please make the best possible diagnosis.

What area the salient factors used to arrive at your diagnosis? Please select
all that apply.

Parent Report
Teacher Report
Child Observation
Patient's Age
Patient's Gender
Patient's Economic Status
Patient's Insurance
Patient's Previous Diagnosis
Patient's Witnessing Domestic Violence
Patient's Witnessing Homicide
Patient's Witnessing Death of Loved One
Patient's Death of Pet
Patient's Emotional Neglect
Patient's Physical Neglect
Patient's Parents' Separation
Patient's Parents' Divorce
Patient's Parents' Incarceration
Patient's Parents' Substance Addiction
Patient's Parents' Mental Illness
Patient's Emotional Abuse
Patient's Physical Abuse

Supporting information:

Please provide any relevant information that helped make the diagnosis.

Vignette 2 - Samuel

A 3-year old Caucasian boy named Samuel is in your office for a visit. Samuel is living with his mother, father and brother. Samuel's mother reported that she is at her 'wits end' and no longer know how to deal with her son's high activity level. She reported he could not sit still, was up at 6 a.m. 'Running the halls' and that he was 'moving all the time.' She also reported that his attention span is of 'less than 20 seconds'. She stated that she first became concerned when Samuel was 9-months old displaying high activity and sleep difficulties. She noted that he was a restless sleeper who moved around a lot during sleep and that he slept for relatively brief periods. By age 3, he was no longer taking afternoon naps. She reported that Samuel was unable to relax and unable to focus on one toy for more than a few seconds, tending to move rapidly from one toy to another during play. She further described relatively violent temper tantrums that included throwing things, hitting and kicking, screaming, and crying, and aggressive around other children. Samuel's mother described him as a cuddly infant without feeding problems. His mother and father both graduated from high school and have managerial jobs. Six weeks after his birth, his mother returned to work and placed Samuel in a family day care. Upon observation he is frequently out of his seat and off task during structured tasks. Samuel's mother reported that she has suffered with depression since she was a teenager and is taking medication. Samuel's father was incarcerated when he was born and was just released a year ago. She reported that after his father's return from prison, they began to

argue frequently and are now separated and planning to divorce. Even though his father is threatening to sue for custody of Samuel, he rarely spends time with him. Samuel started nighttime enuresis and having nightmares, often wanting to sleep with his mother. Samuel also resorted to angry outbursts with other children at school.

Make the best possible diagnosis.

What are the salient factors used to arrive at your diagnosis? Please select all all that apply.

Parent Report
Teacher Report
Child Observation
Patient's Age
Patient's Gender
Patient's Economic Status
Patient's Insurance
Patient's Previous Diagnosis
Patient's Witnessing Domestic Violence
Patient's Witnessing Homicide
Patient's Witnessing Death of Loved One
Patient's Death of Pet
Patient's Emotional Neglect
Patient's Physical Neglect
Patient's Parents' Separation
Patient's Parents' Divorce
Patient's Parents' Incarceration
Patient's Parents' Substance Addiction
Patient's Parents' Mental Illness
Patient's Emotional Abuse
Patient's Physical Abuse
Patient's Sexual Abuse

Supporting information:

Please provide any relevant information that helped make the diagnosis.

Vignette 3 – Lynn

A 5-year old African American girl named Lynn is in your office for a visit. Lynn was repeatedly sexually abused by two men prior to age 5. Her history revealed that her mother suffered from bipolar disorder and overdosed on heroin when she was 3 years old. Her history also revealed that her father has been incarcerated since she was born and has no role in her life. She had no other family members to care for her, therefore was placed into dependent care. Following removal and placement in foster care, she disrupted several placements with sexually provocative and aggressive behaviors. Her foster parents described her as detached and difficult to bond with. Lynn reported that she feared someone would hurt her, often slept fully clothed, and feared going to the bathroom alone. She avoided talking about the abuse, had recurrent nightmares of "bad people" who hurt her and her family, and repetitively played out sexual behaviors and acts in which smaller dolls were hurt or victimized by larger ones. Lynn was enuretic and encopretic. She reacted intensely with outbursts to mild frustration, tearing school books and clothing and scratching herself over minor mistakes in schoolwork. She was referred due to her teacher's concerns about inattention and impulsivity. Lynn was recently diagnosed with ADHD and her current medications are methylphenidate (10 mg) in morning and (5 mg) at noon. Her classroom behavior and her ability to complete her schoolwork improved markedly. However, her sexual acting-out, aggression and self-mutilation continued, leading to a disruption of her foster care placement.

Please make the best possible diagnosis.

What are the salient factors used to arrive at your diagnosis? Please select all that apply.

Parent Report
Teacher Report
Child Observation
Patient's Age
Patient's Gender
Patient's Economic Status
Patient's Insurance
Patient's Previous Diagnosis
Patient's Witnessing Domestic Violence
Patient's Witnessing Homicide
Patient's Witnessing Death of Loved One
Patient's Death of Pet
Patient's Emotional Neglect
Patient's Physical Neglect
Patient's Parents' Separation
Patient's Parents' Divorce
Patient's Parents' Incarceration
Patient's Parents' Substance Addiction
Patient's Parents' Mental Illness
Patient's Emotional Abuse
Patient's Physical Abuse
Patient's Sexual Abuse

Supporting information:

Please provide any relevant information that helped make the diagnosis.

Vignette 4 – Jason

A 5-year old Caucasian boy named Jason is in your office for a visit. Jason has severe problems with attention, hyperactivity, temper tantrums and aggressive behavior. He had previously been diagnosed with ADHD and treated with multiple medications, including methylphenidte (15 mg 2x day), imipramine, (75 mg), Haldol (dosage unknown), and thioridazine (50 mg bedtime), all with minimal success. Jason had a history of severe physical and sexual abuse. He was removed from his biological parents at 9-months due to his parent's substance addiction and incarceration. Jason was placed in a foster home where he was also sexually and physically abused. The sexual abuse had especially occurred at bath-time. He was removed at age three and placed in his current home. Jason is fearful of the bathroom, required much reassurance to use the toilet, and had to be bathed in the kitchen sink. He is enuretic and frequently tries to engage other children in sexually aggressive play. Jason's sleep is seriously disturbed. He has been with his current foster parents for 2-years yet they feel he is detached and difficult to bond with. Upon observation, Jason is constantly in motion and difficult to control. He shifts activities quickly, shows an exaggerated startle response and is easily distracted by external stimuli. Jason is hyperaroused and driven in his play.

Please make the best possible diagnosis

What are the salient factors used to arrive at your diagnosis? Please all that apply.

Parent Report
Teacher Report
Child Observation
Patient's Age
Patient's Gender
Patient's Economic Status
Patient's Insurance
Patient's Previous Diagnosis
Patient's Witnessing Domestic Violence
Patient's Witnessing Homicide
Patient's Witnessing Death of Loved One
Patient's Death of Pet
Patient's Emotional Neglect
Patient's Physical Neglect
Patient's Parents' Separation
Patient's Parents' Divorce
Patient's Parents' Incarceration
Patient's Parents' Substance Addiction
Patient's Parents' Mental Illness
Patient's Emotional Abuse
Patient's Physical Abuse
Patient's Sexual Abuse

Supporting information:

Please provide any relevant information that helped make the diagnosis.

Vignette 5 – Jamie

A 5-year old African American boy named Jamie is in your office for a visit. Jamie has difficulties with hyperactivity, inattentiveness, physically and verbally aggressive and defiant behaviors. Jamie is in kindergarten and is a bright boy. Jamie's mother was murdered in his presence on the front porch of his home when he was 3-years old. He has moved multiple times since her murder and is now living with his father and 5 siblings. His disciplinary file is extensive and there are write-ups from his school teacher and school staff as well as complaints from peers. Jamie refuses to complete his school work as well as do the work. He constantly hits on other students in the classroom, often disrupting the flow of a teaching session. Jamie fidgets and cannot stay in his seat. He moves back and forth from one area of the classroom to the next, disrupting the class activities. He will scribble on another classmates schoolwork while passing by. Jamie will jump on classmates' backs, pretending he is a pony, constantly moving or engaging in outlandish behaviors simply to get attention. According to the teacher's report, Jamie has a hard time settling down in the classroom and is easily distracted by noises outside or activity in the hallway. Jamie's teacher reports that he is the class clown, refuses to listen to direction and is very disrespectful towards women. Jamie's father reports that he is a good child and follows rules at home and engages in normal sibling rivalry. His father also reports that Jamie does not have tantrums at home.

Please make the best possible diagnosis.

What are the salient factors used to arrive at your diagnosis? Please select all that apply.

Parent Report
Teacher Report
Child Observation
Patient's Age
Patient's Gender
Patient's Economic Status
Patient's Insurance
Patient's Previous Diagnosis
Patient's Witnessing Domestic Violence
Patient's Witnessing Homicide
Patient's Witnessing Death of Loved One
Patient's Death of Pet
Patient's Emotional Neglect
Patient's Physical Neglect
Patient's Parents' Separation
Patient's Parents' Divorce
Patient's Parents' Incarceration
Patient's Parents' Substance Addiction
Patient's Parents' Mental Illness
Patient's Emotional Abuse
Patient's Physical Abuse
Patient's Sexual Abuse

Supporting information:

Please provide any relevant information that helped make the diagnosis.

Vignette # 5 –Lamere

A 2 ½ -year old African American boy named Lamere is in your office for a visit.

Lamere's mother reported that he has a high energy level, sleep problems, and fearfulness. She stated that Lamere is difficult to discipline and is at a loss about how to handle his behavior. Lamere's mother complained of his impatience, low frustration tolerance, difficulty playing alone, lack of concentration, and fussiness. She also reported that Lamere could only amuse himself up to 20 minutes at a stretch but enjoyed watching Sesame Street. Lamere's mother is a highly anxious woman with doubts about her own competence. He is hypervigilant around her and is often unsure how to respond. She reports that he even avoids her and resists being comforted. Her disciplinary methods included reasoning, smacking and time-out as well as threatening to spank him with a wooden spoon and screaming at him when he misbehaved. Currently, Lamere is not in preschool, therefore has had limited experiences with peers. Lamere's father is not involved in his daily life and his mother and father constantly argue. Lamere's mother's high anxiety, anger and frustration with Lamere offer intense concerns for his negative perceptions and low self-esteem. Upon observation, Lamere frequently gets out of his seat and is quite distractible. He is impulsive, has limited involvement with his toys and displays somewhat of a disorganized play.

Please make the best possible diagnosis.

What are the salient factors used to arrive at your diagnosis? Please select all that apply.

Parent Report
Teacher Report
Child Observation
Patient's Age
Patient's Gender
Patient's Economic Status
Patient's Insurance
Patient's Previous Diagnosis
Patient's Witnessing Domestic Violence
Patient's Witnessing Homicide
Patient's Witnessing of Death Loved One
Patient's Death of Pet
Patient's Emotional Neglect
Patient's Physical Neglect
Patient's Parents' Separation
Patient's Parents' Divorce
Patient's Parents' Incarceration
Patient's Parents' Substance Addiction
Patient's Parents' Mental Illness
Patient's Emotional Abuse
Patient's Physical Abuse
Patient's Sexual Abuse

Supporting information:

Please provide any relevant information that helped make the diagnosis.

Appendix C

Additional Tables

Table 10

Clinical Child Psychologists' Experience with Preschool Aged Children

Question	Response	%	n	Answered	Skipped
Number of children presenting per week with ADHD	1-3	25.0	6	24	10
	4-6	8.3	2		
	7-9	8.3	2		
	10-12	4.2	1		
	13-15	4.2	1		
	16-18	0.0	0		
	19-20	0.0	0		
	21 and above	0.0	0		
Number of children presenting per week with trauma/PTSD	1-3	41.7	10	24	10
	4-6	8.3	2		
	7-9	0.0	0		
	10-12	0.0	0		
	13-15	0.0	0		
	16-18	0.0	0		
	19-20	0.0	0		
	21 and above	0.0	0		
Average age range of children diagnosed with ADHD	3-5	8.3	2	24	10
	6-11	37.5	9		
	12-15	0.0	0		
	16-19	4.2	1		
Average age range of children diagnosed with Trauma/PTSD	3-5	12.5	3	24	10
	6-11	29.2	7		
	12-15	4.2	1		
	16-19	4.2	1		
Number of children evaluated with ADHD in the past year	1-3	4.2	1	24	10
	4-6	4.2	1		
	7-9	12.5	3		
	10-12	8.3	2		
	13-15	4.2	1		
	16-18	4.2	1		
	19-20	0.0	0		
	21 and above	12.5	3		
Number of children evaluated with trauma/PTSD in the past year	1-3	20.8	5	24	10
	4-6	0.0	0		
	7-9	12.5	3		
	10-12	16.7	4		
	13-15	0.0	0		
	16-18	0.0	0		
	19-20	4.2	1		
	21 and above	0.0	0		

Question	Response	%	n	Answered	Skipped
Average amount of time spent on an ADHD evaluation	15 mins.	0.0	0	24	10
	20 mins.	0.0	0		
	30 mins.	0.0	0		
	35 mins.	0.0	0		
	40 mins.	0.0	0		
	45 mins.	0.0	0		
	50 mins.	4.2	1		
	55 mins.	0.0	0		
	60 mins.	8.3	2		
	65 mins.	0.0	0		
	70 mins.	4.2	1		
	75 mins.	4.2	1		
	80 mins.	0.0	0		
	85 mins.	0.0	0		
	90 mins.	29.2	7		
Average amount of time spent on a trauma/PTSD evaluation	15 mins.	4.2	1	24	10
	20 mins.	0.0	0		
	30 mins.	25.0	6		
	35 mins.	0.0	0		
	40 mins.	0.0	0		
	45 mins.	12.5	3		
	50 mins.	0.0	0		
	55 mins.	0.0	0		
	60 mins.	20.8	5		
	65 mins.	0.0	0		
	70 mins.	4.2	1		
	75 mins.	4.2	1		
	80 mins.	0.0	0		
	85 mins.	0.0	0		
	90 mins.	29.2	7		
Primary Work Setting	BH hosp	4.2	1	24	10
	Comm MH	8.3	2		
	Group home	0.0	0		
	Inpatient facility	0.0	0		
	Outpatient facility	12.5	3		
	Private practice	25.0	6		
	Psych hospital	0.0	0		
	Res Tx facility	0.0	0		

Note. BH = behavioral health; Comm = community; MH = mental health; Psych = psychiatric; Res = residential; Tx = treatment

Table 11

Pediatric Primary Care Physicians' Experience with Preschool-Aged Children

Question	Response	%	*n*	*Answered*	*Skipped*
Number of children presenting per week with ADHD	1-3	16.7	4	24	10
	4-6	8.3	2		
	7-9	4.2	1		
	10-12	4.2	1		
	13-15	4.2	1		
	16-18	4.2	1		
	19-20	0.0	0		
	21 and above	4.2	1		
Number of children presenting per week with trauma/PTSD	1-3	37.5	9	24	10
	4-6	4.2	2		
	7-9	0.0	0		
	10-12	0.0	0		
	13-15	0.0	0		
	16-18	0.0	0		
	19-20	0.0	0		
	21 and above	0.0	0		
Average age range of children diagnosed with ADHD	3-5	4.2	1	24	10
	6-11	41.7	10		
	12-15	0.0	0		
	16-19	0.0	0		
Average age range of children diagnosed with Trauma/PTSD	3-5	8.3	2	24	10
	6-11	29.2	7		
	12-15	8.3	2		
	16-19	0.0	0		
Number of children evaluated with ADHD in the past year	1-3	0.0	0	24	10
	4-6	8.2	2		
	7-9	12.5	3		
	10-12	4.2	1		
	13-15	8.3	2		
	16-18	0.0	0		
	19-20	0.0	0		
	21 and above	16.7	4		
Number of children evaluated with trauma/PTSD in the past year	1-3	33.3	8	24	10
	4-6	0.0	0		
	7-9	0.0	0		
	10-12	4.2	1		
	13-15	4.2	1		
	16-18	0.0	0		
	19-20	4.2	1		
	21 and above	0.0	0		

continued

Question	Response	%	n	Answered	Skipped
Average amount of time spent on an ADHD evaluation	15 mins.	8.3	2	24	10
	20 mins.	0.0	0		
	30 mins.	8.3	2		
	35 mins.	0.0	0		
	40 mins.	0.0	0		
	45 mins.	8.3	2		
	50 mins.	0.0	0		
	55 mins.	0.0	0		
	60 mins.	12.5	3		
	65 mins.	0.0	0		
	70 mins.	0.0	0		
	75 mins.	0.0	0		
	80 mins.	0.0	0		
	85 mins.	0.0	0		
	90 mins.	8.3	2		
Average amount of time spent on a Trauma/PTSD evaluation	15 mins.	4.2	1	24	10
	20 mins.	0.0	0		
	30 mins.	20.8	5		
	35 mins.	0.0	0		
	40 mins.	0.0	0		
	45 mins.	8.3	2		
	50 mins.	0.0	0		
	55 mins.	0.0	0		
	60 mins.	8.3	2		
	65 mins.	0.0	0		
	70 mins.	0.0	0		
	75 mins.	0.0	0		
	80 mins.	0.0	0		
	85 mins.	0.0	0		
	90 mins.	8.3	1		
Primary Work Setting	BH hosp	0.0	0	24	10
	Comm MH	0.0	0		
	Group home	0.0	0		
	Inpatient facility	0.0	0		
	Outpatient facility	16.7	4		
	Private practice	29.2	7		
	Psych hospital	0.0	0		
	Res Tx facility	0.0	0		

Note. BH = behavioral health; Comm = community; MH = mental health; Psych = psychiatric; Res = residential; Tx = treatment

Table 12

Stated Postdoctoral or Specialized Training for Preschool aged Children

Clinician Type	Specialized Training	Count
Clinical Child Psychologist	*Postdoctoral:* • Pediatric Primary Care • Pediatric hospital (2 years) • Clinical psychology Fellowship • Community mental health in children/adolescents • Catholic Charities Center for Counseling • Children's Hospital of Central California	6
	In-Practice: • Clinic work; private practice • Head of preschool for several years; taught lower elementary; counselor middle school • Chief psychologist at Head Start (3 years) • 26 years of practice • Graduate teaching in preschool and early childhood courses	5
	Advance training: • Advanced training program in child and family therapy • Autism • Neuropsychology specialization in children	3
	Predoctoral: • Stanford's Children Hospital • San Diego Regional Center • Children's Hospital Child Guidance Center	3
	Continuing Education: • 30 years of continuing education and practice • Continuing education	2
	None	2
	Practicum: • Training in child/adolescent	1
	Doctoral Program: • Accredited program in child/adolescent	1
	Conferences: • Zero to Three Conferences	1
	Certificate: • Certified as child custody evaluator in LA courts	1
Pediatric Primary Care Physician	*Pediatric Residency*	7
	None	5
	Board Certified: • Pediatrics • Neurodevelopmental pediatrics and developmental-behavioral pediatrics	2

Clinician Type	Specialized Training	Count
	Training Program:	1
	• Master's in clinical counseling; practicum and internship in pediatric setting	
	In-Practice:	1
	• Chief resident in pediatrics; associate chair, Department of Pediatrics	
	Conferences	1

Table 13.

Clinical Child Psychologists' Demographics

Question	Response	%	n	Answered	Skipped
Licensed clinical psychologist	Yes	97.1	34	34	0
Clinician gender	Female	36.4	12	33	1
	Male	15.2	5		
Professional designation	D.O.	0.0	0	33	1
	M.D.	0.0	0		
	Ed.D.	0.0	0		
	Ph.D.	36.4	12		
	Psy.D.	15.2	5		
Area of specialty	Pediatrics	0.0	0	33	1
	Early childhood	12.1	4		
	Preschool age	0.0	0		
	School age	0.0	0		
	Adolescents	3.0	1		
	All children and adolescents	36.4	12		
	No specialty	0.0	0		
Number of years experience	1-3	3.0	1	33	1
	4-6	6.1	2		
	7-9	3.0	2		
	10-12	3.0	2		
	13-15	6.1	2		
	16-18	0.0	2		
	19-20	0.0	2		
	21 and above	30.3	10		

Question	Response	%	n	Answered	Skipped
Theoretical foundation	Behavioral	3.0	1	33	1
	Client-centered	0.0	0		
	Cognitive	0.0	0		
	Cognitive-behavioral	21.2	7		
	Eclectic	12.1	4		
	Educational/school	3.0	1		
	Family systems	3.0	1		
	Gestalt	0.0	0		
	Humanistic	3.0	1		
	Person-centered	3.0	1		
	Psychoanalysis	0.0	0		
	Psychodynamic	3.0	1		
	Primary care medicine	0.0	0		

Table 14.

Pediatric Primary Care Physicians' Demographics

Question	Response	%	*n*	Answered	Skipped
Board certified pediatrician	Yes	97.1	34	34	0
Clinician gender	Female	24.2	8	33	1
	Male	24.2	8		
Professional designation	D.O.	12.1	0	33	1
	M.D.	38.4	0		
	Ed.D.	0.0	0		
	Ph.D.	0	0		
	Psy.D.	15.2	5		
Area of specialty	Pediatrics	48.5	16	33	1
	Early childhood	0.0	0		
	Preschool age	0.0	0		
	School age	0.0	0		
	Adolescents	0.0	0		
	All children and adolescents	0.0	0		
	No specialty	0.0	0		
Number of years experience	1-3	0.00	16	33	1
	4-6	0.00	0		
	7-9	3.00	0		
	10-12	3.00	0		

Question	Response	%	n	Answered	Skipped
Theoretical foundation	Behavioral	3.0	1	33	1
	Client-centered	0.0	0		
	Cognitive	0.0	0		
	Cognitive-behavioral	3.0	1		
	Eclectic	0.0	0		
	Educational/school	0.0	0		
	Family systems	0.0	0		
	Gestalt	0.0	0		
	Humanistic	0.0	0		
	Person-centered	3.0	1		
	Psychoanalysis	0.0	0		
	Psychodynamic	0.0	0		
	Primary care medicine	39.4	9		

Appendix D

Free Text Responses Supporting Diagnoses Made

Vignette	Vetted Diagnosis	Clinician Diagnosis	Reasoning in Formulating Diagnosis
Clinical Child Psychologists			
2	PTSD	ADHD	Hyperactivity has been consistent despite other changes in the home.
3	PTSD	PTSD	Multiple traumas
4	ADHD	ODD	Patient is able to control behavior at home. While traumas likely impact his functioning, not enough information is provided to yield a PTSD diagnosis.
1	ADHD	ADHD	Combination of symptoms of inattention, hyperactivity and impulsivity
2	PTSD	ADHD	Combination of inattention, hyperactivity and impulsivity.
1	ADHD	Disrupt Beh DO	Was I supposed to be able to see results of the assessments completed? Saw there was

			a teacher and parent report but no results were reported.
1	ADHD	ADHD	Impulsivity, hyperactivity, short attention span
2	PTSD	Adj DO	Onset of behavior; father's incarceration; parent discord
3	PTSD	PTSD	History of physical and sexual abuse
4	ADHD	PTSD	Observing murder of his mother
5	RAD	Parent Depress	The mother's history of depression, poor parenting skills and consistency
1	ADHD	ADHD	I would not make a diagnosis without additional information such as behavioral checklists, and some developmental testing to determine functional age.
2	PTSD	PTSD	I would gather additional assessment information including developmental assessment and parent and teacher behavioral rating scales.
3	PTSD	PTSD	The history of parental substance abuse and separation at an early age would be strong indicators of attachment problems while the descriptions of the episodes of abuse align with PTSD behaviors.
4	ADHD	ODD	History of trauma and separation from his mother following her murder.

5	RAD	Parent/Child	Parent interview should be supplemented by additional assessment tools, including Parent Stress Inventory, Parenting Styles Inventory and Preschool BASC.
1	ADHD	ADHD	I assume all developmental milestones are typical and there are no language issues because this was not mentioned. Symptoms of ADHD which are persistent and prevalent at school and home.
1	ADHD	Autism	Behavior age of onset
2	PTSD	ADHD	Behavior reported age of onset
3	PTSD	ADHD	In utero substance exposure? What drug or et oh? How long Amount?
4	ADHD	ODD	Witnessing a murder
5	RAD	Autism	Physical abuse in the home. Corporal punishment issues also need to be addressed
5	RAD	Parent/Child	My typical diagnostic method for children is to diagnose with the lease restrictive diagnosis. The only time I depart from this rule is when it would lead patients requiring care to not be able to receive it due to insurance issues.

4	ADHD	ADHD	Multiple caregiver changes
1	ADHD	ADHD	Active, impulsive, over focus on what interests him, lack focus in mundane activities change in wanting touch--as an infant.
2	PTSD	Anxiety	I would want to know more about the family daycare setting he was in. However, parents have emotional and legal problems that would leave them with little energy left to manage a "difficult" child.
3	PTSD	PTSD	The fact that this child was medicated with powerful psychoactive drugs is very disturbing. He may also have brain "damage" from this level of medication. Although he shows symptoms that could be diagnosed as ADHD, I think PTSD is the cause of the reported symptoms.
4	ADHD	PTSD	Saw his mother murdered. Many moves. Aggressive behaviors in some contexts as a way of protecting himself. Dad--I am concerned about "normal sibling rivalry" If Jamie is the youngest of 5 brothers, there may be aggression towards him that will exacerbate his fears and anxieties leading to his aggressive behaviors in the school setting.

5	RAD	No DX	Mom is unrealistic in her expectations of this child and needs help in managing his behavior that does not include smacking, threats, and screaming.

Pediatric

Primary Care

Physicians

1	ADHD	Aut/PDD	Aggressive behavior, does not like contact, cannot sit still, problems, in multiple settings
2	PTSD	Adj DO	Family history , no mention of aversion to contact, social circumstances
3	PTSD	PTSD	Terrible life circumstances, social situation
4	ADHD	PTSD	Horrific life experiences, witnessed murder, single parent with multiple sibs, school reports
5	RAD	Adj DO	It sounds like he is not getting consistent disciplinary measures, worsened by mother's frustration and her own anxiety.
4	ADHD	PTSD	Don't know how to classify patient moving a lot, also impacted my "best possible diagnosis"
5	RAD	Disrup Beh DO	Also would include parents' constant arguing

1	ADHD	ODD	Incomplete history without physical findings. Given no other information and patient age would be conservative giving a diagnosis given the available information. Would be concerned for medical condition, autism spectrum or early ADHD as well but would need more information to diagnose these.
2	PTSD	Depression	Again, too limited information. Would also consider ADHD though is a little young to firmly diagnose, and adjustment issues related to paternal incarceration and marital discord.
3	PTSD	PTSD	Non response to meds, though the meds listed are an odd selection and would like some idea why they were selected. More genetic info would be helpful as well as information about prenatal environment.
4	ADHD	Beh DO	Improved behaviors at home, not seeing same issues at home and school suggests a behavior issue related to school and not a biologically based brain disorder.
5	RAD	Parent Weakness	Scenario seems like simple parenting weakness that needs to be addressed.
1	ADHD	Cannot DX	The above vignette does not provide enough detail. DDX includes normal behavior,

			ODD, PDD, hearing loss, MR, abuse, fragile x, less likely ADHD.
2	PTSD	Cannot DX	DDx is expansive: includes inconsistent behavioral reinforcement, PDD, ADHD (although young), anxiety, depression, hearing loss, social neglect, abuse.
1	ADHD	ADHD	Would want more social hx, sleep history, FH
2	PTSD	Anxiety	Absent father and mother's depression and likely stress, may rise to de facto (unintentional) emotional neglect.
4	ADHD	Anxiety	Needs a full learning eval, hearing and visual screening, due to home vs school discrepancies
1	ADHD	ADHD	Also consider ODD (noted to be oppositional, defiant), Conduct Disorder (aggressive). ADHD symptoms of hyperactivity, impulse control.
2	PTSD	None	Also some ADHD components, but timing of behaviors w/ father's return from prison makes this a likely cause
1	ADHD	PDD	Description of mood dysregulation with exacerbation in social settings. Absence of

			comment on language delay. Absence of history of traumatic childhood experiences.
2	PTSD	Adj DO	Child demonstrates attention-seeking behavior. Relatively recent reconfiguration and disruption in the context of the family.
3	PTSD	RAD	Absence of response to previous psychopharmacologic treatment. Ongoing fear related to entering the bathroom. Statement of detachment and difficulty with bonding.
4	ADHD	Beh Aff DO	Dichotomy of school and home description of the child's behaviors. Degree of aggression toward others and gender distinction of disrespect.
5	RAD	Cannot DX	Child demonstrates poor self-regulation but at 2-1/2, the types of behaviors, although exaggerated, do not seem atypical.
1	ADHD	Autism	After six months, resisted physical contact More interested in locked cabinets than playing with toys
2	PTSD	ODD	Maternal depression, father's incarceration, and daycare placement suggest possibility of inconsistent parenting and limit setting
3	PTSD	PTSD	History of bath time sexual abuse, fearful of bathroom, sleep disturbance, exaggerated

			startle response, hyperactivity and aggression
4	ADHD	PTSD	Hyperactivity and inattention at school but not at home rules out ADHD. Witnessed mother's murder.
5	RAD	Maternal Anxiety DO	Lamere can amuse himself for up to 20 minutes, which is more than I would expect from a 2 1/2 year old. Mother's disciplinary methods do not include positive reinforcement or any positive parenting techniques.
1	ADHD	No DX	Aggression, wild uncontrollable behaviors, school disruption temper tantrums defiance, hyperkinetic, irregular sleep, short attn span, distractible, impulsive.
2	PTSD	ODD	Hyperkinetic, short attention span, sleep difficulties, temper and aggression, maternal depression, father incarceration, parents separation, custody battle, secondary enuresis, nightmares
3	PTSD	PTSD	Hyperkinetic, short attn span, aggressive behavior, tantrums, severe physical and sexual abuse, parents substance abuse and incarceration, enuresis, sexualized play,

			attachment difficulty, lack of response to meds
4	ADHD	PTSD	Hyperkinetic, inattentive, aggressive, distractibility, defiant, hx of witnessing mom's murder, lack of symptoms at home
5	RAD	Adj DO	Sleep problems, fearfulness, impatience, frustration, ineffective discipline methods
1	ADHD	Autism	Age at which no longer wanted physical contact and observation of playing with locked cabinet rather than a toy
2	PTSD	ADHD	Short attention span/high energy/sleep issues enuresis and nightmares since family circumstances changed
3	PTSD	PTSD	History and observation of child
4	ADHD	PTSD	Behavioral issues only in 1 setting history
1	ADHD	PDD	Resisting physical contact, not interested in toys during exam

1	ADHD	Autism	Regarding many of the listed "salient factors" I do not see anything in the history regarding abuse, witnessing traumatic events, etc.
1	ADHD	ADHD	Redundant question
2	PTSD	Beh DO Child	History