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Challenges in Diagnosing ADHD: Discrepancies Between Behavioral and Executive Functioning Indicators

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Dissertation: Challenges in Diagnosing ADHD: Discrepancies Between Behavioral and Executive Functioning Indicators

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Abstract

Attention deficit hyperactivity disorder (ADHD) is a neurodevelopmental disorder characterized by inattention, hyperactivity, impulsivity, and executive function deficits. The DSM-5-TR (American Psychiatric Association [APA], 2022), along with the DSM IV-TR (APA, 2000) and the DSM-5 (APA, 2013), emphasizes the behavioral aspects of ADHD while giving scant attention to executive function deficits, complicating diagnosis for clinicians and potentially resulting in misdiagnosis.

This study seeks to identify the prevalence of ADHD diagnoses based on psychological evaluations where data from behavioral rating scales meet DSM criteria, but data from executive functioning measures do not, suggesting potential misdiagnosis. In this descriptive mixed design content analysis, the researcher analyzed data from 14 assessment cases to answer the question, "What is the prevalence of diagnosing children with ADHD when assessment data support behavioral symptomatology of ADHD, but executive functioning is intact?" Guided by Bruchmüller et al. (2012), this study hypothesizes that 15% of psychological evaluations of children from the Psychological Services Center at Long Island University Post that result in ADHD diagnosis will represent misdiagnosis due to behavioral symptomatology without executive function impairment indicators.

This hypothesis aimed to unveil whether clinicians heavily depend on behavioral signs, risking misdiagnosis due to symptom overlaps with other conditions while disregarding ADHD's vital executive function component. The hypothesis was confirmed and underscored the necessity for enhanced clinician ADHD training.

Keywords: Children, ADHD, Diagnosis, Executive Functioning, Assessment

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Attention deficit hyperactivity disorder (ADHD) is a neurodevelopmental disorder characterized by inattention, hyperactivity, impulsivity, and executive function deficits. The DSM-5-TR (American Psychiatric Association [APA], 2022), along with the DSM IV-TR (APA, 2000) and the DSM-5 (APA, 2013), emphasizes the behavioral aspects of ADHD while giving scant attention to executive function (EF) deficits, complicating diagnosis for clinicians and potentially resulting in misdiagnosis.

Over the last few decades, there has been a consistent rise in the diagnosis of attention deficit hyperactivity disorder (ADHD). According to national population surveys, the prevalence of ADHD among children from the United States has increased from 6.1% to 10.2% over 20-year span from 1997 to 2016. A more recent analysis included 61 cross-sectional research, with 53 of the research used to determine the prevalence of ADHD in children globally (Salari et al., 2023). It found that 7.6% of 96,907 children aged 3 to 12 years had ADHD, and 5.6% of teenagers aged 12 to 18 years had ADHD. The prevalence of ADHD in children and adolescents according to the DSM-V criterion is also higher than previous diagnostic criteria, according to studies (Salari et al., 2023). Possibly, the rising frequency of children seeking ADHD evaluations reflects the growing awareness of this complex condition and its potential impact on academic and social functioning. However, ongoing discussions among experts suggests an alternative explanation for this trend (Xu et al., 2018). As the understanding of ADHD continues to evolve, clinicians increasingly face the challenge of accurately diagnosing children who present with overlapping externalizing symptoms shared by ADHD, learning disorders, and conduct disorders

(Frick & Nigg, 2011). Elder (2010) found that about 20% of the 4.5 million children currently identified as having ADHD likely have been misdiagnosed (Elder, 2010).

From a theoretical perspective, ADHD can be conceptualized as a two-dimensional construct comprising the inattention dimension and the hyperactive/impulsivity dimension (Frick & Nigg, 2011). As a clinician, distinguishing between symptoms of ADHD, a learning disorder, or a conduct disorder can pose challenges due to the overlapping externalizing symptoms they share, such as hyperactivity, impulsivity, argumentativeness, and aggression (Frick & Nigg, 2011). Additionally, internalizing symptoms of ADHD, such as anxiety, depression, and loneliness, can be mistaken for separate anxiety or depressive disorders. Notably, ADHD displays substantial connections with conduct disorders and oppositional defiant disorders, particularly when considering the hyperactive/impulsive component of ADHD. However, the syndrome as a whole, especially the inattention dimension, also exhibits overlaps with developmental issues (Frick & Nigg, 2011). Many features of ADHD overlap with these disorders, and it can be difficult to accurately diagnose the problem (Pliszka, 1998).

Along with this, the construct of ADHD is multifaceted and complex, requiring careful consideration of various factors when evaluating and diagnosing the disorder (Gnanavel et al., 2019). There is some criticism in the field from Koziol et al. (2013), who believes that the DSM-5 (APA, 2013) behavioral criteria for ADHD are inadequate, as it is based on a faulty foundational assumption that ADHD is a unitary disorder and is unable to account for the heterogeneity of symptom presentations that frequently overlap with other diagnostic conditions (Koziol et al., 2013). The literature on ADHD and executive functioning is marked by ongoing controversies regarding theory, terminology, and definitions that underline the topic's current

state. These controversies, in turn, contribute to an abundance of false or oversimplified notions about this neuropsychiatric condition (Rogers, 2022).

The complex nature of ADHD often leads to misdiagnosis (Ford-Jones, 2015). Several factors, including age, sex, and culture, contribute to this misdiagnosis (Arnett et al., 2013; Conner, 2002; Elder, 2010; Morrow et al., 2012; O'Neil et al., 2014; Tandon, 2009). Studies have shown that children born relatively younger than their peers, close to the school start age cut-off, are more likely to be diagnosed and treated for ADHD (Elder, 2010; Morrow et al., 2012). For example, Morrow's 2012 study involving a large sample of children with a school-age cut-off of December 31 found that boys born in December were 30% more likely to be diagnosed and 41% more likely to be treated for ADHD compared to those born in January. Similarly, girls born in December were 70% more likely to be diagnosed and 77% more likely to be treated for ADHD than those born in January. Additionally, children born in the last three days of the year faced a significantly higher risk of diagnosis and treatment than those born in the first three days of the new calendar year (Morrow et al., 2012).

While ADHD research primarily focuses on school-age children, there is also a concern regarding the diagnosis of ADHD in early preschool years. Many behaviors consistent with ADHD, such as inattention, impulsivity, and overactivity, are considered normal for preschoolers (Conner, 2002). However, current screening tools and measures for ADHD are primarily designed for school-age children, making it challenging to assess and diagnose ADHD in preschoolers (Arnett et al., 2013; Tandon, 2009). This limitation is further complicated by the transient nature of many symptoms in preschoolers, where distinguishing between those whose symptoms will pass and those who will develop persistent ADHD is difficult (Conner, 2002). Moreover, there is limited agreement among parents, teachers, and clinicians when rating ADHD

behaviors in preschoolers, mainly due to the need for assessing child behavior in multiple settings (O'Neil et al., 2014).

Regarding sex and behavior differences in ADHD, there is a notable prevalence ratio between males and females, ranging from 3:1 up to 9:1, depending on whether measurements were obtained from a population-based or clinical sample (Ford-Jones, 2015). It has been suggested that the considerable difference in rates between boys and girls occurs because girls diagnosed with ADHD show fewer behavioral symptoms compared with boys, with less aggressive, disruptive, and hyperactive behavior (Bruchmüller et al., 2012; Evans et al.,, 2010; Graetz et al., 2005; Guab et al., 1997). This discrepancy in symptom presentation may contribute to the higher frequency of ADHD diagnoses in boys, especially within educational settings.

Overall, identifying and diagnosing ADHD accurately can be challenging due to various factors, including overlapping externalizing and internalizing behaviors, as well as considerations of age, sex, and behavior. These complexities contribute to the difficulty in distinguishing ADHD from other conditions and determining the most appropriate course of action.

Throughout history, ADHD has been conceptualized in various ways, yet the core meaning of the disorder, characterized by symptoms of inattention, hyperactivity, and impulsivity, has remained consistent (Lange et al., 2010). In 1902, British pediatrician Sir George Frederic Still defined ADHD as "an abnormal defect of moral control in children." (Still 1902, p.1008) He observed that some affected children were could not control their behavior in the same way that typical children could, despite possessing intelligence (White, 2021). The original term for ADHD was the hyperkinetic reaction of childhood, which was only formally recognized as a mental disorder by the American Psychiatric Association (APA) in the 1960s. By

the 1980s, the diagnosis became known as "attention deficit disorder with or without hyperactivity" until the APA released a revised version of the DSM-III in 1987, removing the hyperactivity distinction and renaming the condition attention deficit hyperactivity disorder (White, 2021). As evidenced, the definition of ADHD has evolved and has included behavioral symptoms commonly observed in children.

ADHD is currently recognized as a heterogeneous neuropsychiatric disorder (Soros et al., 2019), with symptoms manifesting as patterns of behavior present in multiple settings. A diagnosis of ADHD requires evidence of inattention, hyperactivity and impulsivity, or both, as outlined by Volkow and Swanson (2014). Research literature has documented functional impairments across academic, occupational, social, and psychological domains in adults with ADHD (Volkow & Swanson, 2014). The construct of ADHD is typically defined as a neurodevelopmental disorder that affects self-regulation of behavior and attention, resulting in interference with functioning or development (Drechsler et al., 2020). As Barkley (1997) explains, this disorder involves impairments in executive functioning and self-regulation. While historically, the DSM description for ADHD lacks emphasis on executive functioning as a core feature, a meta-analysis conducted in 2005 identified consistent executive function deficits with moderate effect sizes in children with ADHD in terms of response inhibition, vigilance, working memory, and planning (Willcutt et al., 2005). Another meta-analysis encompassing 34- meta-analyses on neurocognitive profiles in ADHD of all ages found that ADHD is associated with substantial deficits across a variety of neurocognitive domains such as vigilance, set-shifting, selective attention, reaction time, fluency, decision-making, and memory (Pievksy & McGrath, 2017). In addition to this, numerous studies have found that nearly every neuropsychological domain has been found to be significantly impaired in individuals who have ADHD, such as

altered perception, altered sensory profile, emotional tasks, social tasks, communication, and memory (Da Fonseca et al., 2008; Korrel et al., 2017; Little et al., 2017; Marton et al., 2009; Rhodes et al., 2011). Many of these impairments may be related to deficient top-down cognitive control and strategic deficits (Egeland et al., 2010; Lange-Malecki et al., 2018; Wells et al., 2019), and there is also evidence for basic processing deficits (Salum et al., 2013). These findings underscore the substantial role of executive functioning in the presentation of ADHD. While the DSM-5-TR (APA, 2022), as well as its predecessors DSM-IV-TR (APA, 2000) and DSM-5 (APA, 2013), mainly focus on behavioral symptoms, these studies highlight the importance of considering executive functioning impairments when diagnosing ADHD. Behavioral symptoms should serve as a starting point for a comprehensive diagnosis rather than an endpoint (Drechsler et al., 2020). Moreover, the historical lack of executive functioning indicators in the DSM classification system criteria can make it challenging to accurately diagnose ADHD, emphasizing the need for an in-depth approach.

ADHD Prevalence in Children

ADHD is one of the most frequently diagnosed disorders in children (Elder TE, 2010; Marrow et al., 2012; Sciutto & Eisenberg, 2007). Although ADHD is commonly diagnosed, there is extensive research that shows that ADHD is often misdiagnosed, underdiagnosed, or overdiagnosed. According to the CDC, boys are more than twice as likely to be diagnosed with ADHD than girls. However, it is essential to note that females are not necessarily less susceptible to the disorder (CDC, 2022). A recent quantitative study with 283 participants between the ages of 7 and 12 suggests that females with ADHD are likely to be underdiagnosed due to various reasons, including differences in symptoms and a disproportionate focus on males in research (Mowlem et al., 2019).

Furthermore, an empirical study conducted by Grimm et al. (2020) discovered a genetic link to ADHD, showing that children who have biological parents or siblings with the disorder are more likely to have it. The National Health Interview Survey (NHIS) surveyed 10,367 children (ages 4-17) and their parents on ADHD diagnosis and symptoms via the Strengths and Difficulties Questionnaire (Goodman, 1997). The prevalence of clinically significant ADHD symptoms is 4.19% (males) and 1.77% (females). Significant differences exist across gender, race, age, and income. Both overdiagnosis and underdiagnosis may be present in the U.S. population of children aged 4 to 17 (Cuffe et al., 2005). As seen, ADHD is quite common in the child population; however, accurately diagnosing ADHD remains a complex task due to various factors.

Factors That Lead to Inaccurate Diagnosis of ADHD

Some factors that lead to inaccuracy in diagnosing ADHD are comorbidities and clinicians' and teachers' perceptions and understanding of ADHD. ADHD is sometimes found to be comorbid with other disorders, thus making it difficult to accurately diagnose (Angold & Costello, 1993). A study that examined nine different data systems with indicators of children's mental health identified that approximately 6 million children aged 3-17 years were ever diagnosed with ADHD, accounting for 9.8% of the population, using data from 2016-2019 (Bitsko et al., 2022). According to a national parent survey conducted in 2016, about 6 in 10 children with ADHD had at least one other mental, emotional, or behavioral disorder, with half of them having a behavior or conduct problem. Anxiety was reported in approximately 3 in 10 children with ADHD, while depression, autism spectrum disorder, and Tourette syndrome were also observed in some cases (Bitsko et al., 2022). These findings suggest that there is a high co-morbidity of ADHD with other disorders.

CHALLENGES IN DIAGNOSING ADHD

Studies examining the diagnosis of ADHD in children have found that it can be frequently misdiagnosed, overdiagnosed, or underdiagnosed. For instance, Cotuono (1993) discovered that after thorough evaluations, only 22% of children previously referred to a specialized ADHD clinic were given a primary diagnosis of ADHD, and 37% were given a secondary diagnosis. Similarly, Desgranges et al. (1995) found that after further diagnostic evaluations, 62% of clinic referrals for suspected ADHD were not confirmed as ADHD cases. A recent systematic scoping review by Kazda et al. (2021) examined 344 studies and found evidence of overdiagnosis and overtreatment of ADHD in children and adolescents, particularly for those with milder or borderline symptoms. Furthermore, Bruchmüller et al. (2012) found that therapists diagnosed ADHD in 16.7% of child case vignettes that did not fulfill all relevant DSM criteria. These findings suggest the need for cautious diagnosis and comprehensive evaluation to avoid misdiagnosis or overdiagnosis of ADHD in clinical practice.

Moreover, Gnanavel et al. (2019) conducted a literature review and discovered that attention deficit hyperactivity disorder is a complex clinical condition that is often accompanied by extensive comorbidities. Proper screening for comorbidity is essential in effectively managing children and adolescents with ADHD who present with multifaceted challenges. However, further research is needed to fully comprehend the implications of comorbidity in diagnosing and treating children with ADHD.

Teacher reports are often used as a tool to help with diagnosing ADHD in children (Gasstra et al., 2019). A school survey found that 5.58% of elementary and 3.53% of middle school students were identified with ADHD by their teachers, with a comparable number suspected but not formally identified. Most identified elementary school students and two-thirds of middle school students received medication treatment. Teacher perceptions suggest under-

identification of children with ADHD in both elementary and middle school classrooms, and medication treatment decreases in middle school (Fabiano et al., 2013).

Overlapping Behavioral Symptoms and Diagnostic Challenges

ADHD is a complex disorder with extensive comorbid conditions, including externalizing disorders such as oppositional defiant disorder (ODD) and conduct disorder (CD), internalizing disorders like anxiety and depression, and language-related disorders like dyslexia and language impairment (Gnanavel et al., 2019). A quantitative study by Mayes et al. (2012) consisting of 847 children from the ages of 2-16 used rating scales, neuropsychological assessments, and an autism instrument and found a significant overlap between autism spectrum disorder and ADHD, making it difficult to distinguish symptoms (Mayes et al., 2012). Newer diagnostic categories like Disruptive Mood Dysregulation Disorder (DMDD) and Intermittent Explosive Disorder (IED) have also been shown to exist comorbidly with ADHD (Sagar-Ouriaghli et al., 2018; Gelegen & Tamam, 2019). ADHD is also associated with earlier diagnoses of Tourette's syndrome, anger management difficulties, insomnia, learning difficulties, obsessive-compulsive disorder, mood disorder, and self-injurious behavior (Spencer et al., 1999).

Emotion dysregulation difficulties are commonly associated with ADHD symptoms and have been proposed as a potential mediating mechanism by which ADHD symptoms engender elevated risk for issues that commonly co-occur with ADHD symptoms, including internalizing problems such as anxiety and depression (Anastopoulos et al., 2011; Murray et al., 2020; Rosen & Factor, 2015). Depression is considered an outcome of ADHD-related impairments and negative environmental circumstances, known as ADHD-related demoralization, by some authors (Blackman et al., 2005; Biederman et al., 1998; Herman et al., 2007). However, ADHD

and depression have independent and distinct courses, indicating that ADHD-associated depression is a depressive disorder and not just demoralization (Biederman et al., 1998).

Anxiety symptoms in ADHD patients range from 15% to 35%, and comorbid anxiety may inhibit impulsivity and response inhibition deficits, exacerbate working memory deficits, and present differently from pure anxiety (Busch et al., 2002; Jensen et al., 2001). The comorbid condition has more negative effects, disruptive social behavior, and less fearful/phobic behavior, which may change the presentation and course of the disorder. The comorbid condition is associated with more attentional problems, school phobia, mood disorders, and lower levels of social competence than either ADHD or anxiety alone (Spencer et al., 1999). Furthermore, Antony et al. (2018) found evidence that suggests that 15–75% of youth with ADHD meet the diagnostic criteria for depression and 25% meet the diagnostic criteria for an anxiety disorder (Antony et al., 2018; Jarrett & Ollendick, 2008; Kim et al., 2009; Krone & Newcorn, 2015; Schatz & Rostain, 2006).

Given the high degree of comorbidity with other disorders, it is critical to conduct precise assessments to better understand the child's behaviors and appropriately manage their complex difficulties. Considering the diagnostic challenges associated with ADHD such as teachers' and clinicians' misperceptions of ADHD and the several comorbidities, it is essential to examine the role of executive functioning in understanding ADHD more deeply.

Executive Functioning Definitions

A key component in understanding ADHD is gaining a clear understanding of executive functioning (EF) (Barkley, 1997; Barkley, 2012). The scientific community's definition of EF has continued to evolve (Goldstein et al., 2023), resulting in multiple definitions of this complex process. For example, Ahmed and Miller (2011) describe EF as "higher-order cognitive

processes required for individuals to complete goal-driven tasks," while Davis-Unger and Carlson (2008) define it as "skills that serve to monitor and control thought and action." (Davis-Unger and Carlson, 2008, p. 129). Other researchers have referred to EF as a family of top-down mental processes that require effortful concentration and attention, particularly when automatic responses or intuition is insufficient or inappropriate (Burgess & Simons, 2005; Espy, 2004; Miller & Cohen, 2001). Utilizing EFs is difficult, as it requires effort to break away from habitual actions, resist temptation, and stay engaged in decision-making (Diamond, 2012). Despite various definitions, researchers generally agree that there are three core EFs: inhibition (including self-control and selective attention), working memory, and cognitive flexibility (set shifting). These core EFs serve as the foundation for higher-order abilities such as reasoning, problem-solving, and planning (Collins & Koechlin, 2012; Lunt, et al. 2012). Developing EFs is essential for cognitive, social, and psychological development, academic success, and overall mental and physical health (Diamond, 2012). However, as Baggetta and Alexander's (2016) meta-analysis demonstrates, there is often confusion around the definition of EFs, as researchers may refer to specific abilities, subcomponents, or processes as executive functions, creating ambiguity for readers. Due to the complexity and varied definitions of EF, it can be challenging for both clinicians and non-clinicians to fully understand how it relates to ADHD and other neurological disorders.

Executive Functioning's Role in ADHD

Russell Barkley and Tom Brown are two important ADHD researchers involved in studying executive function. They define executive function as a set of brain functions that activate, organize, integrate, and manage other cognitive processes (Barkley et al., 2008; Brown, 2005). It is responsible for enabling individuals to consider the short- and long-term

consequences of their actions, plan for those results, and make real-time evaluations of their actions to make necessary adjustments (Barkley et al., 2008; Brown, 2005). Barkley's model emphasizes that the inability to self-regulate is at the root of many of the challenges faced by individuals with ADHD, as they may act impulsively without considering future consequences. Barkley's conceptualization of executive functions is organized into four areas: nonverbal working memory, internalization of speech (verbal working memory), self-regulation of affect/motivation/arousal, and reconstitution (planning and generativity) (Barkley et al., 2008).

Brown breaks down executive functions into six clusters: organizing, prioritizing, and activating for tasks; focusing, sustaining, and shifting attention to task; regulating alertness, sustaining effort and processing speed; managing frustration and modulating emotions; utilizing working memory and accessing recall; and monitoring and self-regulating action (Brown, 2005). Brown believes that these clusters operate in an integrated way, and people with ADHD tend to have impairments in at least some aspects of each cluster, which are clinically related. According to Brown's model, difficulties in these clusters lead to attentional deficits, as individuals struggle with organizing tasks, getting started, remaining engaged, remaining alert, maintaining a level of emotional state, applying working memory and recall, and self-monitoring and regulating actions. Impairments in executive functions adversely affect an individual's ability to begin, work on, and complete tasks and are closely interrelated with symptoms associated with ADHD (CHADD, 2023).

Barkley (1997) proposed the hypothesis that ADHD symptoms may be due to EF deficits. In a meta-analysis of 83 studies, children and adolescents with ADHD exhibited significant deficits compared to those without ADHD in neuropsychological measures of EF; the EF domains that showed impairments included planning, spatial and verbal working memory,

response inhibition, and vigilance (Willcutt et al., 2005). Brown (2006) asserts that all patients with ADHD have EF deficits and that ADHD is essentially a developmental impairment of EF. While not currently a symptom of ADHD, there is evidence that executive functioning deficits may be a defining aspect of the disorder and even that its two symptom dimensions of inattention and hyperactive/impulsivity represent dimensions of EF (Antshel et al., 2013). A comprehensive, empirically based review of 33 published studies addressing neuropsychological performance in adults diagnosed with ADHD was conducted to identify patterns of performance deficits. The results indicated that neuropsychological deficits are expressed in adults with ADHD across multiple domains of functioning, with notable impairments in attention, behavioral inhibition, and memory (Hervey et al., 2004).

Although the definitions of executive function have varied among theorists, it is clear that impairments in executive functioning play some role in ADHD. By contrast, the cardinal ADHD behavioral symptoms of inattention, hyperactivity, and impulsivity are not unique to ADHD. Individuals who experience externalizing behaviors such as hyperactivity, impulsivity, argumentativeness, and aggression may have oppositional defiant disorder (ODD) or conduct disorder (CD). Along with this, individuals who struggle with inattention or restlessness may have anxiety or depression disorders (Frick & Nigg, 2011). In addition, there is a remarkable overlap of these ADHD symptoms with those of comorbid mental health conditions or learning problems based on the presentations (Lange et al., 2010). Due to these challenges, a diagnosis of ADHD should address both the behavioral and the executive function constructs.

As noted before, the DSM-5 TR (APA, 2022) criteria focus primarily on behavioral symptoms and do not have a focus on executive functioning impairments. However, studies suggest that impairment in executive functioning is a critical component of ADHD. Assessing

executive functioning impairments in ADHD should be highly considered when diagnosing ADHD because it can help untangle the presenting problem from other disorders.

Executive Functioning Presentation of ADHD in Children

ADHD is closely linked to deficits in executive functioning, and impairments in executive functions can lead to poor attention and planning, difficulties generating and implementing strategies, inability to utilize feedback, and inflexibility of thinking (Schreiber et al., 2014).

Impaired executive functioning may look different in different individuals. For example, individuals with ADHD often struggle with inhibiting impulsive responses. This means they may have difficulty resisting immediate temptations or impulses, leading to impulsive actions, interrupting others, and difficulty waiting for their turn (Barkley, 1997; Nigg, 2000). A quantitative study done with a sample size of 60 boys found that 30 boys with ADHD demonstrated higher levels of impulsivity than 30 boys with anxiety during a go/no-go task. This indicates that children with ADHD may exhibit poor response inhibition (Gomez, 2003).

Individuals with ADHD may also have deficits in sustained attention, which refers to the ability to maintain focus on a task or activity over an extended period. Individuals with ADHD may struggle with sustaining attention, becoming easily distracted or bored. Along with this, they may have difficulty maintaining focus on tasks that do not provide immediate interest or stimulation (Barkley, 1997). A study done by Slobdoin et al. (2015) investigated age-related changes in sustained attention in children with ADHD and in their typically developed peers. The study used the Conners' Continuous Performance Test (CPT) (Conners & Sitarenios, 2011) which includes visual and auditory stimuli serving as distractors. The rate of omission errors was used as a measurement of difficulty in sustained attention. Participants were children

and adolescents aged 7 to 18 years (478 with ADHD and 361 without ADHD). Both groups of adolescents (with and without ADHD) showed reduced distractibility than younger children from the same group. However, distractibility tended to diminish in non-ADHD adolescents but not in adolescents with ADHD. The results suggest that deficits in inhibitory control might be the core of ADHD (Slobdoin et al., 2015).

Another key aspect of assessing executive functioning in ADHD is looking at organization and planning difficulties. Executive functioning deficits in ADHD can affect organizational skills and planning abilities. Individuals with ADHD may have trouble organizing their belongings, managing time effectively, and creating and following through with plans. Along with this, they may also struggle with prioritizing tasks, meeting deadlines, and maintaining an organized physical or digital space (Langberg et al., 2008). A quantitative study by Kofler et al. (2017) contained 103 children with and without ADHD and were assessed on multiple counterbalanced working memory tasks. Parents and teachers completed norm-referenced measures of organizational problems such as the Children's Organizational Skills Scale (COSS) (Abikoff & Richard Gallagher, 2009). Results confirmed that children with ADHD exhibit multi-setting, broad-based organizational impairment. These impaired organizational skills are partly attributable to performance deficits secondary to working memory dysfunction, both directly and indirectly, via working memory's role in regulating attention. Impaired working memory in ADHD renders it extraordinarily difficult for these children to consistently anticipate, plan, enact, and maintain goal-directed actions (Langberg et al., 2014). Another domain of executive functioning in ADHD to consider is impulse inhibition, which is the ability to think before acting and controlling impulsive urges. Individuals with ADHD may have challenges in inhibiting impulsive responses and regulating their behavior. This can

manifest as impulsive decisions, taking unnecessary risks, and acting without considering the consequences (Barkley, 1997). In a study by Feifel et al. (2004) evaluated the functional integrity of the prefrontal cortex basal ganglia circuitry in ADHD, using adult ADHD subjects unmedicated for at least 48 hours and normal comparison adults were studied using a comprehensive battery of ocular motor paradigms. The performance of ADHD adults was consistent with deficits in saccadic inhibition. Given the evidence for the interdependence between the brain systems mediating visual attention and ocular motor behavior, these findings support the notion that deficits in inhibitory mechanisms might underlie the inattention characteristic of ADHD (Feifel et al., 2004). These discoveries identified deficits in inhibitory mechanisms associated with ADHD in adults; perhaps recognizing early signs of impaired inhibitory control in children could lead to a better understanding of ADHD inattentive symptoms in children.

Lastly, assessing task initiation and completion in individuals with ADHD can indicate impairment in executive functioning. Initiating tasks and maintaining focus until completion can be challenging for individuals with ADHD. They may have difficulties starting tasks independently, require external prompts or reminders, and face difficulties in standing effort until the task is finished. This can lead to difficulties with task productivity and completion (Barkely, 1997). In a study done by Dieckhaus et al. (2021) found that children with ADHD had more difficulties with task initiation, attention and completion than with children with anxiety and autism spectrum disorders (Dieckhaus et al., 2021).

Tools Used in Psychological Evaluations to Assess Executive Functioning in ADHD

Overall, assessing executive functioning domains such as impaired impulse control, deficits in sustained attention, organization, and planning difficulties, poor impulse inhibition and difficulties in task initiation and completion is important when assessing for ADHD. Since ADHD has both behavioral and executive functioning components, a diagnosis cannot be made through a single test. Clinicians employ various methods such as clinical interviews with parents, teachers, and other adults, as well as performance-based tests that examine the cognitive, academic, and neurological functioning of the individual to gain an understanding of their overall functioning and how it aligns with or differs from their perceived behavioral issues (Schneider et al., 2015).

There are neuropsychological tests that can assess a child's inattention, hyperactivity, and impulsivity. One such test is a computerized continuous performance test (CPTs). CPTs are often considered the gold standard for diagnosing ADHD, as they measure the number of correctly detected stimuli and response time (Conners, 2014). The Conners Continuous Performance Test (CCPT-3) so has built-in indicators for inattention and impulsivity. Measures of inattention are assessed by measures of detectability, omissions, commissions, HRT, HRT SD, and variability. Measures of impulsivity are comprised of categories such as HRT, Commissions, and Preservations (Conners, 2014). Therefore, the CCPT-3 can be used to assess impulse control, sustained attention, and impulse inhibition in an individual with ADHD.

Another test that assesses an individual's executive functioning is the Continuous Trail Making Test, 2nd edition (CTMT-2). The CTMT-2 assesses several key cognitive activities such as attention, visual scanning, speed eye-hand coordination, and information processing

(Reynolds, 2019). Along with this, the abilities required for the trail making require good executive functioning therefore poor scores may suggest impaired executive functioning (Lezak, 1995). Reynolds (2019) also states that the CTMT-2 is a standardized assessment that utilizes five visual search and sequencing tasks, known as trails, strongly influenced by attention, concentration, resistance to distraction, and cognitive flexibility or set shifting. These trails aid in the detection of frontal lobe deficits, problems with psychomotor speed, visual search and sequencing, and attention, as well as impairments in set-shifting, all of which are aspects of executive functioning (Reynolds, 2019). The CCPT-3 and CTMT-2 are just two performance-based tests that can help in diagnosing an individual for ADHD.

Behavioral Presentation of ADHD in Children

ADHD can manifest in behavioral symptoms, per the DSM-5-TR (APA, 2022). Hyperactivity is a prominent behavioral feature of ADHD, particularly in children. Individuals with ADHD may exhibit excessive restlessness, fidgeting, and inability to stay seated or engage in a quiet activity. They often feel a constant need to be in motion and may exhibit behaviors such as running or climbing excessively (Barkly, 1999). In a study done by Jarratt et al. (2010) that had 68 children's (42 with ADHD and 26 with no ADHD) parents and teachers fill out the Behavior Rating Inventory of Executive Function (BRIEF) and The Behavior Assessment System for Children (BASC) (Reynolds & Kamphaus, 1992), to capture the child's behavior at home and at school. The BASC adequately captured hyperactivity symptoms, while the BRIEF adequately captured overall executive functioning behavioral symptoms. Results from this study indicated that the BASC and BRIEF scales appear to be measuring similar but different constructs pertaining to behaviors associated with ADHD, as well as similar study skills and learning problems (Jarratt et al., 2010).

Impulsive behavior is also a feature of ADHD; this refers to acting without thinking or considering the consequences. Individuals with ADHD may struggle with impulsivity, making decisions, and taking actions without considering the long-term effects. This can manifest in impulsive behavior such as blurting out answers, interrupting others or engaging in risky activities (Winstanley et al., 2006). A study by Schweitzer and Azaroff (1995) demonstrated that 5–6-year-old boys with ADHD choose more impulsively in delay-discounting tasks, preferring the smaller but more immediate rewards to the larger more delayed rewards (Schweitzer & Azaroff, 1995).

Inattention is another significant behavioral component of ADHD. Individuals with ADHD may have difficulty sustaining attention and staying focused on tasks, particularly those that are not highly stimulating or personally interesting. They may be easily distracted, have trouble following through on instructions or tasks, and often make careless mistakes (Wåhlstedt & Bohlin, 2010). Along with this, individuals with ADHD commonly struggle with organizational skills. They may have difficulty managing time, keeping track of appointments and deadlines, and maintaining an organized physical or digital space. This can lead to challenges in planning and completing tasks efficiently (Langberg et al., 2008).

Impaired self-regulation is another behavioral feature of ADHD. Self-regulation refers to the ability to control one's thoughts, emotions, and behaviors. Individuals with ADHD may have difficulties with self-regulation, resulting in emotional impulsivity, mood swings, and difficulties managing frustration or anger. They may struggle with emotional regulation, leading to outbursts or difficulties adapting to changing situations (Cibrian et al., 2022). The degree to which children with ADHD can develop self-regulation skills directly relates to social and emotional outcomes across development (Classi et al., 2012). Research has indicated that social difficulties are

partially attributable to the dysregulation of emotion (Bunford et al., 2014). Therefore, ADHD children may be more vulnerable to stress, pressure, and fatigue than their neurotypical peers, particularly in environments that are ill-suited to their needs, leading to challenges with self-regulation and higher rates of externalizing behaviors, often perceived by others as aggressive and rule-breaking (Hoza, 2007; Hoza et al., 2005).

ADHD can impact social interactions and relationships. Individuals with ADHD may have challenges with social skills, such as taking turns in conversations, listening attentively, and recognizing social cues. They may also struggle with self-control in social settings, leading to impulsive or inappropriate behaviors (Diamantopoulou et al., 2005). A study examined children's peer relations in relation to gender, symptoms of ADHD, associated behavior problems, pro-sociality, and self-perceptions in a community sample, 635 12-year-old children (314 girls), provided peer nominations and rated feelings of loneliness and self-perceptions regarding global self-worth and behavioral conduct. The researchers obtained teacher ratings of ADHD symptoms, conduct and internalizing problems, and pro-sociality. ADHD symptoms, conduct problems, internalizing problems, and low levels of pro-sociality were all related to higher levels of peer dislike (Diamantopoulou et al., 2005).

Tools Used in Psychological Evaluations to Assess Behavioral Functioning in ADHD

The DSM diagnostic criteria for ADHD focus primarily on behavioral concerns without considering the role of neurological functioning (APA, 2000; APA, 2013; APA, 2022). The Behavior Assessment System for Children, 3rd edition (BASC-3), which measures both clinical and adaptive dimensions of behavior and personality, is a self-report form that can be completed by the individual, parent, or teacher (Reynolds & Kamphuas, 2015). Some scales on the BASC-3, such as Hyperactivity, Inattention, Executive Functioning, and Attention Problems, assess the

child's perceived and observed behavior as it may relate to ADHD and provide further information.

The Attention Deficit Disorder Evaluation Scale - Fifth Edition (ADDES-5) is another self-report measure that enables professionals like educators, psychologists, and pediatricians to diagnose ADHD in children and youth by gathering input from primary observers of the student's behavior (McCarney & Arthaud, 2013). The ADDES-5 has subscales that assess for inattentive and hyperactive-impulsive, which are two domains in the DSM-5 TR (APA, 2022) for ADHD criteria (McCarney & Arthaud, 2019). However, relying solely on self-report measures is not sufficient for an ADHD diagnosis. While the results of various diagnostic measures may align to indicate a clear diagnosis, there are cases where children's behaviors may resemble ADHD symptoms but not align with their cognitive, academic, and neurological performance (Drechsler et al., 2020). Therefore, considering the individual's complete history and other domains of functioning is crucial in the diagnostic process.

Another brief behavioral rating scale that relies on the observations of behaviors by parents, teachers, and oneself is the Conners 3rd edition (Conners 3). It is important to note that the measure has been recently updated and now the Conners 4 is commonly used in evaluations. However, due to the time frame, this study references the Conners 3. The Conners 3 provides a particularly detailed and comprehensive evaluation of student behavior (Conner, 2008). The Conners 3 scales such as the Inattentive, Hyperactivity/Impulsivity Learning Problems, Executive Functioning-Aggression/Defiance, Peer Relations, and Family Relations scales, provide an ADHD index that helps differentiate children with ADHD from those without a clinical diagnosis (Conner, 2008). However, Conner (1998) states that rating scales are subject to

certain errors, misuse, and misinterpretations. For example, it can be difficult for a teacher or parent to objectively know what a "normal" amount of fidgeting behavior is. This can lead the observer to make a judgment that is too lenient or too severe compared with the assessment of behavior for the average child of that age, gender, and situation (Conner, 1998). While the Conners 3 provides valuable information about the presence and severity of ADHD-related symptoms, it should be used in union with other assessments such as performance-based tests and clinical judgment. However, the literature does not advocate for granting greater significance to evaluations from parents or teachers over those provided by students.

Cognitive Functioning Presentation of ADHD in Children

ADHD is associated with various cognitive impairments and challenges that can affect multiple domains of cognitive functioning. Working memory deficits are common in individuals with ADHD. Working memory involves the temporary storage and manipulation of information in the mind. Difficulties with working memory can impact various aspects of functioning, including following instructions, organizing thoughts, and maintaining focus (Baddeley, 1992). In an exploratory meta-analytic, procedures were used to investigate whether children with ADHD exhibit working memory impairments. Twenty-six empirical research studies published from 1997 to December 2003 met the inclusion criteria. Working memory measures were categorized according to both modality (verbal, spatial) and the required processing type (storage versus storage/manipulation). Results indicated that children with ADHD exhibited deficits in multiple components of working memory that were independent of comorbidity with language learning disorders and weaknesses in general intellectual ability. This evidence of working memory impairments in children with ADHD supports recent theoretical models implicating working memory processes in ADHD (Martinussen et al., 2005).

Processing speed is another cognitive domain that can be assessed in individuals with ADHD. Processing speed refers to the rate at which an individual can take and respond to information. This can result in difficulties with rapid and efficient information processing, leading to delays in completing tasks and responding to instructions (Goth-Owens et al., 2010). In a landmark study from 2006, children and adolescents with ADHD demonstrated significantly slower processing speeds across an extended battery of rapid tasks that required either verbal or motor output (Shanahan et al., 2006).

Tools Used in Psychological Evaluations to Assess Cognitive Functioning in ADHD

The Wechsler Intelligence Scale for Children, 5th edition (WISC-V) is a commonly used psychological assessment tool designed to measure children's cognitive abilities. The WISC-V can provide information about an individual's inattention (Wechsler, 2014). For example, working memory is a cognitive function often affected in individuals with ADHD (Mayes & Calhoun, 2006). Along with this, individuals with ADHD may exhibit slower processing speed which impacts their ability to process information (Wechsler, 2014). The WISC-V includes subtests that assess an individual's working memory and processing speed.

It should be noted that the WISC-V is one component of a comprehensive evaluation. Research shows that low scores on processing speed and working memory do not necessarily indicate a diagnosis of ADHD (Prifitera et al., 2008). In a Turkish study involving 257 child subjects, including both ADHD and non-ADHD children, the WISC-V was deemed insufficient to make an ADHD diagnosis. The study recommended that further evaluations of executive functioning deficits and behaviors should also be assessed (Ünal et al., 2021).

Limitations of Neuropsychological Tasks and Self-Reports in ADHD Assessment

Although impaired attention is a necessary diagnostic criterion for ADHD (APA, 2022), executive functioning has been identified as a crucial feature of adult ADHD (Kessler et al., 2010). Despite this, studies assessing adults with ADHD have reported weak associations between neuropsychological performance and both self-reported symptoms and cognitive difficulties (Barkley & Fischer, 2011). For instance, a quantitative study by Moritz et al. (2004) that involved 148 psychiatric inpatients found weak associations between self-reported neurocognitive performance and psychometric neuropsychological test scores. Similarly, another study with 71 adults in an inpatient facility found weak associations between neuropsychological performance and self-reported symptoms. It has been suggested that neuropsychological measures may be less helpful in confirming the presence of ADHD symptoms and impairments in adults since these tasks cannot tap the complex processes required for everyday functioning (Schneider et al., 2015).

Furthermore, in a literature review conducted by Pritchard et al., (2012), the researchers examined the literature on developmental outcomes in childhood ADHD, with emphasis on the utility of formal neuropsychological assessment among children diagnosed and treated in primary care settings. One of the main findings of this study was that ADHD most often co-exists with other disorders. Thus, diagnoses made without formal psychometric assessment can be incomplete or incorrect, ultimately increasing treatment costs. Therefore, the research suggested that neuropsychological assessments can contribute to more accurate diagnosis and more effective treatment of ADHD in children (Pritchard et al., 2012). Neuropsychological assessment tools can also help differentiate ADHD from other mental disorders (Walg et al.,

2017). This study aimed to investigate the relationship between time estimation abilities and cognitive functioning in children with ADHD compared to a clinical control group. The researchers used a combination of intelligence testing (WISC-IV) and retrospective verbal time estimation tasks to profile children with ADHD and those with other mental disorders requiring careful differential diagnosis. The results revealed that children with ADHD had lower processing speed indices than children with other mental disorders. This study suggests that the combination of time estimation tasks and intelligence testing can help distinguish "real" ADHD from "pseudo-ADHD" in clinical settings, where the challenge is to differentiate ADHD from other disorders with similar symptoms. Similar to this study, Van Lieshout et al., (2017) examined the ability of neurocognitive functioning at baseline to predict ADHD symptom severity and overall functioning six years later in a sample of 226 children with ADHD-Combined Type. A key finding in this study was that baseline neurocognitive functioning, including measures of attention, working memory, and processing speed, predicted ADHD symptom severity and overall functioning at the 6-year follow-up (Van Lieshout et al., 2017). The findings highlight the importance of comprehensive neurocognitive assessment in understanding and managing ADHD.

Relying solely on self-reported symptoms may make it difficult to accurately diagnose for ADHD (Suhr et al., 2019). For instance, a study of college students with psychological diagnoses or symptoms found a high rate of false positives based on self-reported childhood symptoms using the Wender Utah Rating Scale (WURS) (Suhr et al., 2009). Additionally, the WURS has been strongly linked to dysfunctional personality traits (Hill et al., 2009), highlighting the potential for misdiagnoses and negative consequences such as unnecessary medication and loss of licensing or certification requirements that exclude individuals with

ADHD. Therefore, it is crucial to use a combination of measures that evaluate information processing, executive functioning, and self-reports of behavioral symptoms.

Study Purpose

The intricacies of executive function as a key construct in ADHD and their misalignment with the DSM classification system -5 TR (APA, 2013; APA, 2022) diagnostic criteria, can be a perplexing issue for clinicians when assessing for ADHD. The findings of recent studies in adults and children have revealed that there is a need for a comprehensive evaluation of the prevalence of ADHD diagnoses when there is a misalignment of executive function assessment data and behavioral rating assessment data (Bruchmüller et al., 2012). This study sought to fill this gap by identifying the prevalence of ADHD diagnoses based on psychological evaluations where data from behavioral rating scales meet DSM criteria, but data from executive functioning measures do not indicate executive functioning impairment, thereby leading to diagnostic conclusions that are divergent from the construct of ADHD as described by the literature. In this descriptive convergent mixed design content analysis study, the study aimed to answer the question, "What is the prevalence of diagnosing children with ADHD when assessment data supports behavioral symptomatology of ADHD, but executive functioning is intact?" Following the results from Bruchmüller et al. (2012), which indicated that 16.7% of clinicians reached a diagnostic conclusion of ADHD without full consideration for all the indicators of the disorder. Due to a potentially smaller sample size of this study, we used a more conservative percentage and hypothesized that 15% of psychological evaluations of children from the Psychological Services Center (PSC) at Long Island University Post that resulted in ADHD diagnosis showed support for the diagnosis based on behavioral symptomatology but not based executive functioning data. This study improved the theoretical approach to the assessment of ADHD. In

addition, this study highlighted the prevalence of inaccuracy in diagnosing ADHD based on psychological evaluations. Ultimately, this research assisted clinicians in achieving greater accuracy in diagnosing ADHD based on test data.

Methods

Participants (Assessment Cases)

This study used the archival data of the Psychological Services Center (PSC) at Long Island University Post assessment cases from 2015-2021, utilizing a purposive sample of cases. In this study, a sample of 14 child assessment cases were examined. The Demographic Information data in Table 1 indicates that the participants were primarily adolescents (M=13.5). Additionally, there were more female participants (64%) than male participants (36%).

Table 1

Demographic Information

Sample	Mean Age	Female	Male
N=14	13.5	64%	36%

Inclusion criteria: PSC child assessment cases between 2015-2021, with children ages 4-16 that provided an ADHD diagnosis. Additionally, the evaluations in these cases must have included standardized measures in addition to the assessment interview.

Exclusion criteria: Any child assessments cases supervised by Dr. Orly Calderon, PsyD to avoid dual relationship of Dr. Calderon as the supervising clinician and the supervising researcher. Additionally, any cases that did not contain an ADHD diagnosis.

Measures

CCPT-3

The CCPT-3, also known as the Conners Continuous Performance Test-3, is a neuropsychological assessment tool designed to evaluate attention and impulsivity in individuals. It is commonly used in clinical and research settings, particularly in the assessment of ADHD

and other attention-related disorders. During the CCPT-3, participants are required to respond to a series of visual or auditory stimuli presented on a computer screen (Conners, 2014). The stimuli are typically presented at regular intervals, and participants must quickly and accurately respond to target stimuli while inhibiting responses to non-target stimuli. The CCPT-3 measures various performance indicators, including response accuracy, reaction time, and different types of errors. It assesses attentional processes such as sustained attention (the ability to maintain focus over time), selective attention (the ability to focus on relevant stimuli while ignoring distractions), and impulsivity (the tendency to respond hastily without adequate deliberation) (Conners, 2014). Elevated scores on the CCPT-3 may indicate deficits in attention or impulse control, suggesting the presence of attention-related disorders (Conners, 2014). However, a comprehensive assessment typically incorporates multiple measures and clinical observations to form a more accurate diagnosis or evaluation. The CCPT-3 is a valuable tool in assessing attentional functioning, aiding clinicians and researchers in understanding an individual's attentional abilities and identifying potential areas of impairment or strength (Conners, 2014). Refer to Table 2 for the CCPT-3 content validity and reliability.

CTMT & CTMT2

For the purpose of this study, the CTMT and CTMT-2 were utilized. It is important to note, the CTMT-2 was published in the middle of the year range of this study and thus was used in the later evaluations, therefore both versions were used. The CTMT, or the Comprehensive Trail Making Test, is a neuropsychological assessment tool used to evaluate cognitive abilities such as attention, visual scanning, mental flexibility, and executive functions. It is commonly employed in clinical settings to assess various neurological conditions, including traumatic brain injury, dementia, and attention-related disorders (Reynolds, 2002).

The CTMT is typically administered in a paper-and-pencil format and consists of Part A and Part B. In Part A, participants are presented with a series of numbered circles randomly scattered on a sheet of paper. The task is to connect the circles in ascending numerical order as quickly and accurately as possible. Part A primarily measures processing speed, visual attention, and psychomotor abilities. In Part B, participants are presented with circles containing both numbers and letters. They are required to connect the circles in an alternating sequence of numbers and letters (e.g., 1-A-2-B-3-C, and so on) while maintaining accuracy and speed. Part B assesses mental flexibility, cognitive shifting, and executive functions, as it demands the ability to switch between different cognitive sets (Reynolds, 2002). The CTMT generates scores based on completion time and accuracy. The CTMT and CTMT-2 provide valuable insights into an individual's attentional abilities, processing speed, mental flexibility, and executive functions. It assists clinicians in diagnosing cognitive impairments, tracking changes over time, and developing appropriate treatment plans or interventions to address cognitive deficits (Reynolds, 2002; Reynolds, 2019). Refer to Table 2 for the CTMT-2 content validity and reliability.

BASC-3

The BASC-3, or the Behavior Assessment System for Children-Third Edition, is a comprehensive psychological assessment tool designed to evaluate the behavioral and emotional functioning of children and adolescents aged 2 to 21 years. It is widely used in clinical, educational, and research settings to assess a wide range of behavioral and emotional concerns that can be completed by parents, teachers, and the individuals themselves (Reynolds & Kamphaus, 2015).

The assessment measures several key constructs, including externalizing problems (e.g., hyperactivity, aggression), internalizing problems (e.g., anxiety, depression), adaptive skills

(e.g., social skills, activities of daily living), and school-related difficulties (e.g., attention, study skills). It also provides information about adaptive behaviors, personal strengths, and areas of need. It generates composite scores, such as the Externalizing Composite, Internalizing Composite, and Adaptive Skills Composite, providing an overall profile of the individual's behavioral and emotional functioning. It also offers specific scales to assess specific symptom clusters or areas of concern (Reynolds & Kamphaus, 2015).

Interpreting BASC-3 results involves considering the pattern of scores across various scales and comparing them to normative data or established cutoffs. This helps clinicians and educators gain insights into the individual's strengths, weaknesses, and potential areas of need, guiding the development of intervention plans and treatment strategies (Reynolds & Kamphaus, 2015). Refer to Table 2 for the BASC-3 content validity and reliability.

ADDES-4

The ADDES-4, or the ADHD Diagnostic Differential Evaluation Scales-Fourth Edition, is a psychological assessment tool specifically designed to aid in the evaluation and diagnosis of Attention-Deficit/Hyperactivity Disorder (ADHD) in children and adolescents. For the purpose of this study, the ADDES-4 was utilized; given the year range inclusion criteria, the ADDES-5 was published later. It should be noted that an updated version is now the ADDES-5 for children. It is commonly used in clinical and educational settings by psychologists, psychiatrists, and other qualified professionals. The ADDES-4 consists of a comprehensive set of rating scales completed by different informants, including parents, teachers, and the individuals themselves (McCarney & Arthaud, 2013).

These scales gather information about the presence and severity of symptoms associated with ADHD, as well as related behavioral and functional impairments. The assessment measures

various domains related to ADHD symptoms, including inattention, hyperactivity, impulsivity, and associated features such as executive functioning difficulties and emotional dysregulation, providing an overall profile of ADHD symptomatology. It also assesses functional impairments across different settings, such as home, school, and social situations (McCarney & Arthaud, 2013).

The ADDES-4 is not just a diagnostic toll, but also a valuable resource in formulating appropriate treatment plans for ADHD. By providing a structured and standardized approach to gathering information about symptoms and impairments, it assists clinicians in making informed decisions. These decisions include appropriate interventions, accommodations, and support services to address the needs of children and adolescents with ADHD (McCarney & Arthaud, 2013). Refer to Table 2 for the ADDES-4 content validity and reliability.

Conners-3

For the purpose of this study, the Conners-3 will be utilized, given the year range inclusion criteria. It should be noted that there is an updated version is now the Conners-4 for children. The Conners-4 was published later. The Conners-3, or the Conners Comprehensive Behavior Rating Scales-Third Edition, is a widely used psychological assessment tool designed to evaluate behavioral and emotional functioning in children and adolescents aged 6 to 18 (Conners, 2008). It is commonly employed in clinical, educational, and research settings to assess various conditions, including ADHD and other behavioral and emotional concerns. The Conners-3 consists of multiple rating scales completed by different informants, including parents, teachers, and the individuals themselves (Conners, 2008). The Conners-3 generates composite scores, such as the Inattention/Hyperactivity Composite, Executive Functioning

Composite, and Aggression Composite, providing an overall profile of the individual's behavioral and emotional functioning (Conners, 2008).

The Conners-3 is valued for its comprehensive behavioral and emotional functioning assessment, providing valuable information about symptoms, impairments, and associated difficulties. It assists professionals in diagnosing and understanding various conditions, monitoring treatment progress, and making informed decisions regarding interventions, accommodations, and support services (Conners, 2008). Refer to Table 2 for the Conner-3 content validity and reliability.

WISC-V

The WISC-V, or the Wechsler Intelligence Scale for Children-Fifth Edition, is a widely used standardized intelligence test designed to assess cognitive abilities in children and adolescents aged 6 to 16. It is commonly used in clinical, educational, and research settings to evaluate intellectual functioning, identify strengths and weaknesses, and inform educational and intervention planning (Wechsler, 2004).

The WISC-V provides a Full-Scale IQ (FSIQ) score, representing the child's overall intellectual functioning. It also generates various index scores, including the Verbal Comprehension Index, Visual Spatial Index, Fluid Reasoning Index, Working Memory Index, and Processing Speed Index. These index scores provide more specific information about the child's cognitive strengths and weaknesses within different domains. (Wechsler, 2004).

While the WISC-V is not specifically designed as a diagnostic tool for ADHD, it can offer insights into specific cognitive abilities and potential areas of difficulty commonly associated with the disorder (Wechsler, 2004). When assessing for ADHD, the WISC-V can help by analyzing the Working Memory Index (WMI) and the Processing Speed Index (PSI).

The WMI of the WISC-V assesses a child's ability to hold and manipulate information in their mind temporarily. Deficits in working memory are often observed in individuals with ADHD. Lower scores on the WMI may suggest difficulties with attention regulation and information processing (Wechsler, 2004; Sattler,2008). The PSI of the WISC-V measures how quickly a child can process simple or routine visual information. Slower processing speed is commonly seen in individuals with ADHD. Lower scores on the Processing Speed Index may indicate challenges in quickly and efficiently completing cognitive tasks (Wechsler, 2004; Sattler,2008). While the WISC-V does not have a specific executive function index, certain subtests, such as Digit Span and Symbol Search, tap into aspects of executive functioning. Executive function deficits, such as difficulties with impulse control, planning, and organization, are often associated with ADHD. Performance on these subtests may provide insights into a child's executive function skills (Wechsler, 2004; Sattler, 2008). Although the WISC-V has an ancillary index, the cognitive proficiency index (CPI), from a statistical point of view it may have been a better choice to examine scores on the WMI and the PSI. The current study only analyzed scores that were available in the evaluation reports, all of which reported WMI and PSI scores separately. Refer to Table 2 for the WISC-V content validity and reliability.

Reliability and Validity

Table 2

Reliability and Validity of Measures Used in Diagnosing ADHD

Assessment	Content Validity	Reliability
CCPT3; Executive Functioning	Strong discriminative validity; exhibits incremental validity (Conners et al., 2018).	- Internal consistency: .92 (normative sample), .94 (clinical sample) (Conners et al., 2018) - Test-retest reliability: .67 (Conners et al., 2018)
CTMT & CTMT2; Executive Functioning	Strong construct and convergent validity with the Delis—Kaplan Executive Function System Trail Making Test, Comprehensive Trail Making Test, and Connections Task (Atkinson & Ryan, 2008).	Internal consistency: >0.70 (subtests), 0.92 (Composite Index) (Reynolds, 2002). - Test-retest reliability: 0.70 - 0.78 (Reynolds, 2002).
BASC-3; Behavioral Functioning	Strong differential validity of ADHD and subtypes, and anxiety disorders. Strong convergent validity with Conners' Rating Scales (Reynolds & Kamphaus, 2015).	Internal consistency: .72 - .98 (Reynolds &Kamphaus, 2015). - Test-retest reliability: .70 - .93 (Reynolds & Kamphaus, 2015).
ADDES-4; Behavioral Functioning	Strong concurrent validity with the Conners-3 Teacher Short and the ADD-H Comprehensive Teacher's Rating Scale-Second Edition (McCarney & Arthaud, 2013).	Internal consistency: .89 - .97 (McCarney & Arthaud, 2013) - Test-retest reliability: .90 - .96 (McCarney & Arthaud, 2013
Conners-3; Behavioral Functioning	Strong differential validity and convergent validity with the ADHD-Rating Scale, Behavior Assessment System for Children (Conners, 2008).	- Internal consistency: .70 - .97(Conners, 2008) - Test-retest reliability: .64 - .97(Conners, 2008)

WISC-V; Cognitive Functioning	Previous research indicates differential validity of the PSI and WMI (Mayes & Calhoun, 2005). Strong differential validity of the PSI with sensitivity to neurological disorders (Olivier et al., 2017).	Internal consistency: .80 - .95 (Wechsler, 2004; Sattler, 2008) - Test-retest reliability: .80-.90(Wechsler, 2004; Sattler, 2008)

Table 3

Scales and Cut of Scores that Indicate Impairment in Measures Used in Diagnosing ADHD

Measure and Scales	Cut-off Point	Rating
ADDES-4		
Inattention	< 6	Elevated
Hyperactivity	< 6	Elevated
BASC-3		
Teacher/Parent:	70+	Clinically Significant
Executive Functioning	70+	Clinically Significant
Hyperactivity	70+	Clinically Significant
Attention Problems		
Self:		
Inattention/Hyperactivity	70+	Clinically Significant
Attention Problems	70+	Clinically Significant
Hyperactivity	70+	Clinically Significant
Conner-3		
Inattention	65+	Elevated
Hyperactivity/Impulsivity	65+	Elevated
Executive Functioning	65+	Elevated
CPT-3		
Detectability, omissions, commissions, preservation	60+	Atypically slow=inattention issue
CPT-3		
HRT	> 44	Fast= impulsivity issue

CTMT-2		
Trails 1-5	> 35	Impaired
WISC-V		
WMI	< 85	Impaired
PSI	< 85	Impaired

Design

This study utilized a descriptive convergent mixed-design content analysis. The researcher did not work with actual participants but rather analyzed assessment case files from 2015 to 2021. This study collected qualitative and quantitative at the same time. The qualitative data were gleaned from the background information section of each report.

Procedure

The researcher sought approval from the Long Island University Post Institutional Review Board (IRB) and complied with the Ethical Principles of Psychologists and Code of Conduct (APA, 2002; APA, 2016). With Dr. Calderon's permission, the researcher identified cases that met the inclusion criteria out of the PSC cases included in Dr. Calderon's database for her study, which had already received IRB approval. Each assessment case was deidentified and assigned a unique code, such as PSC01.

Qualitative Coding

The clinical interview content from the assessment report that describes the background information of the client was analyzed. This content is provided by the client's parents or guardians when they report relevant information about the presenting problem. A deductive content analysis was conducted to analyze the clinical interview and identify any information

that associated with ADHD-like symptoms that fit with the DSM-5-TR construct of ADHD, for example, “does not pay attention” or “fidgeting.” The content was also analyzed to assess whether there is information about the onset of symptoms. 1 of 4 codes was provided that fit these constructs, which are the following: 1= inattentive, 2=hyperactive, 3=impulsive, 4= executive functioning impairment, and 5= information to support criteria B, per the DSM. The role of these codes was to identify whether there was information in the child’s background that factors into the decision of an ADHD diagnosis. In other words, the researcher examined if the reported problems from the client’s parents or guardians reflect problems that can be associated with ADHD.

Quantitative Coding

The quantitative aspect examined the scores on measures of the Conners-3, BASC- 3, ADDES-4, CCPT-3, CTMT/CTMT-2, and WISC-V and if the scores on these measures suggested a clinical significance of behavioral symptomatology and executive functioning. Ultimately, the researcher was interested in seeing the frequency of cases where an ADHD diagnosis was given and the behavioral symptomatology supported ADHD by clinically significant scores symptomology per the Conners-3, BASC- 3, ADDES-4, but executive functioning was intact per the CCPT-3, CTMT-2 and WMI and PSI from the WISC-V.

The scores were coded as 0= not conducted, 1=impaired, and 2=intact. Refer to Table 3 to see the cut-off scores for each measure. In addition to these, codes the following codes were assigned to indicate agreement across raters as well as a code for missing values. 1= agreement across all raters, 2=disagreement across all raters, 3=disagreement across 2 raters, 4= disagreement across 1 rater, and 999=missing value. These codes were used to better indicate where the child is manifesting their difficulties (home or school).

Data Analysis

The codes for each case were examined to determine the frequency of cases where an ADHD diagnosis was given when there was an indication of impairment based on behavioral impairments as indicated by codes 1-4 on the clinical interview and codes 0 or 1 on the behavioral measures, but no indication of executive function impairment. A chi-square test goodness of fit was conducted to determine whether the actual frequency of such cases is significantly higher than the hypothesized 15%. The hypothesis would be supported if, in 15% of the cases examined, a diagnosis of ADHD was given based on behavioral impairment in the absence of executive function impairment. Another frequency analysis was conducted to determine the percentage of cases where an ADHD diagnosis was given when there was an indication of impairment based on behavioral impairments as indicated by codes 1-4 on the clinical interview and code 1 on the behavioral measures, but no executive functioning measures were conducted as indicated by a code of 0.

In cases where scores within a particular domain do not match up, an average of the codes was taken. An average of 1-1.5 indicated impairment and an average of 1.6-2 indicated intact. Specifically, for the BASC-3, the averages of attention problems and hyperactivity were taken separately across raters to better indicate whether the child's issues are related to inattention or hyperactivity. Refer to the examples below.

Example 1:

Case where domains within BASC do not match

BASC Student Report	Score	Code	Average
Inattention/Hyperactivity	71	1	1.3= Impaired

Attention Problems	72	1
Hyperactivity	56	2

Example 2:

Case where domains within the CTMT do not match

CTMT Trails	Score	Code	Average
Trail 1	30	2	1.8= Intact
Trail 2	35	1	
Trail 3	30	2	
Trail 4	31	2	
Trail 5	34	2	

Example 3:

Case where the domains within the BASC TRS, PRS, and SRS do not match (average of Attention and Hyperactivity scales are taken separately)

BASC	Score	Code	Average
TRS			Attention: 1.3, impaired
Inattention/Hyperactivity	70	1	Hyperactivity: 1.7, intact
Attention Problems	85	1	
Hyperactivity	69	2	
PRS			
Inattention/Hyperactivity	85	1	
Attention Problems	75	1	

Hyperactivity	75	1
SRS		
Inattention/Hyperactivity	55	2
Attention Problems	55	2
Hyperactivity	55	2

Results

Data Description

Table 4 presents a comprehensive overview of data derived from child assessment cases. The analysis reveals that, within 14% of cases (specifically, PSC12 and PSC07), the Executive Functioning Scale for the BASC-3 PRS and TRS exhibited missing values. Moreover, a noteworthy 71% of cases did not include assessments for executive functioning measures, specifically the CTMT2 and CCPT-3. Turning to qualitative aspects, the data underscores that 92% of cases reported a history of behavioral impairment by the child's parent or caregiver, such as "difficulty paying attention," "forgetfulness," and "distracted." Furthermore, the analysis demonstrates that 79% of cases exhibited impaired behavioral functioning, as evidenced by scores on the BASC-3, Conners-3, and ADDES-4, while executive functioning remained intact in these cases, as determined by assessments using the WISC-V, CCPT-3, and CTMT2 Regarding agreement among raters, only 21% of the cases displayed agreement amongst all raters, indicating inconsistencies in where the symptoms are taking place.

Table 4

Overview of the Data from Assessment Cases

Missing Values from BASC-3 Scales	No Executive Functioning Measures Administered	Behavioral Impairment History	Impaired Behavioral Functioning and Intact Executive Functioning	Agreement Among All Raters
14%	71%	92%	79%	21%

A chi-square goodness of fit test was performed to determine whether the proportion of psychological evaluations of children from the Psychological Services Center at Long Island University Post that result in ADHD diagnosis will represent misdiagnosis due to behavioral symptomatology without executive function impairment indicators is equal to or less than 15%. A chi-square goodness of fit test rejected the null hypothesis, X^2 (13, N = 14) = 37.72, p < .05. Additionally, it represented a large-sized effect, V=1.6. The results suggest that a large majority of the ADHD diagnoses made at the PSC from 2015 to 2021 are likely due to behavioral symptoms without underlying executive function impairments, representing a significant rate of potential misdiagnosis. The large effect size indicates this is a very pronounced issue, not just a minor discrepancy. Although, it should be noted that Cramer's V is typically between 0 and 1. A large effect size of 1.6 is likely due to the small sample size. Thus, the results should be interpreted with caution.

Discussion

The objective of this study was to identify the prevalence of ADHD diagnoses based on psychological evaluations where data from behavioral rating scales meet DSM criteria, but data from executive functioning measures do not thereby leading to diagnostic conclusions that are divergent from the construct of ADHD as described by the literature. The study aimed to answer

the question, "What is the prevalence of diagnosing children with ADHD when assessment data supports behavioral symptomatology of ADHD, but executive functioning is intact?" It was hypothesized that 15% of psychological evaluations of children from the PSC at Long Island University Post that result in ADHD diagnosis will show support for the diagnosis based on behavioral symptomatology but not based on executive functioning data.

The data provided statistically significant support that ADHD diagnoses are given when there is an indication of behavioral impairment in the absence of executive impairment, risking an assignment of an ADHD diagnosis that does not fully capture the construct of the disorder. In addition, in 71% of the cases, some executive functioning measures, such as the CTMT/CTMT-2 and CCPT were not administered. This indicates that when clinicians diagnose ADHD, they primarily depend on the behavioral definitions of ADHD per the DSM-5 TR and not the construct validity of ADHD, therefore not capturing the full construct of ADHD. Additionally, clinicians heavily rely on behavioral symptomology rather than executive functioning impairment, risking an overdiagnosis of ADHD.

The results of the study showed that most clinicians omitted the executive functioning aspect of ADHD, while the literature suggests that executive functioning impairment plays a significant role in the construct of ADHD (Antshel et al., 2013). Along with this, the literature review suggested that misdiagnosis of ADHD occurs often due to the behavioral symptoms overlapping with common symptoms of externalizing disorders and internalizing disorders such as conduct disorders, learning disorders, depression, and anxiety (Frick & Nigg, 2011). As seen in the study, 92% of the cases demonstrated a reported history of behavioral impairment such as "difficulty paying attention," "forgetfulness," and "distracted." These are mutual symptoms that overlap with other externalizing and internalizing disorders, which can create confusion for a

clinician when formulating a diagnosis, which can result in an overdiagnosis of ADHD. Interestingly, the results show that clinicians follow the DSM criteria. However, the challenge remains for accurate diagnoses because of the disparity between the DSM diagnostic criteria and the literature description of the construct of ADHD. Furthermore, the DSM lacks an emphasis on executive functioning while the research suggests that executive functioning plays a key role in ADHD (Barkley et al., 2008; Brown, 2005). This study further indicates a misalignment in the construct of ADHD and the diagnostics procedures.

The results indicated that the clinicians relied heavily on the behavioral symptomatology of ADHD while overlooking executive functioning impairment, thus discounting the *full construct* of ADHD. The results imply the need for a more comprehensive assessment procedure to be done when diagnosing for ADHD, specifically assessing executive functioning, as supported by literature that suggests a more robust assessment of executive functioning impairment should be conducted (Pritchard et al., 2012; Van Lieshout et al., 2017; Walg et al., 2017). Therefore, given that 71% of assessments did not assess for executive functioning by administering executive functioning measures such as the CCPT-3 or CTMT2, it demonstrates that those clinicians heavily rely on reported and observed behavioral symptomatology and disregard the role of executive functioning.

Implications

The implication of this study highlights the need for robust training for clinicians to evaluate ADHD more accurately. This study revealed a heavy reliance on behavioral symptoms and self-reports by multiple observers to diagnose ADHD while ignoring the vital role of executive functioning impairment. If clinicians were to also assess for executive functioning impairment, it would potentially reduce the risk of misdiagnosis, underdiagnosis, and

overdiagnosis of ADHD. The study demonstrates the importance of understanding the whole construct of ADHD and *equally* understanding all aspects of the symptoms of inattention, hyperactivity, impulsivity, and executive functioning. Additionally, clinicians should screen for other disorders that may contribute to behavioral indicators in the presence of intact executive functions.

Importantly, the study exposed the underuse of valid and reliable measures of the CTMT2 and the CCPT-3 at the PSC from 2015 to 2021. This study highlighted the problem of underutilization in this community training clinic and how this may have implications for inadequate training of future clinicians. While studies have shown that these measures provide valuable information about an individual's functioning and can tap into key aspects of executive functioning as it relates to ADHD, they are being underused. Increased awareness and integration of these valuable tools is imperative, as they can significantly contribute to a more comprehensive and accurate assessment of ADHD, ultimately reducing overdiagnoses of ADHD.

This study supports the adherence by graduate student clinicians and trainees to the DSM criteria. However, it demonstrates poor consideration of the construct of ADHD, which poses a significant challenge to the accuracy of diagnosing ADHD. Executive functions encompass a range of cognitive processes that involve managing and regulating mental processes, such as attention, working memory, inhibitory control, and cognitive flexibility. These functions are crucial for goal-directed behavior, and deficits in executive functioning are often observed in individuals with ADHD, which the research supports. While the DSM does include criteria related to the behavioral manifestations of ADHD, it does not explicitly emphasize the assessment of executive functioning in the diagnostic process, nor does it utilize the full construct of ADHD. In turn, while the data shows that trainees are trained to follow the DSM, it

demonstrates that we raise another generation of clinicians that ignore the executive functioning aspect of ADHD when assessing for the disorder. This omission becomes a notable limitation to the assessment of ADHD, given the accumulating evidence from research suggesting that executive functioning impairments are integral to understanding the full spectrum of ADHD.

Strengths of the Study

This study possesses noteworthy strengths that substantially improve its methodological rigor and the trustworthiness of its findings. The meticulous coding procedures underscore a commitment to precision in data analysis, minimizing the risk of errors and ensuring the consistency of results. For example, in this study, the coder reviewed Dr. Calderon's dataset two times to ensure all applicable cases were found. Then, the coder thoroughly reviewed all assessment cases and reports and combed through raw data to ensure all the data was reported accurately. Furthermore, the study's reliance on the construct validity of ADHD adds a layer of depth to its findings, emphasizing a comprehensive understanding beyond surface-level behavioral symptoms. Given that the behavioral symptoms overlap with many other disorders, it was important to conceptualize the theory of ADHD based on the construct of the disorder. Consistency with construct validity standards enhances the study's credibility. Thus, there should be more consideration for executive functioning when assessing for ADHD.

Limitations

Due to the nature of this study and the population examined, a few limitations should be taken into consideration alongside the results. One limitation pertains to the small sample size of the study. A sample size of 14 assessment cases may limit the generalizability of the findings to a broader population. Additionally, the entire sample was collected at the Psychological Services

Center at Long Island University Post, which might not reflect the practices and characteristics of clinicians in other settings. Clinical practices, diagnostic approaches, and patient demographics in one clinic may not be representative of the broader spectrum of settings where ADHD assessments take place. Furthermore, majority of the assessments were supervised by the same supervisor with a few exceptions. A single supervisor overseeing the assessments may lead to a lack of diversity in diagnostic approaches and decision-making processes. Clinical supervision styles can vary widely, and different supervisors may have distinct perspectives, experiences, and diagnostic thresholds.

Moreover, in this study there were two cases that had missing raw values for the Executive Functioning scale on the BASC-3 PRS and TRS. The raw data could not be found and thus the case was assigned a value of 999 to indicate missing values.

Future Directions

This study aimed to uncover the prevalence of cases when there is a misalignment of executive function assessment data and behavioral rating assessment data when diagnosing for ADHD. To continue the expansion of this study, a researcher should obtain a larger sample size from multiple sites to increase the generalizability of the results. This may entail a modification in the data-collecting procedure to obtain a larger, more diverse sample size. For example, assessment cases may be collected from neighboring community clinics, hospitals, and private practices. This approach would allow for a more comprehensive exploration of diagnostic methodologies, contributing to a deeper understanding of the complexities inherent in ADHD evaluations across diverse clinical environments. The inclusion of varied settings and supervisors would enhance the study's external validity, providing insights that are more broadly applicable to the diverse landscape of ADHD diagnosis and assessment practices. Regarding the coding

system, there should a qualitative analysis of behavioral observations noted from the assessment report in order to compare with data from the assessment interview and behavioral rating scales.

Finally, it would also be interesting to look at differences in diagnoses made by neurologists versus psychologists in order to ascertain the weight neurologists give to executive functioning indicators when diagnosing ADHD.

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Appendix A

Psychological Services Center
720 Northern Boulevard
Brookville, NY 11548-1300
516-299-3211

Informed Consent for Psychological Services

I, _____, voluntarily consent for psychological services at the Psychological Services Center.

or

I, _____, as the parent/ guardian of _____, voluntarily consent for them to receive psychological services at the Psychological Services Center.

These services may include:

(PLEASE CIRCLE ALL THAT APPLY:)

a) Intake Evaluation/Diagnostic Interview
b) Psychological Evaluation/Testing
c) Therapy/Psychological Treatment
d) Psycho-educational Evaluation/Testing
e) Neuropsychological Evaluation
f) Group Treatment (Skills Training)
g) Other (specify) _____

Nature of the Psychological Services Center

The Psychological Services Center is a training facility of the Clinical Psychology Doctoral Program of Long Island University-Post. All psychological and psycho-educational services are provided by graduate students in psychology who are supervised by licensed psychologists and faculty members. The Psychological Services Center maintains a commitment to provide high quality, low fee services to its clients, and to respect and work within the framework of the religious and cultural values of its clients.

Scheduling, Fees, and Cancelations

All professional services are scheduled as agreed upon by the client (and their parent or guardian, if a minor), and the graduate student therapist. Fees for all professional services will be determined based on financial status information provided during the initial session. The length of sessions depends upon the nature of the services provided. For instance, psychotherapy

sessions will generally be 45 minutes in length, while intake evaluations may take 2-3 hours. I understand that unless I have given at least 24 hours notice before canceling an appointment, I will be responsible for payment for that session. Exceptions for cancellation fees will be made based on the discretion of the clinic director.

Confidentiality

I understand the information contained in my record, or my family member's records, is treated as confidential except under certain circumstances. For issues regarding confidentiality, and the limits of confidentiality, please refer to the Notice of HIPPA-Compliant Privacy Practices. What you discuss with your graduate student therapist is confidential and will not be revealed outside the clinical and/or academic setting without your permission with certain exceptions. Before information is shared, your explicit written permission will be obtained. The only exceptions to this policy are rare situations in which we are required by law to provide information to the authorities without your permission. These are: 1) if there is evidence of physical or sexual abuse of children or the elderly; 2) if we judge that you are in danger of hurting yourself or another individual; and 3) if your records are subject to a court order. In the event these situations arise we would always attempt to contact you prior to the release of any information.

Recommendations Regarding Professional Services

I understand the graduate student therapist providing professional services may suggest certain interventions, evaluations, and referrals as part of the services at the Psychological Services Center. These issues can be discussed with the graduate student therapist at any given time, and I have the right to make an independent decision about following such recommendations. I also understand that if I fail to follow through on some of these suggestions, the services provided may not be as effective.

Outcome of Professional Services Provided

While benefits from professional services provided are expected, I fully understand that an assurance for a particular outcome cannot be guaranteed. I understand that I am free to discontinue professional services at any given time, although discussion of such plans with the graduate student therapist providing the professional services is recommended. I have also been informed that I can contact the clinic director or assistant clinic director if I have any concerns.

If, at any time, the graduate student therapist providing assessment, psychological and/or psycho-educational services determines, in consultation with their supervisor or the clinic director, that the Psychological Services Center cannot provide the professional services which would be most helpful, or would be better served by another clinic, agency or practitioner, the graduate student therapist will discuss this with me, and provide me with appropriate referral information.

I understand that I may discuss the terms of the agreement for services with the graduate student therapist providing such services. This includes the frequency and goals of the services offered, as well as fees. By signing below, I am indicating that I have had the opportunity to read and ask questions before giving my consent to services.

Emergencies

When campus is open to the public, our clinic is open from Monday-Friday 9:00AM - 8:00PM. Telehealth services can happen at mutually convenient times for the client and the graduate student therapist. When we are unavailable to answer the phone, your call will be answered by the answering machine and we will return your call as soon as possible during working hours. The Psychological Services Center DOES NOT HAVE THE CAPACITY TO RESPOND TO CRISIS SITUATIONS. In the case of an emergency, you are instructed to CALL 911 OR GO TO THE NEAREST EMERGENCY ROOM. If you or your graduate student therapist believe that crisis services will be needed, your graduate student therapist will assist you in locating alternative services that are better suited to your needs.

Assessment & Research

Clients of the Psychological Services Center are routinely asked to complete assessments and questionnaires so that the graduate student therapist may better understand the reasons that treatment has been sought. Some of the results of these questionnaires and other chart material may be used for research purposes by students and/or faculty in our program. Whenever these data are used, all identifying information is removed and client confidentiality is assured. If you have specific concerns about being included in the research you may at any time discuss this with your graduate student therapist and request to be excluded from research.

I understand and consent to the guidelines and information in this document.

_____
Client Signature

_____
(print)

_____ _____
Parent/Guardian Signature Parent/Guardian Signature

_____ _____
(print) (print)

_____
Witness Signature

_____
(print)