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## Psychologists' Diagnostic Decision Making in ADHD and Autism in Children

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*Walden University*

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# Walden University

College of Allied Health

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Donna Kelly

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Walden University  
2024

Abstract

Psychologists' Diagnostic Decision Making in ADHD and Autism in Children

by

Donna Kelly

MS, Capella University 2011

BA, Temple University 2003

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Clinical Psychology

Walden University

November 2024

## Abstract

The decision-making experiences of psychologists who diagnose children with attention deficit hyperactivity disorder (ADHD) and high-functioning autism referred to as autism spectrum disorder - level 1 (ASD-1) when symptoms of either one or both are present in children were explored in this hermeneutic phenomenological study. These two common neurodevelopmental disorders share characteristics and symptoms that could lead to diagnostic confusion. There has been an absence of research on psychologists' experiences with diagnostic decision making since the publications of the Diagnostic and Statistical Manual of Mental Disorders-5. Exploration of psychologists' diagnostic decision-making processes can aid in providing early intervention and accurate treatments. The purpose of this study was to bridge the gap in literature related to how psychologists approach diagnosis when making decisions associated with ADHD, ASD, or both as they occur comorbidly. A semi-structured interview protocol was used with seven participants who were asked to reflect upon their diagnostic decision-making processes when evaluating children for ADHD and ASD-1. An interpretive phenomenological approach was used to identify the themes that emerged from the interviews and concepts that provided meaning to the experience of psychologists as decision makers. The findings from this study may provide a foundation for bringing about a positive social change within the mental health field, since it pertains to the diagnostic processes employed to identify ADHD, ASD-1, or both as they occur comorbidly. Understanding how the psychologists approached this led to understanding that each chose what they were most comfortable with based on each individual's training.

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## Dedication

This paper is dedicated to my family who have stood behind me through this entire process and supported me in this journey. I want to thank my late husband for pushing me to start this process, John Edward Kelly and my mother Ann Horvath and father Loren Lilley who were always supportive throughout this process. I would also like to dedicate this paper to the participants who spent valuable time in their day assisting in the research for this paper. Each piece of information was valuable to the completion of this research document.

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## Chapter 1: Introduction to the Study

A comprehensive review of the literature in the mental health field revealed a lack of research on psychologists' experiences when evaluating children for potential diagnosis of either childhood autism spectrum disorder - level 1 (ASD-1), attention deficit hyperactivity disorder (ADHD), or both since they often occur comorbidly (see Cooper et al., 2014; Stadnick et al., 2017; Young et al., 2020). The publication of the Diagnostic and Statistical Manual (DSM)-5 in 2013 marked the first edition in which the American Psychiatric Association recognized that ASD and ADHD could occur comorbidly, whereas previous versions had not supported diagnosing them together, but considered ASD and ADHD as mutually exclusive conditions (American Psychiatric Association, 2000, 2013). More research is required in this area to better understand psychologists' experiences as they differentially diagnose these childhood disorders in children (Kentrou et al., 2019; Stadnick et al., 2017).

Although ASD-1 and ADHD are often recognized during childhood, in some cases, they may not be diagnosed until adulthood (American Psychiatric Association, 2013). In this study, I specifically focused on psychologists who diagnosed children with ASD-1, ADHD, or both during the children's early developmental years. Psychologists may vary in their approach to the differential diagnosis of these childhood disorders and their use of other established guidelines (Young et al., 2020). These childhood conditions have overlapping features, which may result in under- or over-diagnosis of either one or both conditions. Consistent with this premise, several authors have contended that diagnostic findings for ASD-1 and/or ADHD have been reported incorrectly as ADHD

when both were present comorbidly (Cooper et al., 2014; Craig et al., 2015; Leitner, 2014; Mullet & Rinn, 2015; Sokolova et al., 2017).

The respective criteria for diagnosing childhood ASD-1 and ADHD have evolved over several versions of the DSM (American Psychiatric Association, 1952, 1968, 1980, 2000, 2013, 2022). The publication of the DSM-5 in 2013 marked the first time the co-occurrence of both ASD-1 and ADHD in a child was acknowledged (Young et al., 2020). Prior to the DSM-5, ASD-1 and ADHD were considered mutually exclusive conditions, meaning the dual diagnosis of these conditions was not supported by the previous versions. As of the publication of the DSM-5, Asperger's syndrome was eliminated as a separate diagnosis and was subsequently subsumed under ASD as autism without intellectual disability or ASD-1 (American Psychiatric Association, 2013). The diagnosis of ASD-1 now applies to those individuals on the autism spectrum who have average or above-average intellectual functioning. A recent article discussed the lost opportunities that were a direct result of diagnosing and treating children using the previous versions of the DSM, which described ASD-1 and ADHD as mutually exclusive conditions (Young et al., 2020).

In the remainder of Chapter 1, I provide background on how ASD-1 and ADHD have been described in the relevant literature throughout history. I outline the foundation of the research problem and the purpose of this study. The research questions are described and discussed and connected to the relevant theory and conceptual framework for the study. I detail the nature of this study, how each term is defined within the study, and the assumptions that I made. Finally, the scope, limitations, delimitations, and

significance are reviewed to ensure the chapter provides a complete picture. The chapter ends with a summary and transitional component into Chapter 2.

### **Background**

Childhood attention problems and impulsivity have been known and acknowledged as childhood mental health issues since the late 1700s, albeit previously known by a variety of different names, including sickness of the spirit, attention sickness, hyperkinetic syndrome, attention deficit disorder (ADD), and now ADHD (American Psychiatric Association, 1952, 1968, 1980, 2000, 2013; Barkley & Peters, 2012). Coherent nomenclature for the diagnosis of either condition was not developed until the late 1900s (Prevatt & Levrini, 2015). Asperger's and ASD were not recognized as mental health diagnoses until approximately 80 years ago, when they were added to the first DSM-I in 1952 (Wolff, 2004). Asperger's syndrome (also known as Asperger's disorder) was originally described by a Viennese pediatrician in the 1940s by the name of Asperger (Wolff, 2004). He observed autism-like behaviors and difficulties with social and communication skills in children who also struggled with language and intellectual problems (Wolff, 2004). Around the same time, in 1943, Kanner published the first systematic description of early infantile autism (Chown & Hughes, 2016). He concluded that this was a neurodevelopmental disorder and that children affected by it had come into the world with an innate inability to form typical, biologically necessary contact with people (Chown & Hughes, 2016).

The DSM-5 ushered in a new way of conceptualizing autism as a spectrum disorder (American Psychiatric Association, 2013). Previously, a separate diagnosis of

pervasive developmental disorder (PDD) and Asperger's were subsequently subsumed within the same neurodevelopmental category of ASD (American Psychiatric Association, 2000, 2013). Now, the diagnosis can be made with or without intellectual disability, and clinicians are asked to indicate whether the autism is Level 1, 2, or 3, which corresponds to the level of support needed, with Level 1 indicating the least amount of support and Level 3 indicating the highest support necessary for activities of daily living (American Psychiatric Association, 2000, 2013). Additionally, both ASD-1 and ADHD in the newest version of the DSM are listed under the neurodevelopmental category and can now both be diagnosed concurrently (American Psychiatric Association, 2000, 2013). The new changes in the DSM-5 were a result of the studies performed to identify the gene involved in these two childhood disorders, which consequently indicated that they were some form of spectrum problems that could no longer be categorized under the previous categories (Simons Foundation, 2022). Considering the potential missed diagnosis or misdiagnoses of dually affected children, the clinical presentation of these two disorders becomes more complex (Hyman et al., 2020; Kentrou et al., 2019; Young et al., 2020). It is now known that ASD-1 and ADHD are highly prevalent childhood disorders (Hyman et al., 2020; Kentrou et al., 2019; Young et al., 2020).

A gap exists in the current relevant literature regarding psychologists' experiences of differentially diagnosing these childhood conditions when they occurred comorbidly. The comorbid conditions have appeared in research; however, only a few studies have described the diagnostic experiences or the thinking process through which psychologists



conceptualized and approached the differential diagnosis of ASD-1, ADHD, or the co-occurrence of both (e.g., Hyman et al., 2020; Kentrou et al., 2019; Young et al., 2020). A better understanding of diagnostic processes is critical to discovering how psychologists undertake differential diagnoses and whether a disconnect exists between clinical decision-making and diagnostic practices that may result in an inaccurate diagnosis of these disorders (Damiano et al., 2014). I addressed this gap in the literature by exploring how psychologists undertake their decision-making processes, as they pertain to a differential diagnosis of childhood ADHD, ASD-1, or the co-occurrence of both conditions in a child.

### **Problem Statement**

The presence of the symptoms of both ASD-1 and ADHD in a child can make recognizing when a child has both disorders challenging for psychologists. Diagnostic assessments of co-occurring ASD-1 and ADHD in children are susceptible to errors due to the way in which the symptoms may present in a child (Cooper et al., 2014; Kentrou et al., 2019; Mullet & Rinn, 2015; Peters & Matson, 2020). Research findings such as these are discussed in this section to better understand the diagnostic processes employed by psychologists when deciding how to assess children with potential neurodevelopmental disorders to overcome and identify the diagnostic challenges with ASD-1, ADHD, or both as they occur comorbidly in my study.

Rosenbaum and Gabrielsen (2019) focused on ASD and conveyed the complexities of evaluating neurodevelopmental disorders and discusses how diagnostic decisions are made. They examined toddlers and preschool children who were referred

for ASD assessments by early education experts to determine which factors influenced the decision making of psychologists who were assessing the children for the need for further testing. The researchers identified a 74% agreement rate among the practitioners on who should be evaluated for ASD. Among the factors identified in the article was the focus of early education practitioners on educational materials pertaining to autistic traits. These materials were found to be the primary focus of most of the respondents. Additional factors included further assessments for ASD, such as examination of verbal behaviors, play behaviors, social engagement, and interactions between peers. Notably, the lack of social reciprocity or age-appropriate attentional behaviors was noted more often. These issues were aligned with many of the known published factors associated with this diagnosis; however, other notable differences were left out when other potential diagnoses were present.

According to Cooper et al. (2014) and Okyar and Gorker (2020), diagnostic confusion has the potential to result in inaccurate case formulation, thereby leading to ineffective treatment plans, inappropriate behavioral interventions for school or work settings, and the prescription of ineffective medication regimens. Each researcher indicated how the symptoms of one diagnosis tended to mask the presence of the other. They highlighted that diagnosing these two childhood problems is complex, and the lost time can negatively reflect on outcomes in adulthood (Cooper et al., 2014; Okyar & Gorker, 2020).

ASD-1 and ADHD are each associated with different behavior and medical interventions (Damiano et al., 2014). Inaccurate or missed diagnoses can, therefore, result

in lost opportunity for timely intervention and potential prescription of incorrect medication or non-medical interventions (Damiano et al., 2014; Young et al., 2020).

Accurate diagnosis is useful for early identification, early intervention, and the correct application of medical and non-medical treatment strategies that are relevant to a child's diagnosis (Damiano et al., 2014; Young et al., 2020).

Kentrou et al. (2019) presented a study detailing how children previously diagnosed with ADHD also showed symptom clusters of ASD-1. The data on the participants and their mental health were extracted from a major database in the Netherlands. Besides these data, the participants were evaluated using the *Autism Quotient Short Form*. Results for only the child group are summarized here. The results indicated statistically significant differences in gender and delays in comorbid diagnosis of ASD when ADHD had been previously diagnosed. The delay in diagnosis of ASD for males was 1.5 years and 2.6 years for females. These delays led to an analysis of the data that strongly suggested that pre-existing symptoms of ADHD had masked the symptoms of ASD, thus preventing recognition of the disorder. The researchers stated that these findings are critical to consider when treating children because the presence of one neurodevelopmental disorder, ADHD, meant an increase in the likelihood that the child or youth may also have another neurodevelopmental disorder such as ASD and that errors in diagnosis were likely to occur, such that the second neurodevelopmental disorder could be missed or omitted from the final diagnostic evaluation (Cooper et al., 2014; Kentrou et al., 2019; Okyar & Gorker, 2020). The researchers recommended that psychologists need to be alert to the high likelihood of the presence of comorbid

neurodevelopmental disorders and that they should employ appropriate multidisciplinary instruments and tests in their evaluations to ensure sensitivity to several neurodevelopmental symptoms (Kentrou et al., 2019). Care and attention to detail are critical to obtaining accurate diagnoses for children. Furthermore, the researchers strongly recommended additional research into the presence of co-occurring symptoms of both ASD-1 and ADHD, such that more understanding can be achieved about how the presence of symptoms associated with one neurodevelopmental disorder might either overlap with or mask the presence of symptoms associated with another (Cooper et al., 2014; Kentrou et al., 2019; Okyar & Gorker, 2020).

In summary, few studies have examined symptoms of ASD-1 and ADHD as they co-occur in children. Cooper et al. (2014) presented one of the first studies post publication of the DSM-5 that supported the decision of the American Psychiatric Association to recognize the comorbid diagnosis of ASD-1 and ADHD because their findings provided evidence that these two disorders could occur together in one child. Similarly, Kentrou et al. (2019) and Young et al. (2020) furnished evidence that ASD-1 and ADHD can co-occur and called for future research to address this gap in research findings about how these two disorders interact and how they can be accurately and more consistently diagnosed as they occur comorbidly in children. Notably, insufficient information is available regarding how practitioners who evaluate children process and make decisions about how to diagnose those who struggle with ASD-1, ADHD or both. Studies to date have been quantitative and have not considered the experiences of psychologists during the diagnostic process (Craig et al., 2015; Kentrou et al., 2019). In

my study, semi-structured interviews were used in accordance with the framework of phenomenological qualitative research methodology to explore themes in the processes and lived experiences reported by psychologists when making decisions about diagnoses of ASD-1 and ADHD in children who may have one or both disorders.

### **Purpose of the Study**

The purpose of this hermeneutic phenomenological qualitative study was to bridge an identified gap in the literature related to how psychologists experience the differential diagnoses of the childhood disorders of ASD-1 and ADHD. The study participants were asked to describe their lived professional experiences as psychologists who evaluate children for these disorders. My focus was limited to ASD-1, ADHD, or both as they occur comorbidly in children. The psychologists were asked during semi-structured interviews to elaborate on their experiences during the decision-making processes when they have had to conduct child assessments for reaching an accurate differential diagnosis of these two childhood disorders for only those children who had been referred to them for evaluations (see Merkebu et al., 2020; Young et al., 2020). Consistent with the American Psychological Association's requirements for ethical practices, the study participants were asked to refrain from revealing any identifying information about their previous cases while reflecting on their experiences during the decision-making process of evaluating children with ASD-1 and/or ADHD (see American Psychiatric Association, 2013; Merkebu et al., 2020). From this exploratory and interpretive study, I provide qualitative themes that characterize the psychologists' experiences as they differentially diagnose and evaluate ASD-1 and ADHD in children.

Overall, the goal is to build upon existing literature by exploring the challenges unique to evaluating ASD-1 and/or ADHD in children by deepening our understanding of the experiential processes through which psychologists arrive at differential diagnoses for both as co-occurring independent conditions.

### **Research Question**

RQ: What are the lived experiences of psychologists as they differentially diagnose childhood ADHD and ASD-1?

### **Theoretical Foundation and Conceptual Framework for the Study**

The theoretical foundation used to guide the study was phenomenology; it is an approach through which researchers can deepen an understanding of a phenomenon by questioning individuals who have lived experiences of that phenomenon (Flick, 2014; Peoples, 2021; Van Manen, 1990). It is both a philosophical approach and a means of designing qualitative research. Although multiple forms of phenomenology exist, the two main proponents of this framework were Husserl and Heidegger (Flick, 2014; Peoples, 2021; Vagle, 2018; Van Manen, 1990). Phenomenology is a philosophical approach to understanding qualitative research, as the researcher reviews and explores their own understanding of the lived experiences of others with a focus on understanding the basic essence of the phenomenon being explored. Husserl described a form of descriptive or transcendental phenomenology that allowed a researcher to learn from others' lived experiences of a specific phenomenon (Peoples, 2021). Husserl believed it was possible to eliminate subjectivity and foreknowledge of a specific phenomenon by bracketing It (Peoples, 2021). Bracketing, as explained by Husserl, is the setting aside of judgment by

researchers to be able to remain neutral to the object, subject, or question being researched (Flick, 2014; Peoples, 2021; Vagle, 2018; Van Manen, 1990). Additionally, Tufford and Newman (2012) described bracketing as a means of alleviating the detrimental effects of any presumptions the researcher may have in the process of performing research on a topic.

Heidegger proposed that people do not describe experiences but interpret them (Flick, 2014). While Husserl believed that people could eliminate subjectivity, Heidegger posited that it is not possible to eliminate one's experience of the world from one's understanding of it, nor is it desirable to do so (Flick, 2014). Tapping into experience can deepen a person's understanding of a phenomenon. In hermeneutic phenomenological qualitative research, this process of using foreknowledge or experience to interpret a phenomenon is referred to as the hermeneutic circle—an important data analysis strategy within the interpretive phenomenological approach (Peoples, 2021; Vagle, 2018; Van Manen, 1990).

I am a clinician with lived professional experiences regarding this topic as well as foreknowledge (through training and immersion in literature) about children diagnosed with ASD-1, ADHD, or both as they present comorbidly. I further account for and describe my previous experience with the topic (foreknowledge) in Chapter 3. I selected the hermeneutic phenomenological approach as the study design because, unlike Husserl's transcendental approach to phenomenology, the analytic approach does not presume a researcher can approach the study as a "blank" slate. In the hermeneutic approach, a researcher can account for and use the bias of her previous experience

(foreknowledge) in the data analysis and can, therefore, be more aligned with the background of the research. Hence, I used this approach as a conceptual framework and a lens toward understanding the lived professional experiences of psychologists as they differentially diagnose children with ASD-1, ADHD, or both conditions by bracketing and journaling my own experiences as I interviewed the psychologists.

Another lens for this study was provided by Kahneman (2011), whose dual-process decision-making system served as a conceptual model for this study (Kahneman et al., 2021). Kahneman (2011) described decision making in terms of information processing, which was characterized as either “fast” or “slow.” Later, Kahneman et al. (2021) added to the theory by proposing that besides the bias inherent in all decisions is the presence of “noise” that can affect how those decisions are arrived at. Within this context, the “noise” he refers to constitutes all previous experiences that randomly affect a decision by creating a type of background distraction that affects how we view the decision-making process, whether the situation is similar or not (Kahneman et al., 2021). Additionally, Kahneman et al. (2021) indicated “noise” can also refer to how the clinician is perhaps experiencing their life in any given day, and things such as loss of a loved one, can affect how a clinician approaches decisions in any given situation. According to Kahneman (2011) and Kahneman et al. (2021), people make decisions based on “fast” (System 1) or “slow” (System 2) information processing, and they often pay attention to the internal background “noise.” Decisions made because of impulse or intuitive knowledge are “fast” (System 1), and those made based on training or education are more deliberate or “slow,” (System 2) or in the case of this study, less biased (Kahneman,



2011; Kahneman et al., 2021; Rotgans et al., 2019). The experienced decision maker may initially utilize slow information processing to reduce the incidence of paying attention to internal noise, but over multiple experiences of making similar decisions, they may become more automatic and less critical in decision making (Kahneman, 2011; Kahneman et al., 2021; Rotgans et al., 2019). People who rely on previously made decisions may take a shortcut, pay too much attention to previous experience, and fail to examine new information, thereby resorting to a more automatic and less considered form of decision making (Kahneman, 2011; Kahneman et al., 2021; Rotgans et al., 2019). Kahneman's conceptual framework outlined a connection between fast and slow decision-making and proposed using a bias reduction process to eliminate errors in judgment (Kahneman, 2011; Kahneman et al., 2021; Kentrou et al., 2019; Young et al., 2020). Kahneman expanded on this by proposing that personal "noise" or emotional situations that interfere with decision making may contribute to the processes used during decision making at well (Kahneman et al., 2021). This framework has been applied to several disciplines as well as clinical decision-making processes (Kahneman, 2011; Kahneman et al., 2021; Kentrou et al., 2019; Young et al., 2020).

Psychologists who base their decisions on previous experiences and previously made decisions run the risk of overusing fast or automatic thinking and incorporating a confirmatory type of bias into the decision-making process (DuPaul & Jimerson, 2014; Kahneman, 2011; Kahneman et al., 2021; Kentrou et al., 2019; Rotgans et al., 2019; Young et al., 2020). Specifically, psychologists might be at risk of making inaccurate diagnoses by virtue of a concept known as confirmation bias, which can lead to decision

errors based on paying too much attention to previous experiences (Parmley, 2006).

Confirmation bias can occur when paying attention to information that confirms a decision and rejecting information that does not align with that decision while accepting the former as accurate in that moment (Kahneman, 2011; Kahneman et al., 2021; Kentrou et al., 2019; Parmley, 2006; Young et al., 2020). An example of this is presented by Cooper et al. (2014), who demonstrated that despite the children previously diagnosed with ADHD showing elevated symptoms of ASD-1, the information was disregarded, and the additional diagnoses were missed.

Kahneman (2011) indicated that overreliance on experiences can lead to impulsive or intuitive decision making, which is often driven by emotions. Relying too much on one's experiences or paying too much attention to the noise of life can lead to a failure to incorporate and include relevant new information as well as errors in decision making due to the background influences of the noise (Kahneman et al., 2021). When new information is added to this system, the fast system can turn faulty because it is based on ignoring added material. Kahneman et al. (2021) recently highlighted the occurrence of a random variable due to any life circumstance or other external stimuli going on in a psychologist's life that changes their perception of the diagnostic process and leads to decisions that are so random that they are unpredictable. This noise creates a random variable that the decision maker is unaware of and that affects how they may react to any given situation (Kahneman et al., 2021).

I employed concepts from Kahneman's framework to interpret some of the content provided by psychologists about their thought processes when making a

diagnostic decision concerning how they are choosing to evaluate children for ASD-1, ADHD, or both as comorbid conditions. This data was gathered through generalized open-ended questions designed to elicit explanatory responses for gathering information about their lived experience. These questions could lead to unforeseen additional questions to obtain all available information from the psychologists. According to Kahneman (2011), Pelaccia et al. (2011), Rotgans et al. (2019), and Tay et al. (2016), as people master the Analytical System 2 “slow” decision-making processes, the relevant concepts move into the System 1 “fast” process, making it an automatic process.

### **Nature of the Study**

In his hermeneutic phenomenological qualitative study, I focus on psychologists who have professional experiences of the process they use to differentially diagnose children with ASD-1, ADHD, or both as they occur comorbidly. I incorporated a hermeneutic phenomenological approach to understanding these lived professional experiences. The employment of Heideggerian phenomenology allowed me to study the phenomena of interest with a focus on lived experiences, as part of the relationship between the researcher and the study participants (see Peoples, 2021). The researcher does not eliminate their experiences but incorporates and includes those experiences into the process for combining the experiences of the researcher and the participants (Peoples, 2021).

Part of the process I used was Heideggerian interpretive phenomenological bracketing, as described by Sorsa et al. (2015), which incorporates rather than excludes previous knowledge and experiences. The use of bracketing in this case is to list and

detail the areas where the researcher has potential bias owing to previous experiences and training. I created a detailed journal report of those areas developed when performing journaling activities. Journaling, which is also referred to as a reflexive process, is designed to account for previous experience and training that may affect the researcher's interpretation of the results (Van Manen, 1990).

I conduct semi-structured interviews with a sample population of a size determined by saturation, which was 7 licensed psychologists. All these psychologists were required to have experience as psychodiagnosticians in the diagnosis of childhood disorders of ASD-1, ADHD, or both as they occur comorbidly. The participants were asked to describe their clinical experiences and clinical caseloads while avoiding the use of any identifying case information and simply reporting their clinical processes to describe the relevant symptoms they observed. In this type of interview, the participants' responses can lead to the researcher asking additional questions to deepen their understanding of the respondents' lived experiences. My task was to distill meaning from the data obtained during the interviews. I used the hermeneutic circle, through which I reviewed the material, looking at individual interviews as they related to all of the material as a whole and understanding the material as it relates to particular interviews, until as much of the meaning as possible was extracted (see DuPaul & Jimerson, 2014; Flick, 2014; Kahneman, 2011; Peoples, 2021; Vagle, 2018; Van Manen, 1990). The data analysis included identifying patterns and meaningful themes that can lead to a better understanding of the participants' experiences and the incorporation of my experiences of the interviews. Saturation, in this case, refers to the lack of new information or themes

emerging during the interviews, which helped me determine how many psychologists are interviewed (see Flick, 2014; Vagle, 2018; Van Manen, 1990).

Vagle (2018) and Peoples (2021) suggested that a qualitative study can be performed using a variety of methods. For the purposes of this study, I employed the hermeneutic phenomenological approach to perform an interpretive phenomenological analysis, using semi-structured interviews with psychologists who meet eligibility requirements for participation, as described further in Chapter 3. For this study, the hermeneutic approach was the best fit, since it can incorporate, bracket, and present information about the process's psychologists use while being respectful of the researcher's lived experiences and providing a reflexive response to the study questions (see Peoples, 2021; Vagle, 2018; Van Manen, 1990).

### **Definitions**

*ADHD*: The American Psychiatric Association (2013) DSM-5 described ADHD as a collection of symptoms involving difficulty paying attention, problems staying seated or still, poor decision-making ability, inattention, hyperactivity, and impulsivity. The National Institute of Mental Health (2016) defined ADHD as behavioral problems that affect life skills, including attention difficulties, problems staying seated, difficulty waiting for their turn, hyperactivity, and impulsiveness.

*ASD-1*: As defined within DSM-5 APA (2013), ASD-1 refers to high-functioning individuals without intellectual disability who exhibit such signs and symptoms as lack of social reciprocity, difficulty with verbalization that is often reflected in speech development, and problems with hyper-focus or scattered focus on objects. ASD-1 would

include individuals with an IQ of greater than or equal to 70, including those with borderline intellectual functioning as well as those who are above average. The National Institute of Mental Health (2018) described ASD as a spectrum disorder and a developmental challenge characterized by delays in the acquisition of age-appropriate skills across multiple domains, including speech development, gross and fine motor control and coordination, and social skills development.

The diagnostic criteria for ASD-1 introduced in the DSM-5 constitute a significant change from the criteria listed in the previous DSM version (American Psychiatric Association, 2013). Previously, individuals with average or higher intellectual functioning were diagnosed with Asperger's, individuals with pervasive deficits who did not meet the criteria for ASD were diagnosed with PDD, and children with a specialized syndrome in which deterioration began at the age of three were diagnosed with Rett syndrome. Currently, all previous diagnostic categories have been subsumed under the diagnosis of ASD (American Psychiatric Association, 2000, 2013). Additionally, children whose key presenting features are problems with social communication are now diagnosed with a social (pragmatic) communication disorder (American Psychiatric Association, 2000, 2013).

*Confirmation Bias:* According to Parmley (2006) and Featherston et al. (2020), confirmation bias constitutes the way in which psychologists code the information they are gathering. In particular, it refers to how they pay attention to information, how they perceive the information they are taking in, and how that affects their decision-making process when deciding on what types of diagnostic measures to use. Confirmation bias

can help understand the cognitive errors that are made in the psychologists' decision-making process (Featherston et al., 2020).

*Comorbid or Co-occurring Disorders:* According to Valderas et al. (2009), the term “co-occurring” or “comorbid” disorders denotes the presence of two or more conditions existing simultaneously in a child. Valderas et al. indicated that the order in which the diagnoses are reported or recorded within the mental health community via diagnostic measures is related to the order in which the disorders are initially diagnosed. Within the medical arena, the primary or first diagnosis becomes the “index” condition and anything subsequent is secondary to the index condition (Valderas et al., 2009). Valderas et al. further explained that compared with the format used within the medical community, in the mental health domain, there are typically no “index” conditions, and that the diagnosis is more inclined toward multimorbidity or comorbidity. To avoid confusion in this study, co-occurring or comorbid reflects the presence of both ADHD and ASD-1 in a child.

*Differential Diagnostic Decision Making:* Djulbegovic et al. (2012) described this process as the way people interpret information presented to us based on their experiences and the bias inherent in the choice to treat or not treat any given condition. Within the medical field, diagnostic direction can be prescriptive (medication or physical or emotional management) or descriptive (formatting the disorder based on the symptoms clusters presented; Djulbegovic et al., 2012). Djulbegovic et al. further explained that the way clinicians process information, either to prevent future problems or during an emergent or critical scenario, affects the direction in which their decisions move. As used

in this study, the term refers to the processes employed by psychologists who evaluate children to arrive at the diagnosis of ASD-1 or ADHD or the comorbid diagnosis of both due to the overlapping symptoms between the two (see Djulbegovic et al., 2012). Of particular importance are the information psychologists pay attention to, how they arrive at a decision using their own experiences, what symptoms they pay attention to as they diagnose these disorders, and the filter used to arrive at a diagnostic decision about conditions that can co-occur (Djulbegovic et al., 2012).

*Dual Process Decision Making:* Kahneman (2011) and Kahneman et al. (2021) indicated that humans' learning processes include system 1/fast or system 2/slow processes, as it applies to psychologists' approach to diagnostic decision making. Moreover, it refers to how psychologists think about their cases when reaching a diagnosis and how perhaps, background sounds or emotional noise contribute to that process (Kahneman et al., 2021). If psychologists rely on previous training, experience, or intuition and approach their diagnostic process with automaticity, they are engaging in System 1 thinking (Kahneman, 2011). On the other hand, if they are systematic, deliberate, and organized in their approach to thinking about their cases and reaching a diagnosis, their approach can be described as System 2 thinking (Kahneman, 2011).

*Hermeneutic Circle:* According to Peoples (2021), a hermeneutic circle is the recursive process of reviewing material and distilling meaning as researchers move from their understanding of a phenomenon of the study to the descriptions obtained through the interview process with the participants who have lived experiences. This process is continued until no new meaning can be distilled from the information provided by the



participants (Flick, 2014; Peoples, 2021; Vagle, 2018; Van Manen, 1990). According to Van Manen (1990), this multilevel process is the means through which researchers, with their experiences, encounter the experiences of the participants and reach a different understanding that leads to the next stage, until no further pieces of information are left to explore (Flick, 2014; Peoples, 2021; Vagle, 2018; Van Manen, 1990).

*Hermeneutic Phenomenology:* As described by Peoples (2021), hermeneutic phenomenology, as presented by Heidegger, is an interpretive approach to knowing about a phenomenon, where the understanding of the phenomenon cannot be separated from our experience and/or existence in the world. People cannot eliminate their presence in the world, as described by Heidegger as being “Dasein” or “existence,” from their knowledge of the world (Peoples, 2021; Van Manen, 1990).

### **Assumptions**

Assumptions in this study constitute beliefs that are thought to be true but cannot, at this time, be proven to be true. One such assumption was related to the training of the licensed psychologists who were participants in this study. I assumed that each licensed psychologist who agreed to participate in this study has been trained in diagnostic practices for assessing children and the measures needed for diagnosing the two disorders of ASD-1 and ADHD or both as they occur comorbidly, and other psychiatric disorders children may present. I further assumed that the discussions during interviews with them would be about their diagnostic processes, with a focus on the two disorders of ASD-1 and ADHD or both as they occur comorbidly. Mentions of any other childhood mental health diagnosis would only be in the context of ruling them out. I also assumed that

psychologists may have a set of rules they use to diagnose ASD-1 and ADHD based upon their experiences, knowledge, and training pertaining to the diagnosis of these two disorders (see Maki et al., 2018; Peters & Matson, 2020). I also assumed the participants would verbally respond to the questions and honestly report their experiences and thought processes during evaluations of children that include differential diagnoses. Furthermore, I assumed the data collected would adequately address the research question and saturation would occur, such that no new themes will emerge after a certain number of participants are interviewed. The purpose of this study is to better understand the experiences of psychologists as they perform their clinical decision making during a diagnostic process. Hence, interviews with psychologists about their lived experiences of diagnosing children with ASD-1, ADHD, or both as they occur comorbidly, are a key component of the study.

### **Scope and Delimitations**

In this hermeneutic phenomenological study, I focused on psychologists' lived experiences as they process concepts for differential diagnoses of ADHD, ASD-1, or both as they present comorbidly in children (see Magnavita, 2016; Merkebu et al., 2020; Vagle, 2018; Van Manen, 1990). A hermeneutic phenomenological study allows a researcher to better understand the lived experiences of the respondents in their own words, including their thoughts, beliefs, and behaviors, while accepting the inherent bias built into the process of asking the questions (Flick, 2014; Peoples, 2021; Vagle, 2018; Van Manen, 1990). In this study, I sought to better understand the process employed by

the participants engaged in providing differential diagnosis, including their thoughts, practices, and possibly beliefs, in addition to their own internal belief system.

For this study, the participants were licensed psychologists who have experience in differentially diagnosing ASD-1, ADHD, or both as they occur comorbidly. The scope of the research was limited to these types of individuals. Clinicians or individuals who are not trained in psychodiagnostics or those who do not possess an applicable license will be excluded.

### **Limitations**

According to Flick (2014), a limitation is a boundary created by the type of study that addresses what areas the research applies to as well as those it does not apply to. As a qualitative study, this research and its findings can apply or pertain to only studies with similar settings or methodological procedures and cannot be generalized beyond that (see Creswell & Poth, 2018). Due to population statistics not being applied or used, the results cannot be generalized to the larger psychodiagnostics community that works with these childhood disorders. However, the response patterns that may emerge within the diagnostic theme could provide evidence, leading this study toward other information and supporting the need for further research.

### **Significance**

This study should bridge a gap in the literature concerning psychologists' experiences during the processes of differentially diagnosing the disorders of ASD-1, ADHD, or both as they occur comorbidly in children (see Cooper et al., 2014; Kentrou et al., 2019; Ng et al., 2019; Young et al., 2020). The publication of the DSM-5, which

replaced the DSM-IV-TR, brought to the surface the potential of diagnosing both ASD-1 and ADHD within a child if symptoms of both are present, whereas previously in the DSM-IV-TR, both disorders were considered mutually exclusive (American Psychiatric Association, 2000, 2013). Although evidence supported the co-occurrence of ASD-1 and ADHD and this phenomenon was also cited in the literature, the research did not address the discrepancy between the then-current version of the DSM and the reality (Matson & Williams, 2013). As a result of the absence of consistent assessments and established diagnostic decision-making processes, this study can contribute to our understanding of clinical decision-making and be of value to others seeking to diagnose and treat children with these conditions.

Findings from this study have the potential to facilitate a significant social change that benefits individuals because the clarity of diagnosis has both direct and long-term implications for children, including the services and the pharmacological and/or non-pharmacological treatment they receive based on diagnostic decisions (Cooper et al., 2014; Kentrou et al., 2019; Ng et al., 2019; Young et al., 2020). Wrong diagnoses have direct implications insofar as a potentially wrong treatment plan or medication regimen may be prescribed for an incorrect diagnosis. Additionally, the wrong diagnosis has long-term implications in terms of long-term side effects (Cooper et al., 2014; Ng et al., 2019). A better understanding of the decision-making process that psychologists undertake to reach a differential diagnosis has the potential to improve diagnostic clarity, clinical case formulation, and critical thinking.

The findings from this study could lead to a positive social change across multiple organizational levels because training formats could be updated and changed to accommodate different approaches in predoctoral and postdoctoral training that will inform assessments or the mentoring of graduate psychology students or post-doctoral candidates when training them in testing protocols. Similarly, the findings of this study could bring about a positive social change in future research by contributing to the consensus in favor of differential diagnosis for ASD-1, ADHD, or both as they occur comorbidly, as outlined by Young et al. (2020). To summarize, this study has the potential to provide crucial information to psychologists to whom children are referred to for the assessment of the childhood disorders of ASD-1, ADHD, or both as they occur comorbidly within the same child. Moreover, this study could provide additional information to caregivers, teachers, and stakeholders who need these results to develop services on the basis of accurate diagnoses.

### **Summary**

In this chapter, I introduced the value of adopting a hermeneutic phenomenological approach to study licensed psychologists' experiences as they differentially diagnose the childhood disorders of ASD-1, ADHD, or both as they occur comorbidly and the decision-making processes they employ to arrive at the diagnoses. Lack of information on the processes and the lived professional experiences of licensed psychologists when evaluating the childhood conditions of ASD-1, ADHD, or both as they occur comorbidly was identified as a gap in the literature. The hermeneutic phenomenological qualitative approach, along with the theoretical dual process

framework described by Kahneman (2011) and other conceptual frameworks, could serve as a lens through which the findings from this study can be viewed. Kahneman's dual-process (System 1 [fast] and System 2 [slow]) model with the revision of noise contributing to decision-making errors is adopted as a conceptual framework from the literature that can inform the understanding of how licensed psychologists experience the decision-making process (Kahneman, 2011; Kahneman et al., 2021). Additional elements presented in this chapter included the research question, the nature of the qualitative study, the scope and limitations of the study, and its potential to bring about positive social change through its results.

Chapter 2 includes a literature review of these diagnostic categories, their histories, and the differences and similarities between each. The theoretical foundation and the conceptual framework are elaborated on and an exhaustive review of the current and most recent past research findings pertaining to ASD-1, ADHD, or both as they occur comorbidly in children is provided. I further detail issues and challenges faced by and the experiences of licensed psychologists during the diagnostic process. I conclude the chapter with a discussion of the key scholarly research findings that support the research question.

## Chapter 2: Literature Review

The gap in the literature I addressed by this study relates to the lack of research on the lived experiences of licensed psychologists during the diagnosis of the childhood disorders of ADHD, ASD-1, or both these conditions as they occur comorbidly. The psycho-diagnostician is challenged by the diagnostic complexity of providing a differential diagnosis for a child who presents with signs or symptoms that may suggest either ADHD, ASD-1, or the co-occurrence of both (Antshel et al., 2013). When performing diagnostic assessments on a child who may or may not present both disorders, there is a higher margin for error because of how the symptoms may be presented, either by a teacher, a parent, or even another clinician (Antshel et al., 2013; Cooper et al., 2014; Peters & Matson, 2020).

As the relevant literature reveals, psycho-diagnosticians may face challenges from several directions. One source of difficulty is the evolving concepts regarding these childhood conditions presented in the successive editions of the DSM (American Psychiatric Association, 1952, 1968, 1980, 2000, 2013). Since there is a lack of research on psychologists' psycho-diagnostic experiences as they perform differential diagnoses for these childhood conditions, insufficient information is available on the process through which psycho-diagnosticians approach decision-making (Chen et al., 2020; Fadus et al., 2020; Jensen-Doss & Hawley, 2010). Moreover, the rule of thumb strategies or heuristics traditionally employed by evaluators may influence diagnostic outcomes (Fadus et al., 2020; Kahneman et al., 2021; Lilienfeld & Lynn, 2014). Previous editions of the DSM before the publication of the current DSM-5-TR did not recognize the co-

occurrence of ADHD and ASD (American Psychiatric Association, 1952, 1968, 1980, 2000, 2013, 2022). This left psycho-diagnosticians with no option but to choose one or the other childhood conditions as a potential diagnosis, attempting, in the process, to avoid or create situations such that there is the least harm to the child (Duncan, 1979; Gupta et al., 2020; Kentrou et al., 2019; Martin et al., 2016; Merkebu et al., 2020; Mullet & Rinn, 2015; Parker & Corkum, 2016; Peters & Matson, 2020, Wolraich et al., 2019). The DSM-5 and DSM-5-TR (American Psychiatric Association, 2013, 2022) marked a change in the diagnostic category for ASD as well as recognized that ADHD and ASD could be co-occurring diagnoses for a child. Additionally, psychologists may still follow the older versions rather than receive training in the use of the new DSM (Kulage et al., 2014; Leitner, 2014; Peters & Matson, 2020).

In this chapter, I review the relevant current research findings and those from the recent past to inform the reader about the key issues pertaining to the process of dual and/or single diagnosis of ADHD and ASD-1 in children and/or adolescents. The literature reviewed presents the history and tradition of each diagnosis, besides current diagnostic practices. Furthermore, I examine the literature on the challenges of differential diagnosis and the implications for the treatment of each of these conditions. I also review the pertinent literature on the dual system of decision making and the role of heuristics, such as confirmation bias, in clinical decision making. I include a review of hermeneutic phenomenology, which underpins the approach being used for the study design, and an analysis of the study data. Finally, I conclude the chapter with a section



wherein key scholarly research findings that support the research question are discussed, followed by a brief chapter summary with a transitional component to Chapter 3.

### **Literature Search Strategy**

The literature search strategy in this study involved entering keywords and phrases into the PsychInfo database and Google Scholar search engine to receive results linked to each topic. All relevant studies available on the topics were reviewed, regardless of the study design, including both quantitative and qualitative studies to gain a more in-depth understanding of the diagnostic decision-making approaches used, namely System 1 or System 2 thinking or fast and slow decision processes. Through this literature search, I also wanted to deepen my understanding of experiences of diagnosing, comorbid diagnosis of ADHD and ASD-1, and bias-based decision making. Additionally, each iteration of the DSM was included in the searches to be sure to address the various changes at each level (American Psychiatric Association, 1952, 1968, 1980, 2000, 2013). Additionally, a strategy was used to ensure documents were saved on the computer under headings that reflected the topic so that they were accessible when needed. Information on each topic, as found in the searches on the PsychInfo website, was saved under the year and name of the author, with the title listed. Documents more than 10 years old and those with outdated information were eliminated from the searches. Google Scholar was used to obtain information using search terms such as *fast*, *slow*, *system 1 and system 2*, *decision-theory*, and *descriptive bias-based theory*. Additionally, articles were searched on Google Scholar to find supporting documents for medical and mental health combinations as medical conditions are often mistaken for these challenges. Finally, the

search was expanded to include information regarding the role of heuristics in clinical decision-making and/or diagnostic decision-making.

Limited research was available on the combined diagnostic category of ADHD comorbid with ASD-1. In fact, a recent article published by a British network elaborated on how psychologists have decided on the diagnostic practices for diagnosing these two disorders comorbidly (Young et al., 2020). This article was cutting edge and the first of its kind to view how these two disorders can be dually diagnosed in the mental health domain (Young et al., 2020). No other information was found about the comorbid occurrence of ADHD and ASD-1; hence, the information presented, or the lack of information thereof, was defined by the gap.

### **Theoretical Foundation**

Dual process decision-making theory, as described by Kahneman (2011, 2021), consists of System 1 and System 2 thinking processes and is a valuable framework for understanding how clinical psychologists approach the differential diagnosis of their clients. The dual system theory describes how decisions are reached automatically or impulsively (System 1) or in a more deliberate manner (System 2; Kahneman, 2011; Mullet & Rinn, 2015; Pelaccia et al., 2011; Tay et al., 2016). Kahneman et al. (2021) recently updated the dual process theory to incorporate noise into the conceptual framework.

Noise refers to how people are affected by their lives or noise from their environment while processing information or when they are making a choice or decision (Kahneman et al., 2021). In this way, noise refers to the background stresses or life

experiences that affect decision making when individuals are making a diagnostic decision. This noise or distraction interferes with a diagnostician attending to relevant information to make a novel diagnostic decision (Kahneman et al., 2021).

Kahneman and other cognitive psychologists have identified the basic processes employed in decision making and the various strengths or shortcomings of a dual system approach (Fadus et al., 2020; Kahneman, 2011; Lilienfeld & Lynn, 2015; Tay et al., 2016). Shortcuts are commonly used in decision making because they are often efficient and effective in everyday life. Cognitive bias or confirmation bias may affect what information is used to make a diagnosis because of errors in how psychologists think about each set of symptoms presented (Bowes et al., 2020; Lilienfeld & Lynn, 2015). Other potential emotional, environmental, or external noise can affect the decision-making process, causing errors to occur when conceptualizing how to diagnose (Kahneman et al., 2021; Lilienfeld & Lynn, 2015).

Within the context of this study, the decision-making theory consists of a series of emotional, temporal, and sequential stages clinicians pass through to come to a diagnostic decision (Fadus et al., 2020; Gupta et al., 2020; Kahneman, 2011; Kahneman et al., 2021; Kentrou et al., 2019; Ng et al., 2019; Rotgans et al., 2019; Schulte-Mecklenbeck et al., 2015; Tay et al., 2016). Noise, as described by Kahneman et al. (2021), is linked to the dual system process in that he is equating the System 1 learning process as having a higher potential to succumb to background noise, which, in turn, can interfere with the decision-making process. This noise can constitute any emotional, situational, or environmental stress that gets incorporated into the decision-making process and affects

how well the clinical psychologist can focus on the task of diagnosis (Kahneman et al., 2021). Among different strategies, people employ System 1 or System 2 decision-making processes, influenced by how well they know their processes and their jobs and how much emotional noise is present (Gupta et al., 2020; Kahneman, 2011; Kahneman et al., 2021; Schulte-Mecklenbeck et al., 2015; Tay et al., 2016).

Gupta et al. (2020) addressed the inaccurate diagnosis of medical conditions that have to then be treated with interventions that are either unnecessary or involve overmedication due to the incorrect diagnosis being given in the first place. Inaccurate or missed diagnoses of medical problems can have significant mental health consequences, causing anxiety or other problems to manifest (Gupta et al., 2020). Kahneman (2011), Kahneman et al. (2021), and Tay et al. (2016) described the System 1 and System 2 decision-making processes and how the presence of noise from past emotional experiences affects the way clinical psychologists focus on a diagnosis. Thinking processes being compromised by noise can result in faulty diagnostic practices and faulty beliefs stemming from self-concepts on diagnostic accuracy (Schulte-Mecklenbeck et al., 2015).

In this chapter, therefore, I review the relevant literature on the childhood disorders of ADHD and ASD-1 and psychologists' approaches to their differential diagnostic decision making (see Fadus et al., 2020; Kahneman, 2011; Kahneman et al., 2021; Lilienfeld & Lynn, 2015; Pelaccia et al., 2011).

## Literature Review

### ADHD

ADHD is a neurological disorder that is often diagnosed in childhood and is characterized by a constellation of symptoms, including problems staying focused, interrupting others, problems with turn taking, forgetfulness, problems with sequential directions, often appearing as if “on the go,” and troubles with impulse control and social interactions (American Psychiatric Association, 2022). Social interaction difficulties appear to be causally related to a child’s forgetfulness, turn-taking challenges, a tendency to interrupt others, and impulsivity (American Psychiatric Association, 2022). Kuijper et al. (2017) and Parker and Corkum (2016) were consistent in their description of ADHD in which they indicated problems with attention and movement—either too much or not enough. In common vernacular, these children are referred to as “unruly,” “unfocused,” “strong-willed,” and “poor listeners.”

### *History of ADHD*

Historically, evidence suggests that ADHD has been recognized as a problem since the late 1700s (Barkley & Peters, 2012). According to records, over a 20-year time period, two different doctors identified, charted, and wrote about the constellation of symptoms presented in school-aged children and reported this as a type of attentional deficiency (Barkley & Peters, 2012). Some controversy exists over who was the first to notice—whether it was Crichton in 1798 or Weikard in 1790 (Barkley & Peters, 2012). Later, James noted similar issues in 1890, followed by Still in 1902 (Barkley & Peters, 2012). These authors wrote contemporaneously and independently, describing the same

clinical phenomenon of ADHD without having read or been informed of each other's work. Seventy years later in the 1970s, Duncan (1979) was the first to label this constellation of symptoms as *hyperactive syndrome* and the first to introduce the concept of medication management to treat this problem. Before the use of medications, doctors attempted to treat attentional problems by directly addressing parenting practices, enforcing dietary restrictions such as avoidance of sugars and red food dyes or adopting gluten-free diets, and employing chelation therapy (Barkley & Peters, 2012). Duncan was also the first to note the difficulty of diagnosing a disorder that was not well understood in the 1970s.

The nomenclature of ADHD evolved over the years from hyperactive syndrome; however, it was not listed in the first edition of the DSM (American Psychiatric Association, 1952). The second version of the DSM, published in the late 1960s, called it hyperkinetic disorder (American Psychiatric Association, 1968). Over time, due to the additional research conducted, by the third edition of the DSM, the disorder was called attention deficit disorder (ADD) and classified into two types—one with hyperactivity and one without (American Psychiatric Association, 1980). The nomenclature continued to evolve, and in the fourth edition, they changed it to attention deficit with or without hyperactivity and classified it into three subtypes (American Psychiatric Association, 2000). This is the most common expression used today, even in the latest version of the DSM, which uses it to describe both adults and children, and, therefore, the name was altered for simplicity purposes to ADHD. The newest iteration of the DSM does not have with or without hyperactivity, but instead lists the presence of hyperactivity as one of the

three subtypes available to select from for the diagnosis (American Psychiatric Association, 2022). Additionally, the most recent version of the DSM-5-TR moved ADHD into the neurodevelopmental category along with ASD (American Psychiatric Association, 2022).

### ***Tradition of ADHD***

This disorder has been labeled and described in different ways over the generations due to changes in the understanding of the disorder and psychologists consistently reporting similar constellation of symptoms, which led to the DSM evolving and changing the descriptions over various versions (American Psychiatric Association, 1952, 1968, 1980, 2000, 2013, 2022). As understanding of this disorder increased, the terminology changed; however, the presentation of symptoms did not. Earlier in America's history, children with ADHD were considered brain damaged due to the constellation of symptoms noted in them, including hyperkinesis, attention span problems, mood lability, anxiety, and learning deficits (Eisenberg, 2007). It was at first thought to be a childhood ailment that was later understood to follow people into adulthood (Barkley & Peters, 2012; Eisenberg, 2007). According to Eisenberg (2007), the nomenclature for this condition changed over time, as did the approach to treatment. He worked to add hyperkinetic syndrome as a diagnosis into the first edition of the DSM and added in his article that as studies progressed, treatment plans started to involve the use of stimulant medications as early as the 1960s (Eisenberg, 2007). Once the trend began to view ADHD as a medical diagnosis, the condition was reconceptualized as a mental health condition. Currently, it is seen as a blend of both medical and non-medical mental

health conditions that affect children all the way into their adulthood (Eisenberg, 2007; ICD10data, 2018a)

### ***New Trends in ADHD***

Today, many theorists and psychologists are focused on finding the underlying causes or reasons for the development of ADHD in children. Konicarova and Bob (2013) discussed the potential connection between early brain development in neonates and balance, co-ordination, and motor control, resulting from a neurological disconnect between the two can occur during pregnancy and manifest as ADHD in early childhood. Evans (2014) reported a new trend of medical diagnostic practices becoming more prevalent today by integrating brain imaging techniques and studies supporting the use of amphetamines to treat ADHD. Evans indicated as well that many of these studies facilitated by pharmaceutical companies were conducted with an agenda to sell a product, i.e., amphetamines to treat ADHD. To date, few studies support the use of amphetamines to treat ADHD or indicate that any true benefit can be obtained from them (Meppelink et al., 2016).

The American Academy of Pediatrics (AAP) publishes guidelines that are regularly updated to reflect the current levels of information and new trends in the diagnosis and treatment of ADHD (Wolraich et al., 2019). One example of how the guidelines are changing is noted in the diagnostic process; by allowing for the diagnosis of ADHD between the ages of 4 and 18 to cover a broader age group due to the diagnostic symptoms consistently presenting in these additional age groups (Wolraich et al., 2019). Finally, in this most recent revision version, the AAP encourages



psychologists to make referrals to other mental health professionals if they are feeling any lack of confidence in diagnosing or treating any of these childhood conditions (Wolraich et al., 2019).

### ***Medical Diagnosis versus Mental Health Diagnosis***

Historically, ADHD was diagnosed as a medical condition and considered separate from ADD (American Psychiatric Association, 1952, 1968). Leahy (2017) initially described ADHD as a manifestation of brain damage caused by some incident in childhood. Leahy, within their historical review further pointed out that the next phase of studies, performed in the early part of the 1900s, indicated that this condition was perhaps a problem with a lack of moral control and was maybe a defect of character. Considering the era, this was likely due to the general social conditioning of the time and how each clinician viewed the disorder, considering cognitive, behavioral, or social aspects of ADHD, according to their own internal lens. In the early 1960s, a task force was formed to study, in depth, this group of symptoms and determine whether these children struggled with some form of dysfunction of the brain (Leahy, 2017). Over time, ADHD has been reconceptualized as a mental health condition. Furthermore, with the publication of the DSM-III, it was renamed ADHD, with its constellation of symptoms listed under the following three primary categories: attentional problems, inattentive problems, and impulse control problems, and it was no longer considered just a childhood condition (American Psychiatric Association, 2000; Balogh et al., 2015; Leahy, 2017).

Today, ADHD is considered a neurological brain disorder that manifests in childhood but often persists well into adulthood and even into senior years (Balogh et al.,

2015; Evans, 2014; Leahy, 2017; Mosner et al., 2019). Generally, ADHD has been viewed as a brain condition that has cognitive, behavioral, emotional, and social implications. ADHD is also considered an executive function problem because attention is considered critical to other cognitive skills such as memory, judgment, and problem-solving skills. Some researchers perceive ADHD as a mental health diagnosis (De Pauw & Mervielde, 2010). De Pauw and Mervielde detailed a variety of characteristics and traits in children that potentially address how these children may have different developmental trajectories. These different perspectives and clinical foci contributed to the potential misdiagnosis and surrounded diagnostic practices and treatment plans for children struggling with ADHD with confusion. Leahy (2017) reported that the DSM-III (R) published in the 1980s indicated that ADHD symptoms may follow children into adulthood. This was the first edition to report that this problem was possible in the adult population as well. Compared with non-medical practitioners, medical practitioners appear to have a different diagnostic focus, as each emphasizes different aspects of the disorder that is typically viewed as a neurological disorder with a biological component, but with associated emotional and behavioral features (Evans, 2014; Konicarova & Bob, 2013; Leahy, 2017). It appears that the diagnostic focus depends on the purpose each clinician has. For instance, tests performed in schools are focused only on the best way to help children learn, tests performed by psychologists in an office setting focus on the mental health aspects, whereas pediatricians tend to focus on the developmental aspects, as noted in each field's preferred ICD sites (Evans, 2014; Konicarova & Bob, 2013; Leahy, 2017).

Besides the issues stemming from different clinical foci, incorrect diagnoses also occur due to the presence of symptoms that mimic ADHD but are, in the end, some other medical or mental health diagnosis (Gupta et al., 2020). Included in this literature review is a report by Kernberg and Yeomans (2013), who proposed a methodology to assist psychologists in differentially diagnosing borderline personality disorder, bipolar, depression, ADHD, or narcissism. The current version of the DSM-5-TR was recently published, providing what these authors saw as a confusing mix of changes and ways to clearly define the differences between these conditions (Kernberg & Yeomans, 2013). Abramovitch et al. (2013) described how some symptoms of obsessive-compulsive disorder can mimic the symptoms of ADHD and that a clear differential diagnosis is necessary to prevent missed diagnosis or misdiagnosis. More recently, another study detailed the symptoms of fetal alcohol spectrum disorder and how it is often misdiagnosed as either ADHD or ASD due to the complexity of how the symptoms present (Ergun et al., 2021). Clearly, the symptoms of ADHD can be and have been mistaken for other conditions, and clinical training and awareness must be in place to prevent these mistakes (Abramovitch et al., 2013; Ergun et al., 2021; Gupta et al., 2020; Kernberg & Yeomans, 2013).

### ***Current Diagnostic Practices***

ADHD, as a diagnosis, has evolved as psychologists and researchers continue to learn more about what causes the disorder and what areas of the brain it affects. Sato et al. (2012) found that fMRI studies accurately differentiated between inattentive and combined ADHD symptom sets at 0.67 median. Sato et al. (2012) did not find this type

of differentiation between neurologically typical samples and ADHD samples in fMRI studies, but they did accurately identify the different subcategories of ADHD symptom clusters. Contributing to this, Eloyan et al. (2012) performed a comparative study that looked at all three subtypes of ADHD—namely, combined, inattentive, and hyperactive—and compared them with control groups to find that the fMRI did not provide a compelling picture to use as a diagnostic tool. However, it did highlight some areas common to each of the three subtypes of ADHD. According to Eloyan et al., the high cost of this testing and lack of insurance companies reimbursement for it, besides the poor clarity it provides, results in this tool not being widely used to diagnose the ADHD-affected population. Standardized tests and clinical observation are still currently the main means of diagnosis.

Davenport and Davis (2011) described another similar measure called the Brown Attention Deficit Disorder Scales (BADDs). This measure allowed individuals over the age of eight to self-report their difficulties, in addition to offering measures for younger children that include parent and teacher rating scales. This measure describes five to six different functional deficits, such as problems organizing things or challenges staying focused on a task (Davenport & Davis, 2011). While this measure is based on the DSM-IV criteria, it can still be used to address challenges children and adults face under the current format of the DSM (Davenport & Davis, 2011). Finally, the validity scales for this measure are slightly higher than that of Connor's scales in some areas and lower in others (Davenport & Davis, 2011). The biggest advantage of using this measure is that it allows for the assessment of older populations to help assist in diagnosis. Both Connor's

scales and BADDs are informant-based rating instruments, typically completed by both parents and teachers (Davenport & Davis, 2011).

Another assessment strategy involves directly assessing the child's attentional capacity using computer-based continuous performance tasks that directly probe the child's verbal and visual attentional performance and are not reliant on the rating of the child by parents, teachers, or other collateral informants. State-of-the-art assessments combine a direct measure of attentional performance with collateral ratings by parents and teachers. One example of this is the Integrated Visual-Auditory – 2 (IVA-2), created by BrainTrain Inc., which uses simple commands such as clicking if the child hears or sees the number one. This test accurately identifies ADHD in children and adults 92% of the time and correctly identifies non-ADHD children and adults 89% of the time (BrainTrain Inc., 2018). This task and other related continuous performance tests (such as Conners' Continuous Performance Test and Test of Variables of Attention [TOVA]) probe attention by measuring a child's tendency to make omission and commission errors when presented with auditory and visual stimuli to which the child must respond.

Another set of measures commonly used to diagnose ADHD is the self-rating questionnaires employed for self-reporting of symptoms (Davenport & Davis, 2011; Yarlagadda & Clayton, 2013). DuPaul and Jimerson (2014) detail the commonly used measures, often within the school setting, that focus on not only the identification of the specific challenges ADHD kids face but also the treatment strategies that develop from the identification of symptom clusters, with a focus on education and social skills. The following are some of the measures listed by DuPaul and Jimerson (2014): Academic

Competence Evaluation Scale, Social Skills Improvement System, Adolescent Academic Problems Checklist, and Integrated Screening & Intervention System Teacher Rating form. Finally, a multitude of other measures exist that probe attention, including the Delis Kaplan Executive Functioning System (D-KEFS), the Brief Test of Attention (BRIEF-SR), and TOVA, which are often used by psychologists to assess attentional problems (Strang et al., 2017). According to Long et al. (2015), the BRIEF-SR provides the most valid results when used in conjunction with the D-KEFS and the anti-saccade test to confirm disinhibition related to the challenges ADHD children and adults struggle with. This article recommends using these three measures in combination to ensure the best outcome in diagnostic practices (Long et al., 2015).

### ***Diagnostic Clarification***

According to Janssen et al. (2016), the use of multiple tools to diagnose and accurately identify symptom clusters in the ADHD population has contributed to a clearer picture of the specific areas that need to be focused on when formulating treatment plans. Janssen et al. examined ADHD children being treated with neurofeedback (NF) and medication to find that the NF group and the medicated group both had reductions in arousal states afterward. Supporting this, Olivetti et al. (2012) used fMRI, MRI, and phenotypic information to not only accurately diagnose ADHD but attempted to eliminate batch sample biases. According to Olivetti et al., a batch sample bias is directly related to where the samples originate. In their case, each institution that contributed data sets had clustering within the samples related to the location of the sample sets. Olivetti et al. proposed the use of a dissimilarity comparison to account for batch sample bias and

found that it improved the diagnostic impression in their study. This means they used three different processes to estimate differences between the sets for the purpose of improved comparisons and to eliminate the effect of batch sample bias (Olivetti et al., 2012). Many pediatricians, psychiatrists, and healthcare providers employ both the DSM as well as the guidelines from the AAP, besides gathering information from as many sources as possible (Wolraich et al., 2019). The variability of the approaches adopted by psychologists attests to the nature of this disorder that requires both the mental health as well as the biological components be addressed. Brain changes related to ADHD have been identified, in addition to the behavioral and social-emotional features associated with this condition.

### ***Misdiagnosis***

Gordon et al. (2002) explored how diagnosticians made decisions with or without best practice guidelines. This older article shed light on the diagnostic confusion that existed in the early part of the century. Gordon et al. detailed the purpose of the Americans with Disabilities Act (ADA) of 1973 and explained how this act created a new trend of testing college students to determine eligibility for accommodations. Gordon et al. also found that many psychologists not only failed to comprehend the intent of the ADA but also misinterpreted it in their practice of diagnosing clients, thereby failing to provide accommodation when needed due to the rigidity of their criteria. Additionally, they found many did not agree on the level of difficulty that needed to be present for an individual to be considered disabled, meaning many with ADHD would not meet the criteria to receive assistance in schools (Gordon et al., 2002). Olivetti et al. (2012)

highlights that using fMRI and EEG to diagnose people struggling with ADHD symptoms could accurately help determine treatment options, in addition to decreasing the number of misdiagnosed cases and the overuse of inaccurate medications. In the past, due to misunderstandings concerning disability levels associated with ADHD, kids affected by the disorder did not receive accommodations because they were not considered “disabled” enough, which led them to turning into adults faced with ADHD challenges and who felt disconnected and disenfranchised (Gordon et al., 2002).

An additional study recently performed by Fadus et al. (2020) discovered the presence of unconscious bias or confirmation bias in many cases owing to cultural differences or cultural biases based on beliefs or expectations related to specific cultures. In their book, Balogh et al. (2015) covered a variety of incidents of misdiagnosis and their consequences, both within the medical and the mental health field, such as psychotic episodes being confused with diabetic incidents. The concern noted by both articles is that misdiagnosis in some cases could become a significant problem as the children grow into adults who have not received early intervention services for which a correct diagnosis is needed or are receiving medication management for an incorrect diagnosis (Balogh et al., 2015; Fadus et al., 2020). Fadus et al. (2020) detailed how both ADHD and ASD have a more positive outcome when diagnosed and caught early such that early interventions can be provided during preschool years. Since both disorders are considered genetic in origin—as noted by Aarhus University (2019), which found both to be linked to the MAP1A gene—these challenges tend to continue well into adulthood.



### ***Current Treatment Options***

As we learn more about this disorder, treatment plans and treatment options expand, varying from independent medication management, as detailed by Duncan (1979), in earlier years with the use of Ritalin, to the current combinations of treatment options, which typically include behavior modification techniques as well as medication management (Chronis-Tuscano et al., 2013). Today, many psychologists believe children have an inherited risk for ADHD due to a genetic link (Aarhus University, 2019) or *in-utero* exposure to various teratogens such as drugs or alcohol (Chronis-Tuscano et al., 2013; Duncan, 1979). In the 1970s, Duncan (1979) noticed this disorder was being misdiagnosed either as a medical condition or as bipolar in childhood, leading to the prescription of inaccurate treatments.

Treatment options available today have a long history in America. Evans (2014) reviewed two published books regarding hyperactivity and the treatment of children with this difficulty dating back to the 1950s. Additionally, the report noted brain-damaged children being treated with amphetamine medications since as early as the 1930s and how, over time, this overuse of medication has become a “pandemic” worldwide with more than 2,600,000 children and adults taking ADHD medications (Evans, 2014). It was noted that ADHD children also struggled with red food coloring and food additives and that high-density sugar additives tended to increase their hyperactive state (Evans, 2014). Today, the use of psychostimulant medications in conjunction with behavior modification is the most common treatment option available for ADHD (Evans, 2014).

Reynolds and Lane (2009) described a study on children with ADHD and comorbid conditions such as anxiety, obsessive-compulsive features, and/or sensory problems. This study focused on children diagnosed with ADHD who also displayed symptoms of anxiety, depression, over-responsiveness to sensory stimuli, hyper-focus or difficulty in shifting focus, and rigid behavior. Takara et al. (2015) found in their study that 38% of children diagnosed with ADHD and/or ASD had received an inaccurate diagnosis or that their condition was confused with another mental health disorder. The list of inaccurate diagnoses included personality disorders and psychosis (Takara et al., 2015). These symptoms correspond with features of ADHD and ASD-1, as described in the DSM-5-TR, and may reflect comorbid ADHD and ASD-1. As an example, various reports, such as the one published by Reynolds and Lane (2009), are confounded about the diagnosis of ADHD due to studies that did not employ any diagnostic confirmation of the disorders described, thereby putting out unconfirmed information and adding to the information that confused the diagnostic picture.

When misdiagnoses occurs in the case of any of these childhood disorders, the medication and behavior modification treatments become problematic. A child diagnosed with ADHD who also has ASD-1 may or may not have an adverse reaction to the standard psychostimulant medications given for ADHD (Balogh et al., 2015; Fadus et al., 2020; Meppelink et al., 2016). Additionally, behavior modifications for one disorder, such as helping a child learn to stay on task, do not always work for all potential disorders when the diagnosis is inaccurately given. ADHD kids respond positively to certain specified types of interventions; however, the ASD-1 population does not

typically respond to the same types of interventions (Markowitz et al., 2016; Meppelink et al., 2016; Parker & Corkum, 2016). Although medication and behavioral therapy can be used to address signs and symptoms of either ASD-1 or ADHD, the same treatment is not necessarily applied to both disorders. Misdiagnoses might lead to children receiving ineffective treatments while losing the opportunity to be treated for the condition for which they meet the criteria. Not only does an inaccurate diagnosis led a child to receive the “wrong” treatment (both pharmacologically and non-pharmacologically), but it also means that the child is not receiving the correct treatment. Since we know about the importance of early interventions for both disorders, time lost on ineffective approaches may also later influence receptivity to required treatment strategies in adulthood (Diamond et al., 2013). Essentially, diagnostic inaccuracy leads to a form of type 1 and type 2 errors (Balogh et al., 2015; Kahneman, 2011; Kahneman et al., 2021; Pelaccia et al., 2011; Rotgans et al., 2019; Tay et al., 2016). For example, a form of hypothesis testing, a type 1 error or false positive is when a child is diagnosed with a condition they do not have, and a type 2 error or false negative is when a child is not diagnosed with a condition for which they meet the criteria.

### ***CBT, Behavioral Interventions, and Social Skills Training***

Behavior modification techniques and cognitive behavioral techniques are commonly employed in non-medical interventions aimed at training parents on ways to manage their child with ADHD and alleviate family stress caused by school problems. Moreover, these two techniques are utilized to help children who struggle with these challenges learn to manage their symptoms and incorporate these techniques into their

daily lives. These include but are not limited to coping skills, time management skills, and emotional behavior management tools. Baker-Ericzen et al. (2015) highlighted that the gold standard treatment used today is cognitive behavioral therapy (CBT). They further described an evidence-based practice (EBP) to determine the efficacy of CBT for children with ADHD and additionally focused on teens to determine whether EBP worked to decrease symptoms in teens through interventions such as skill training for symptom management and psychoeducation concerning their challenges, particularly intrapersonal social challenges. The researchers also found a positive correlation between the two groups in terms of symptom improvement and management and postulated the same could be applied to older children as well. The benefit here is that when the diagnosis is correct, CBT is an effective therapy to use in conjunction with medication to treat the challenges faced by those diagnosed with ADHD.

### **ASD-1**

ASD, as described in DSM-IV-TR, is a constellation of symptoms encompassing social, environmental, behavioral, and occupational problems across all settings. The most prevalent aspect of the disorder is the need to stim and the lack of ability to communicate with the immediate environment (American Psychiatric Association, 2000). According to the APA's (2022) most current version of the DSM, a dramatic change has been observed in how children diagnosed with ASD-1 are described as struggling with significant sensory problems and global developmental delays, including speech issues, problems managing transitions between activities, difficulty with social interactions, hyperactivity, and an altered level of stimulation experiences, both hypo and hyper.

Howe and Stagg (2016) suggested that sensory problems tend to be the most reported aspect of ASD-1 in school-aged children. According to a book contributed by Sternberg and Sternberg (2012), much of this population's energy is spent sorting through external stimuli to determine the level of importance to pay to each item. Additionally, the DSM-5-TR describes the following symptoms of ASD-1: repetitive movement or stereotypy problems, organization and attentional difficulties, behavioral challenges such as problems transitioning that often result in tantrums, and trouble with executive functioning (American Psychiatric Association, 2022). Children on the autism spectrum often struggle with self-monitoring, regulation of emotional and behavioral responses, and rigidity in their world view. The American Psychiatric Association's (2000) DSM-IV-TR previously described ASD-1 as Asperger's syndrome with similar symptom clusters, with the biggest difference being in the level of interaction with the environment. When Asperger's was moved to the autism spectrum cluster, a few previously noted symptoms have been lost in the translation between these two versions of the *DSM*. DSM-IV-TR described Asperger's as an impairment of speech development, self-help skills, and cognitive development, while the DSM-5-TR does not list these symptoms as a part of the requirements for the diagnosis of ASD-1 (American Psychiatric Association, 2000, 2013, 2022).

### ***History of ASD-1***

According to Wolff (2004), earlier diagnostic descriptions describe the state of children who struggled with symptoms that resembled Asperger's and are now diagnosed as ASD-1 as "madness and melancholy." A variety of reports spanning several

generations detail instances of “wolf children” or “silent madness,” wherein the description of the children’s symptoms matches all three levels of autism (Wolff, 2004). Kanner and Asperger formally created a nomenclature that was consistent and specifically linked the behaviors and traits to Asperger’s facilitated the identification and treatment of the disorder (Chown & Hughes, 2016). Before that, the diagnosis and treatment of this disorder were unpredictable and not provided prior to the mid-1940s (Chown & Hughes, 2016). Historically, children who were later diagnosed with autism were at one time thought to have infantile schizophrenia (Chown & Hughes, 2016).

Chown and Hughes (2016) speculated the delay in translating the work on Asperger’s from German to English slowed down the progress in this area, which would have otherwise proceeded in a more timely and accurate direction much sooner. Additionally, Asperger argued this disorder tended to run in families. Chown and Hughes (2016) noted Asperger had identified autism as a neurological disorder that originated at birth. Currently, ASD is considered a neurodevelopmental disorder that starts at birth but may not manifest or be confirmed until the child reaches the age of 18 months to 3 years old. The diagnosis of ASD-1 may often not be made until after other diagnoses such as ADHD or other mental health disorders have been made. Executive functioning problems can be perceived in children through most childhood disorders, further confusing the diagnostic picture. Children on the spectrum who are high functioning on the autism spectrum scale may not present with the language and behavioral problems commonly seen among children who are lower functioning (Chown & Hughes, 2016). Often, these children may not receive a diagnosis until they are well into their adult years.

Historically, ASD has been blamed on the use of vaccinations and contaminated water sources in and across many areas (White, 2014). According to White (2014), the use of social media to spread rumors and unsubstantiated reports that vaccinations, specifically the MMR vaccine often given in the 4th year, could cause autism has contributed to measles and other medical outbreaks that had previously been under control with vaccinations. As a result, a large percentage of the unvaccinated population contributes to a higher incidence of diseases that can harm children for no reason, since it has been proven that Wakefield's study was faulty and false and that MMR vaccinations do not cause Autism (White, 2014). This is still a hot topic of debate today.

As with ADHD, autism did not feature in the first DSM as a separate diagnosis but was instead listed as a symptom of schizophrenia in children (American Psychiatric Association, 1952). The second version of the DSM still listed autism as a symptom under the schizophrenia label but included withdrawn behavior and mental retardation as part of the diagnostic category for a type of schizophrenia (American Psychiatric Association, 1968). It was in the third version of the DSM that autism was separated into a separate category, with Asperger's included as a separate problem (American Psychiatric Association, 1980). The third version had six diagnostic categories, with each of the three (ASD, Aspergers and PDD) were now included diagnoses separated from schizophrenia and listed as unique challenges (American Psychiatric Association, 1980). With the 4th edition of the DSM, the categories of diagnostic distinctions were broadened into more than 16 categories, with four subsections that made the diagnosis a little clearer in some cases and not in others (American Psychiatric Association, 2000). Additionally,

the categories of Asperger's and pervasive developmental disorders (PDD) were fleshed out to reflect how these three disorders came to be known and are often still referred to in today's clinics (American Psychiatric Association, 2000). In the most recent version of the DSM, all these distinctions were eliminated and subsumed under the neurodevelopmental diagnosis now called autism with levels 1, 2, or 3 relating to the level of functioning and community support needed (American Psychiatric Association, 2013, 2022).

### ***Tradition of ASD-1***

Traditionally, ASD-1 first showed up in the DSM-IV-TR as Asperger's and/or PDD (American Psychiatric Association, 2000). According to the American Psychiatric Association (2000), Asperger's can be identified by a constellation of symptoms, including lack of eye contact, rigid behaviors or inflexibility in routines, movements such as hand flapping or repetitive movements (often known as stereotypies), obsession with small parts of objects, lack of enjoyment in social interactions or lack of reciprocity in emotional or social situations, and failure to develop peer-to-peer relationships (American Psychiatric Association, 2000). Currently, the diagnosis of Asperger's and PDD, besides Rett's and childhood disintegrative disorder, have all been subsumed under the new DSM-5-TR diagnosis of ASD due to the core common deficits in social communication and interaction and the restricted repetitive patterns of the noted behavior (American Psychiatric Association, 2022). The diagnosis can be further broken down into three levels that corresponded to the levels of impairment and support needed and are consistent with the previous descriptions of Asperger's (ASD-1), PDD (ASD-2), and



autism (ASD-3; American Psychiatric Association, 2022). ASD and ADHD are now grouped within the same category as neurodevelopmental disorders in the DSM-5-TR (American Psychiatric Association, 2022). Earlier in the history of work in the field, it was thought that most affected individuals were intellectually disabled, and many were non-verbal. Today, we know that most individuals with ASD are not intellectually disabled. Autism Speaks (2019) reports that 31% of ASD-diagnosed individuals have an IQ of less than 70, approximately 25% have an IQ of 71–85 (borderline intellectual functioning), and approximately 44% have an IQ in the average range ( $\geq 85$ ). This indicates that many more with ASD-1 would meet the criteria than previously believed.

### *New Trends in ASD-1*

Luckhardt et al. (2015) described ASD as a “complex, heterogeneous disorder” with a complicated genetic component and explicit nucleotide and copy variants specific to this disorder. It was also noted that while this knowledge helps to identify and tailor the treatment plans for specific types of ASD, it cannot be generalized and does not identify the level 1 or ASD-1 group due to the high variability within that group (Luckhardt et al., 2015). While genetics are not typically employed to diagnose this condition, it represents the disconnect between understanding and clinical presentation often used for diagnostic purposes (Luckhardt et al., 2015). The new DSM denotes the following three levels of autism: type 1 is the lowest level but the highest functioning, previously known in the DSM-IV-TR as Asperger’s; type 2 requires more support but is typically characterized by some verbal skills; and type 3 pertains to those who are most impaired by the disorder, requiring full support and often struggling with speech

(American Psychiatric Association, 2022). A child who functions at the third level is often non-verbal or minimally verbal and struggles with all levels of social communication and adaptation to their environment (American Psychiatric Association, 2022).

Kanne et al. (2014) described a study performed to test a new tool designed to assess whether an intervention was working with the ASD population, particularly the ASD-1 demographic. The Autism Impact Measure (AIM) was designed to assess the change in symptom presentation over time to determine treatment efficacy and ensure that the areas needing attention were noted within the measure (Kanne et al., 2014).

Kanne et al. combined a variety of traditional measures to rate the AIM for determining reliability, validity, and test-retest validity to ensure that this method accurately reflected the improvement over time or the lack of it in the treatment of ASD, particularly ASD-1, in children. The main goal was to make this measure easy to use and create something that could be employed often enough without having to determine test-retest variability due to the retest improvement that would occur when the same measure is used too often (Kanne et al., 2014).

Stadnick et al. (2017) detailed the use of the Mini International Neuropsychiatric Interview (MINI-KID) as a diagnostic tool to utilize as one of the methods to diagnose ASD and all aspects of this challenging disorder. They found that it was not an accurate predictor, as was observed with MINI-KID, and that each measure was based on clinician reports that widely varied in many cases (Stadnick et al., 2017). It was indicated that

clinician training appeared to be more of a predictor than what type of measure was used (Stadnick et al., 2017).

### ***Medical Diagnosis Versus Mental Health Diagnosis***

Some genetic disorders resemble or have features of ASD-1, such as genetic anomalies in the XY chromosomes, including Klinefelter's syndrome that has symptoms of delayed speech; slow motor development; delayed development in most areas due to muscle weakness; and later difficulty with bones and teeth as well as hormone imbalances (Mayo Clinic, 2019). Van Rijn et al. (2014) compared symptoms of ASD and Klinefelter using the Autism Diagnostic Interview – Revised (ADI-R) and found that 20% of those diagnosed with Klinefelter or even Trisomy X exhibit a higher level of ASD symptoms as compared with those diagnosed with ASD. A review of medical conditions such as lead poisoning, which causes developmental delays and has similar symptomology in the diagnostic arena, indicated how this condition can be mistaken for other issues (Wolraich et al., 2019).

Another genetic condition children can be born with that could lead to a misdiagnosis or incorrect assessment of ASD-1 is Rett's syndrome, which primarily affects girls and involves difficulty with speech, movement, eating, walking, and even breathing in some cases (International Rett Syndrome Foundation, n.d.). Previously, this diagnosis was included within the PDD group in the DSM-IV (American Psychiatric Association, 2000). According to Mount et al. (2003) and Zhang et al. (2018), Rett's syndrome is considered a type of PDD with similar features and characteristics to autism; however, while they share some distinct similarities, it was found that breath-holding or

hyperventilation and night screaming and slowed movements were found only in the Rett's population. Moreover, Mount et al. and Zhang et al. indicated that while some children diagnosed with Rett's have autistic features, autistic children did not have symptoms of Rett's and that Rett's syndrome occurs only in girls. Furthermore, the pattern appeared to be different in Rett's, with children acquiring age-appropriate skills and then plateauing between the ages of two and three years when they begin to regress and lose motor skills. Rett's disorder affects motor skill development as opposed to ASD, which affects social and communicative development.

Children born to drug-addicted mothers can exhibit symptoms that resemble ASD-1 or ASD-2 (Twomey et al., 2013). This is specifically a medical condition caused prenatally when infants are exposed to teratogens *in utero* and is not an inherited trait. Children exposed to drugs *in utero* exhibit both ADHD types of behaviors and delayed developmental milestones, ASD-like symptoms, anger control challenges, and problems associated with medical exposure to substances (Twomey et al., 2013). Another genetic condition that has been noted is fragile X or broken X in males. In this condition, the X chromosome is not functioning or "broken," resulting in symptoms including rage, speech difficulties, and motor control problems such as those observed in Rett's syndrome in girls (Crawford et al., 2018; Zhang et al., 2018). Zhang et al. (2018) reviewed ways for early detection using infants' and toddlers' abilities to respond to their own names. They noted that each of the developmental challenges had its own trajectory related to each of the disorders listed above.

### *Current Diagnostic Practices*

Kover et al. (2014) described the Autism Diagnostic Observation Schedule (ADOS-2) as the standard instrument used to observe and assess in a semi-structured manner the social interaction behavior of a child potentially on the spectrum. This assessment is akin to play therapy, involving the use of a variety of toys to assess the various social challenges ASD-1 children experience. This measure examines how the children interact with their environment, any repetitive or restricted behaviors, and verbal and non-verbal communication with those in their environment (Kover et al., 2014). This measure, therefore, is a direct assessment the rater utilizes to evaluate tasks the child or adult performs and consequently score the responses (Kover et al., 2014). It is not reliant on parental reports such as the ADHD measures often used for diagnosis. Zander et al. (2016) suggested the ADOS-2 is the best instrument to use for diagnosis due to the instrument's level of accuracy. The instrument reliability rates fall between 82% and 94% between rater and inter-rater accuracy. For the ASD-1 diagnosis, Zander et al. indicated these numbers are a little lower due to the nature of the disorder, with this rating review indicating a slightly lower score than those reported for ASD but still reporting at over 90%. Zander et al. described the ADOS-2 as the gold standard in use today for the diagnosis of spectrum disorders.

Besides the ADOS-2, parents are often provided with the ADI-R as an inventory of a child's skill development reported chronologically over time to look for issues that manifest as ASD. This is specifically used for children. Moreover, the use of the Modified Checklist for Autism in Toddlers – Revised, Childhood Autism Rating Scale,

Gilliam Autism Rating Scale, and Gilliam's Asperger's Disorder Scale, each provide a level of assessment to compliment the diagnosis of ASD, particularly ASD-1. Like the diagnosis of ADHD, diagnosing ASD-1 involves a constellation of assessments as well, including direct assessments and indirect rating scales completed by collateral informants such as parents and teachers. A full assessment often includes the, ADOS-2, Social Responsiveness Rating Scale (SRRS), and/or the Social Communication Questionnaire (SCQ).

Strang et al. (2017) described a new instrument called the Flexibility Scale (FS) for assessing ASD, particularly ASD-1. This FS measure was created to compliment the Behavioral Rating Scale of Executive Function (BRIEF), rather than replace it, and add an additional measure reporting levels of flexibility in children struggling with ASD, particularly ASD-1 (Strang et al., 2017). Typically, the BRIEF is employed to assess ADHD, but this report was looking at executive function as it relates to ASD-1 and the supportive structure for adding reliability to the measures used together (Strang et al., 2017). According to the results of this study, the FS has a valid rater reliability and interrater reliability as well as internal reliability and provides a consistent measure on four out of the five factors reporting a child's level of flexibility, potentially indicating where problems may exist with special needs kids.

Finally, in the medical arena, a new measure using a combination of chromosomal microarray analysis (CMA) and whole-exome sequencing (WES) presented more statistical significance in comparison with each individual test and identified complex ASD in a population of mixed ASD morphological groupings (Tammimies et al., 2015).

In the case of this test, specific measurements were used to separate each child into categories, and information was gathered on the parents of the children involved in the study (Tammimies et al., 2015). This study identified the specific features each child inherited and found that six out of the nine mutations were inherited and that ASD, Asperger's, and PDD were part of the inherited set of gene mutations (Tammimies et al., 2015). Finally, the new WES measure was comparable in terms of detection to the CMA, which is currently the genetic test sequence used to identify ASD. Combined, these two measures present a higher chance of accurately diagnosing the genetic component of ASD, particularly ASD-1 (Tammimies et al., 2015).

### ***Diagnostic Clarification***

A study by Rensselaer Polytechnic Institute (2018) provided additional diagnostic data on ASD-1 and was based on the use of medical diagnostic practices. Rensselaer Polytechnic Institute published a report that involved a second testing of a medical protocol that examined the two cellular pathways of methionine and trans-sulphuration, which have been implicated in ASD. They were looking for a specific group of 24 metabolites created by these pathways and found that in 88% of the cases, the blood test accurately diagnosed a child with autism as young as 18 months of age, therefore making earlier interventions possible. Due to an increase in medical and mental health knowledge, as time goes by and we learn more about the human body and human interactions, accurate diagnosis of these disorders has become more possible.

We know that there are some neurobiological correlates to autism and that there is a high degree of genetic transmission. Approximately 80% of monozygotic twins share

genes for autism (Autism Speaks, 2017). We also know that a fair degree of impairment is present in one or more of the key domains observed in the first-degree relatives of those with autism, what has been called Borderline Autism Phenotype (Autism Speaks, 2017). There are family members who do not meet the criteria for ASD but have significant impairments in either behavior control, socializing, or repetitive behaviors (Autism Speaks, 2017). However, we have not been able to identify an endophenotype—something that would uniquely identify (via biomarkers, genetics, and the like) individuals on the spectrum and differentiate them from individuals with other neurodevelopmental disorders. Other indicators such as large head circumference during the first year and eye tracking issues that have been mentioned in the literature as traits uniquely related to ASD might help in achieving differential diagnosis but have not been significantly supported at this time. However, this highlights one of the issues with differential diagnosis and diagnostic clarification prevalent in the field today that concerns the heterogeneity of the general population, not to mention the heterogeneity among children that might meet the criteria for ASD-1 and/or ADHD.

The symptom overlap between ASD-1 and ADHD within the DSM and in the reports written by psychologists and researchers reflects the vagueness of the diagnostic categories and the struggle psychologists face in providing answers to struggling children and parents (Balogh et al., 2015; Crawford et al., 2018; Gupta et al., 2020; Hyman et al., 2020; Kentrou et al., 2019; Kuijper et al., 2017; Merkebu et al., 2020; Miyasaka et al., 2018; Mosner et al., 2019; Rosenbaum & Gabrielsen, 2019; Sokolova et al., 2017; Stadnick et al., 2017; Young et al., 2020). Given the similarity of symptoms across a



variety of disorders (e.g., schizophrenia, ADHD, ASD-1, OCD, GAD, and bipolar in childhood), the absence of standardization in clinical practice poses a challenge to those attempting to provide a differential diagnosis. Given the overlapping features among these disorders, while misdiagnosis is understandable, it is incredibly important to have more specific guidelines to tease out primary issues for children. Differentiating these disorders based on the criterion the DSM-5-TR provides, is complex and requires experience and the use of appropriate measures and tools for diagnostic purposes. While both disorders may be associated with social interaction problems, children with ASD-1 may exhibit attention problems with or without accompanying ADHD characteristics.

### ***Misdiagnosis***

Takara et al. (2015) provided a meta-analysis based on journal articles that details the percentage of misdiagnosis among the ASD-1 population. They reported a 55% misdiagnosis of ASD-1 and a total in general of 78% observed throughout the list of journals used. Journals reporting inaccurate information then become part of the problem of the misdiagnosis of ASD-1. Over the last 12 years, multiple authors have performed studies focused on a constellation of symptoms, describing one set of challenges but listing symptoms consistent with potentially other diagnoses based on the pre-existing diagnosis, such as describing ADHD testing strategies with symptoms more consistent with ASD-1 (De Pauw & Mervielde, 2010; Evans, 2014; Leahy, 2017). Misdiagnosis and missed diagnosis, therefore, have become prevalent in not only the mental health community but the medical field as well, and they continue to represent the various confirmation biases present throughout all medical or mental health disciplines (Balogh

et al., 2015; Fadus et al., 2020; Magnavita, 2016; Parmley, 2006; Pelaccia et al., 2011; Rotgans et al., 2019).

### ***Current Treatment Options***

Aman et al. (2017) studied the effectiveness of Namenda in treating the social, irritability, and communication aspects of ASD. Currently, medication management is complex and often ineffective due to the variety of challenges faced by these children (Aman et al., 2017). To find an alternative medication, this controlled trial assessed both placebo and medicated groups and found efficacy rating in the reduction of irritability scales, whereas improvement in social interactions and communications for both groups was the same (Aman et al., 2017). This study did not find any negative side effects and reported a separate group that used Risperdal (or Risperidone), the efficacy rating of which was positive. However, further research would be needed to truly assess this aspect of the drug, since the current study focused on non-medicated children (Aman et al., 2017). This study did not find any positive change in social or communication ability in any of the children who were medicated as compared with the control group (Aman et al., 2017). Medication, therefore, is likely to continue being a challenge faced by those attempting to use this form of intervention to help affected children pass their developmental milestones more effectively in childhood.

Additional treatment methods include redirection, cognitive challenging, CBT, use of sensory sand tray therapies, behavior modification techniques, and joining different types of therapies (Autism Speaks, 2017). Redirection, CBT, and cognitive types of therapies are utilized to channel the focus of the child's attention into healthier

avenues and correct cognitive distortions (Autism Speaks, 2017; Kaufman & Kaufman, 2019). Kaufman and Kaufman (2019) described providing therapy as the way a therapist engages the ASD-1 child by trying to get the attention of the child during their stim behavior by mimicking the action to create a social bond. Each type of intervention is considered behavioral in nature and involves direct interaction with the children in the early stages of the development of their challenges. Additionally, it has been noted that each intervention needs to be tailored to the child and their specific sensory demands and behavioral challenges (Autism Speaks, 2017). These interventions are, therefore, focused primarily on early childhood and need to be performed with these children before they reach maturity, at which point the challenges become much more difficult to redirect or correct.

### ***CBT, Behavioral Interventions, and Social Skills Training***

Schreibman et al. (2015) discussed the need for the field to come together and provide all aspects of treatment intervention and using as naturalistic a setting and intervention as possible. Early intervention has been demonstrated to be more effective in treating this population by considering all characteristics of the challenges these children face, such as impaired social and educational skills and delayed achievement of language development and developmental milestones, by using various techniques, including applied behavioral analysis (ABA), CBT, and social skill acquisition training (Schreibman et al., 2015). A more efficacious outcome is observed in the use of naturalistic interventions, meaning adopting a child-driven teaching strategy during the younger years that is focused on using play routines to help children learn new coping

skills and techniques that reward the child instantly for applying learning. In other words, knowing the toy car is labeled “car” and that the vehicle that transports them to various places is also a car is the goal of this style of learning (Bruni & Lancaster, 2019; Schreibman et al., 2015). This type of intervention appears to improve treatment outcomes over the long-term treatment of ASD-1 (Schreibman et al., 2015). Teaching these children how to apply these behaviors across different aspects of their life, known today as ABA, presents a big challenge (Bruni & Lancaster, 2019). Schreibman et al. (2015) described this type of intervention as the Naturalistic Developmental Behavioral Intervention. The primary goal of this type of integration is to integrate all aspects of a child’s development into an intervention that is as natural as possible and use the child’s ability to reason and learn, in addition to providing responses that fit the situation (Schreibman et al., 2015).

### **Comorbid or Co-Occurring Disorders**

Leitner (2014) reported that in studies focusing on the prevalence of children with ASD symptoms, 30% to 50% of the children were found to also exhibit symptoms of ADHD, and two-thirds of the ADHD children exhibited symptoms of ASD. This suggested that these two groups are nearly indistinguishable when they exist as comorbid conditions, which significantly decreases the quality of life of these children as a result (Balogh et al., 2015; Leitner, 2014; Mosner et al., 2019; Ng et al., 2019; Schulte-Mecklenbeck et al., 2015; Stadnick et al., 2017). The main challenge as their disorders co-occur, concerns the psych-social questions as they apply to both of these diagnoses and how the condition is compounded when the symptom clusters are combined (Leitner,

2014). In the ICD-10 data site, the symptoms described for ASD are similar to those listed in the DSM-5-TR, except the ICD-10 site contains less psychological jargon and uses layman terminology (ICD10data, 2018a, 2018b). The following are some of the terms included in the ICD-10 site: children having problems talking to people, repetitive language, and children saying the same thing over and over to help calm themselves down (ICD10data, 2018b). The ICD site does not list the different levels of ASD, namely ASD-1, ASD-2, or ASD-3 (previously known as Asperger's, PDD, and autism; American Psychiatric Association, 2000, 2013, 2022; ICD10data, 2018a, 2018b). Moreover, ADHD is listed on the ICD site as problems with attention, hyperactivity, and difficulty with impulsivity (American Psychiatric Association, 2000, 2013, 2022; ICD10data, 2018a, 2018b). Diagnostic clarity is lost if the ICD-10 is used for diagnostic purposes. Furthermore, it does not include adults who are also struggling with similar challenges not previously caught or diagnosed. Due to the insurance companies' requirement to use the ICD codes for diagnostic purposes, a crossover has been created within the DSM system to ensure accuracy (American Psychiatric Association, 2022).

### ***History of Co-occurring Disorders***

Historically, mental health was ignored, and physical health was the focus of medical institutions throughout the world. Schneider et al. (2017) reviewed the constructs behind history and the different theoretical underpinnings many of the different psychological cultures have embraced, such as clinical, counseling-oriented, behaviorist, or psychoanalysis-oriented. They discuss how the integration of these constructs have kept these theoretical systems from being fully realized even today. Even at this level,

just as the separation of theories has kept psychoanalysts and behaviorists from integrating the cultural norms from their theories, so has the medical profession kept psychology separate from itself, creating a rift that should not be present.

The introduction of the DSM-5 brought about a change in how the comorbid diagnosis of ADHD and ASD-1 was thought about (American Psychiatric Association, 2000, 2013; Balogh et al., 2015; Leitner, 2014; Mosner et al., 2019; Raggi & Chronis, 2006; Schulte-Mecklenbeck et al., 2015). In prior versions of the DSM, only one or the other disorder was recognized, and diagnosis of both was excluded. ASD was listed as an exclusionary criterion for ADHD and vice versa (American Psychiatric Association, 2000, 2013). Due to the exclusion criteria previously listed, studies on the co-morbidity of ASD-1 and ADHD were delayed until the new DSM was published in 2013 (American Psychiatric Association, 2013; Leitner, 2014). This often led to children struggling with both disorders receiving treatment for the disorder with the most prominent symptoms but not both (Balogh et al., 2015).

Hyman et al. (2020) detailed the prevalence of and changes to the new pediatric guidelines for the diagnosis of these childhood challenges but primarily as a single diagnosis, as either ADHD or ASD and not comorbid disorders. The American Academy of Pediatrics (AAP) has not yet recognized or published the criteria for diagnosing and treating these two disorders as they present comorbidly. Studies currently focus on individual diagnoses of each (American Academy of Pediatrics, 2011; Hyman et al., 2020).

### ***Tradition of Co-Occurring Disorders***

Typically, these two disorders require a battery of diagnostic measures to tease out whether they are co-occurring or whether one has a few symptoms of the other. As noted by Chantiluke et al. (2014), before the latest edition of the DSM, which requires a diagnosis of ADHD if both disorders are present, studies were limited to and often differentiated by one or the other disorders rather than treating them as a comorbid occurrence. Often the most prevalent feature was the focus of diagnosis being placed on creating a type of confirmation bias, for example, when hyperkinetic and hyperactivity look similar on the surface but have different driving factors when investigated (American Psychiatric Association, 2022; Balogh et al., 2015; Chantiluke et al., 2014; Chown & Hughes, 2016; De Pauw & Mervielde, 2010). Chantiluke et al. (2014) reported that the largest combined effect, as shown in fMRI results, appeared to be in the executive functioning area, especially in the reward processing and the discounting phase, with ADHD children scoring higher in the latter.

### ***New Trends in Co-Occurring Disorders***

Sokolova et al. (2017) reported that before the current DSM-5-TR, co-occurrence of these disorders was found to be present in 22%–30% of previously published studies. Currently, these studies focus on the incidence of ADHD and ASD-1 as a comorbid condition and seek to provide treatment that focuses on both challenges. Sokolova et al. attempted to identify the causation between these two disorders and found a social ineptness variable that linked these two strongly and could be the mediating factor between these as they occur comorbidly.

### ***Medical Diagnosis versus Mental Health Diagnosis***

Considering ADHD being regarded as a brain problem (Leahy, 2017) and the neurological conditions of ASD-1 resembling those of Klinefelter's or Trisomy X (Van Rijn et al., 2014), when both ADHD and ASD-1 are present, the diagnostic picture can become blurry, making differential diagnosis much more difficult to achieve. Considering ADHD individually, test results indicated a higher incidence of medical conditions in this population than in neurologically typical individuals (Fadus et al., 2020; Leitner, 2014; Mosner et al., 2019; Ng et al., 2019). On the other hand, results for ASD-1 noted significant levels of celiac disease in the autistic population, besides issues processing casein—a protein found in milk products (Autism Speaks, 2017; Beaudoin & Zimbardo, 2012). Finally, looking at both conditions together, Beaudoin and Zimbardo (2012) and Schieve et al. (2012) also noted the comorbid population exhibited a variety of medical conditions ranging from celiac diseases or gastrointestinal problems to depression and various allergy issues. In some cases, as noted by Beaudoin and Zimbardo, treating the underlying medical condition can alleviate some of the mental health challenges faced by both populations that have ADHD and ASD-1 individually and comorbidly.

### ***Current Diagnostic Practices***

As highlighted by Leitner (2014), the previous version of the DSM did not recognize the co-morbid occurrence of ASD-1 and ADHD, since one disorder contained a rule-out criterion for the other. The result, therefore, is that the current diagnostic tools tend to be individualized for each of the two disorders. For instance, to determine the presence of both, a child would be given the ADOS-2, TOVA, and/or Connor's



Continuous Performance Test (CPT; Kover et al., 2014). These measures, taken together, should provide a clearer picture of what is specifically going on with a child if comorbidity is suspected. Moreover, the shift from viewing Asperger's as a separate diagnosis to subsuming it within ASD under ASD-1 has created a new diagnostic category that now also includes ADHD in the DSM-5-TR, which can be used for both populations: Social Pragmatic Communication Disorder is characterized by difficulty comprehending written, spoken, or non-verbal communications between individuals, in addition to deficits in following standard rules of communication between socializing parties (American Psychiatric Association, 2022). The SRRS and SCQ can be administered on both ADHD and ASD children to determine the level of social dysfunction present in these populations, besides providing a picture of whether they struggle with social pragmatic challenges in how they communicate with others. If clinicians are expecting a certain behavior to reflect only one diagnosis over the other, a form of confirmation bias occurs that makes the situation problematic (Briner & Manser, 2013; Raggi & Chronis, 2006; Rotgans et al., 2019).

### ***Diagnostic Clarification***

While most studies were focused on clarifying each individual diagnosis, some looked at ways to identify the comorbid presence of these disorders during the publication of the new DSM in 2013. Markowitz et al. (2016) described a study that focused on using a family questionnaire to determine the impact the presence of comorbid disorders has on a family's quality of life. The use of a quality-of-life questionnaire was unique in determining the level of challenges experienced by children

and their families, and this study indicated positive reliability in using this questionnaire for dually diagnosed children (Markowitz et al., 2016). Sizoo et al. (2015) performed a study that looked at the continuity between symptoms that was also aimed at achieving diagnostic clarification for adults affected by these two disorders. They found little evidence to support continuity but distinct similarities between these two disorders that can confound the diagnostic picture in adults and make it more confusing in children. For example, characteristics such as temperament and character inventories that are common to both ADHD and ASD-1 reflected similar attributes between groups and were diagnostically present as a confounding variable when diagnosing these disorders individually in children or adults (Sizoo et al., 2015).

### ***Misdiagnosis***

Diagnosing a mental health condition when it is a medical issue can be dangerous due to certain conditions requiring immediate medical attention, such as diabetes, which leads to high or low blood sugar (Briner & Manser, 2013). Diabetics may present symptoms of psychosis during high blood sugar levels, which has implications for increased lethality if not detected and accurately treated in a timely manner (Balogh et al., 2015; Briner & Manser, 2013). According to the US National Library of Medicine (2016), several medical conditions can mimic psychosis, including alcohol or drug abuse, depression, certain types of epilepsy, dementia, Alzheimer's, diabetes, Huntington's chorea, Parkinson's, and bipolar disorder. Diabetes, therefore, being misdiagnosed as a psychotic episode and the affected individual being treated for psychosis rather than high blood sugar potentially results in medical and mental health harm. There is potential harm

as well when people who are on the autistic spectrum are treated for schizophrenia, since the medications used for these two disorders are distinctly different (Mullet & Rinn, 2015). Mullet and Rinn (2015) described cases that were misdiagnosed as bipolar or schizophrenia but were found to meet the criteria for ASD-1 when tested using valid measures. Additional journal articles have shown cases of people who were diagnosed as bipolar but were found to be ASD-1 when tested using valid measures (Mullet & Rinn, 2015). Mullet and Rinn (2015) and Ng et al. (2019) reported additional confounding diagnostic situations that included presentations of dual diagnosis (the co-occurrence of two mental health conditions) that confound the diagnostic picture. The diagnostic picture can be more confusing when a person meets the criteria for a dual diagnosis or when a medical problem is mistaken for a mental health condition, such as childhood onset bipolar disorder being misdiagnosed as ADHD (Mullet & Rinn, 2015).

The expectation to see a specific behavior a certain way or the description the parent uses leading a clinician in an incorrect direction due to the parents being led by teachers in certain directions leads to a type of bias called confirmation bias (Parmley, 2006). Cognitive bias adds additional layers to the potential for misdiagnosis, since many times, most hold the belief that something is “rare” or unusual when it is not, therefore leading to a different form of misdiagnosis (Balogh et al., 2015).

### ***Current Treatment Options***

According to Davis and Kollins (2012) and Leitner (2014), the previous versions of the DSM limited research on how to diagnose and treat dual conditions such as ADHD and ASD-1. The previous iterations of the DSM did not allow for the diagnosis of both

conditions, and they were listed as mutually exclusive, thereby limiting the types of research that could be performed (Davis & Kollins, 2012). Davis and Kollins (2012) explained that when working with this population, the study limitations led to a dearth of research to draw from to validate findings. The review, therefore, listed what is currently known to work for treating individual sets of symptoms, such as the use of pharmacological methods (Davis & Kollins, 2012). Additionally, they found that behavioral interventions often work well with this population, in addition to the use of psychosocial interventions due to the commonality that exists between these disorders (Davis & Kollins, 2012). A recently published article by Young et al. (2020) details this challenge of dual disorders can often be conceptualized in how psychologists look at the symptoms presented in their offices. Due to both conditions having social skill deficits, the use of interventions that focus on their social responses is more likely to work.

***CBT, Behavioral Interventions, and Social Skills Training.***

Current trends in the treatment of ADHD and autism, individually and as a dual diagnosis, include both social skill training as well as cognitive interventions and behavioral therapies (Davis & Kollins, 2012; Schreibman, Dawson, Stahmer, Landa, Rogers, & McGee, 2015). Due to the lack of research on validated treatment methods, the interventions employed tend to look at the individual and the specific challenges they are currently struggling with rather than adopting any one method to treat both disorders (Davis & Kollins, 2012; Leitner, 2014). According to Davis and Kollins (2012) and Schreibman et al. (2015), the earlier the interventions are used, the more effective they

are likely to be. Therefore, the goal should be to treat the symptoms that are present in a child receiving treatment as early as possible.

### **Discussion**

The gap identified in the literature concerns the lack of research on the lived experiences of clinical psychologists as they conceptualize the diagnosis of ADHD, ASD-1, or both as comorbid conditions, as it applies to childhood diagnosis of these mental health problems (Kentrou et al., 2019; Young et al., 2020).

### **Summary and Conclusions**

In Chapter 2, I review the relevant literature pertaining to the childhood diagnoses of ADHD and ASD-1, or both as they occur comorbidly. These diagnoses as well as the understanding of how these childhood conditions present themselves have changed over time. While earlier versions of the DSM posited ADHD and ASD as mutually exclusive diagnoses, the most recent iteration of the DSM, the DSM-5-TR, allows for the comorbid diagnosis of both conditions. The literature on the assessment and treatment considerations for these childhood disorders was reviewed and was noted to be primarily focused on the assessment and treatment of individual childhood disorders and practices relevant to the comorbid occurrence of these childhood conditions. The pertinent literature on diagnostic decision-making was reviewed with particular attention to Kahneman's dual system of decision-making, which is characterized by system 1 (fast, automatic, intuitive) and system 2 (slow, deliberate, analytic) thinking. The literature on heuristics that may influence diagnostic decision-making was reviewed with particular attention to cognitive bias. Cognitive biases, which are cognitive shortcuts, can be

associated with heuristics and errors in diagnostic decision-making. The existing research reveals a gap in literature regarding understanding how psychologists approach the differential diagnosis of childhood conditions such as ASD-1, ADHD, or both as comorbid conditions. The proposed study seeks to address this gap in literature by studying the process through which psychologists approach the differential diagnosis of these childhood conditions.

Chapter 3 I will detail the design and rationale for conducting a hermeneutic phenomenological study that will address the identified gap in the research. The chapter will detail the intended methodology and information collection method. Furthermore, I will use the qualitative hermeneutic circle to assess the level of information gained, in addition to defining the my role as the researcher and the ways in which the study will address the limitations of the hermeneutic phenomenological research methods to increase the trustworthiness of the project.

### Chapter 3: Research Method

In this hermeneutic phenomenological study, I explored the lived professional experiences of psychologists and how they experience their diagnostic and decision-making process while differentially diagnosing children with ADHD, ASD-1, or both as they occur comorbidly. The results of this study were interpreted by examining the words, phrases, and topics that emerge from the semi-structured interviews conducted with the participants. Specifically, I focused on the psychologists' lived experiences of how they conceptualize diagnostic presentations and their beliefs about the diagnosis of ADHD, ASD-1, and comorbid presentations of both. I attempted to understand how psychologists make meaning of their experience of differentially diagnosing children for these disorders (see Balogh et al., 2015; Fadus et al., 2020; Hyman et al., 2020; Kentrou et al., 2019; Merkebu et al., 2020; Young & et al., 2020). The purpose of this study was to build upon existing literature on differential diagnosis of ASD-1 and ADHD by exploring the experiences of the psychologists who diagnose these childhood disorders.

In this chapter, I will discuss important elements of the study, including the description of and rationale for the chosen research design and methodology, the role of the researcher, instrumentation, recruitment and data collection procedure, data analysis, and ethical issues. The chapter concludes with a review of procedures that will be put in place to ensure the integrity of the study.

#### **Research Design and Rationale**

RQ1: What are the lived experiences of psychologists as they differentially diagnosed childhood ADHD and ASD-1?

This is a hermeneutic phenomenological study with a focus on psychologists' lived experiences of their diagnostic and decision-making processes while differentially diagnosing ADHD, ASD-1, or both as they occur comorbidly in children. Of particular interest is the process through which these clinicians identify, discriminate between, and reflect on the symptoms of these two disorders in children who present overlapping symptoms (see Kentrou et al., 2019; Merkebu et al., 2020; Young et al., 2020). The hermeneutic phenomenological approach was selected because of my own pertinent professional lived experience.

In hermeneutical phenomenology, it is recognized that a researcher has pre-knowledge or foreknowledge of the material they are studying based on their previous exposure to the phenomenon (Flick, 2014; Peoples, 2021; Vagle, 2018; Van Manen, 1990). The researcher synthesizes both their experience and that of the study participants through a repeated process of meaning making (Flick, 2014; Peoples, 2021; Vagle, 2018). The hermeneutic phenomenological approach has two primary versions: Husserlian and Heideggerian (Flick, 2014; Peoples, 2021; Vagle, 2018). I used the Heideggerian approach because it allows and accounts for the researcher's own lived experiences on the topic, as the researcher attempts to make meaning of the participants' lived experiences. (see Flick, 2014; Peoples, 2021; Vagle, 2018).

In a phenomenological study, the researcher seeks patterns of responses among the participants to better understand the shared experiences of the respondents, (Vagle, 2018). Furthermore, narrowing down the phenomenological study to a hermeneutic phenomenological study allowed for the incorporation and recognition of my professional



lived experiences in the study. The hermeneutic framework narrows the focus to allow and account for researchers' lived experiences both within the study and with the process of conducting the study to provide the details of how these interact in the study (Peoples, 2021; Van Manen, 1990). According to Flick (2014), a hermeneutic phenomenological qualitative study is a conceptual design employed to report how different people experience an activity—in this case, differential diagnosis—in a manner that fully addresses the question being asked in the study. This study has the potential to contribute to the body of knowledge and deepen our understanding about the diagnostic experiences of psychologists as they differentially diagnose children with or without ADHD, and/or ASD-1.

### **Role of the Researcher**

In this study, I sought to better understand the experiences of psychologists and how they make meaning of the process of differential diagnosis by exploring the thoughts, beliefs and practices that influence the clinician-respondents' collection of data, case conceptualization and diagnosis of children with ASD-1, ADHD or as they co-occur. The researcher's role is to design a study that can address the research question, attempt to describe how respondents make meaning of their experiences and analyze the data by generating themes based on data analysis, (Flick, 2014; Peoples, 2021). I sought meaning within the information provided by participants during their interviews, using the spiral or multilevel information processing previously described. As the information is gathered to ensure all information points are gathered, the focus was on how each question may elicit clinician-respondents' thinking as they respond to questions based on their own

cases (see Flick, 2014; Gupta & et al., 2020; Peoples, 2021; Vagle, 2018; Van Manen, 1990). The role of the researcher is to uphold the accuracy and integrity of the study. This responsibility involves reporting research bias, which according to Vagle (2018), is part of engaging in qualitative research.

Vagle (2018) described two different ways of categorizing information, namely using prefigured/preset or emergent categories. Additionally, Vagle described the role of the researcher as either a participant, observer, or observer-participant. In this instance, I was an active participant in the interview process and will be a participant. If a potential participant was a local colleague who I had worked with in the past, their information was used in the study and all information collection for them ceased due to the dual relationship and potential introduction of additional bias. Every effort will be employed to identify any bias honestly and openly.

## **Methodology**

### **Participant Selection Logic**

This was a hermeneutic phenomenological study utilizing 7 clinical psychologists who actively diagnose ADHD, ASD-1, or both as they present comorbidly; the participants will be recruited through responses to flyers and emails (see Flick, 2014; Peoples, 2021; Vagle, 2018; Van Manen, 1990). Each participant must hold a license in their state for psychological practice and must be in good standing with their license. Additionally, each participant must at the time of the research be actively diagnosing these three potential diagnostic categories. Part of the intake questions before the interviews begin will involve determining which clinicians meet the criteria listed above.

According to Vagle (2018) and Flick (2014), the type of study determines the number of participants; a phenomenological study typically uses between eight and 10 participants and allows up to 20 if needed. Saturation refers to the point at which the answers provided by the participants start to sound repetitive or similar enough to discontinue interviewing additional participants (Flick, 2014; Giorgi & Giorgi, 2003; Peoples, 2021; Vagle, 2018; Van Manen, 1990). According to Vagle (2018) and Flick (2014), saturation determines how long interviewing continues in a qualitative study.

Interviews were conducted with each respondent, and I examined how the responses are different or similar in nature, since this limited or led to the interviewing of additional participants. I intended to interview no more than 20 participants'. Vagle (2018) and Flick (2014) indicated that more than 20 participants begin to overwhelm a qualitative researcher with too many information points to coherently describe what has been presented.

The purpose of the initial contact was to ensure that the participants meet the inclusion criteria before the contact is continued. The participants must hold a current license or certification for clinical practice in accordance with state regulations and should be working in the mental health field as diagnosticians for children with ASD-1, ADHD, or both as they occur comorbidly. The respondents were limited to psychologists who differentially diagnose childhood mental health problems. A flyer was created that introduces the study and includes the disclaimer for the participants. This flyer will be sent to the advertising departments of the Texas Psychological Association (TPA), the American Psychological Association, and Walden University to request emails to be sent

to the participating providers in their systems. Once I received responses via email, I sent consent forms along with the study description, using the email addresses provided in the initial responses. Potential participants were asked for additional information to confirm if their participation fits the inclusion criteria for the study. Additional contacts can be recruited without permission via Walden's Facebook and LinkedIn sites. A means to contact me was included in the study description and was also part of the ad request sent to the different organizations. Once the first email response was received from a participant requesting to join the study and it is confirmed that the participant fits the criteria, a second email was sent including consent forms to be signed for both the research as well as the recording, research documentation, and information gathering during the study. Once the forms were signed, the next step was to set up 45- to 60-minute interview via the audio-visual system Zoom. I formally set up each interview through email to ensure that the time slots worked for both parties. The participant selection was based on their licensure for their state of residence and whether they signed the consent forms for both the study and the recording. Finally, once each time slot is set, formal interviews lasting no more than 60 minutes were performed via Zoom. The responses were recorded for future coding purposes.

### **Instrumentation**

In qualitative research, no rating forms, questionnaires, or standardized instruments are used. Instead, the researcher's instrumentation comprises semi-structured interviews with questions read to the participants by the researcher (see Appendix B). The psychologists were asked through semi-structured interviews to describe their beliefs

about the assessment protocols they use for diagnosis using samples of their own cases that reflect their diagnoses of ADHD, ASD-1, or the comorbid occurrence of both. This was done to outline their lived experiences and beliefs around the diagnosis and the accuracy of their diagnostic processes. Furthermore, the psychologists were asked research questions based on the diagnostic categories within the literature and their own responses to previous questions concerning ASD-1, ADHD, and their co-morbid occurrence. The purpose of these questions was to obtain information on the experiences psychologists have when reaching a clinical diagnosis. The questions asked centered around the topic and reflected new information at each level before beginning to narrow the focus until all information is gathered from the interview (see Giorgi & Giorgi, 2003). When the interviews reached the point of saturation (i.e., when new information is no longer being obtained), information gathering and interviewing stopped.

Once institutional review board (IRB) approval was received, each interview was set up via the email system through the requests sent to the TPA's and Walden University's research participant pool. The interviews were then conducted via Zoom, which allows for audio or visual recordings. These interviews were saved under random letters with the date and time of the interview. I recorded the interviews, and coded keywords and phrases used to guide the thematic analysis of the presented information using NVivo to perform the data analysis of the information later.

### **Procedures for Recruitment, Participation, and Data Collection**

The participants were recruited through the web via a flyer sent from the researcher's school email account. These flyer-based emails were generated from my

school email account and sent to each of the listed associations: the TPA and the Walden University research participant site. Each association was sent a recruitment flyer via email (see Appendix A), requesting that they resend the same to recruit participants who may be willing to participate in the study. The flyer was also posted on Walden's Facebook and professional LinkedIn site, neither of which requires permission for creating posts or sending flyers. The participants were selected based on their lived experience of at least 2 years of diagnosing both disorders and an active unrestricted license within the state the clinician resides in and is licensed as a psychologist. Once interviews are set up as described previously, information collection was performed via one-on-one 45 to 60-minute audio-visual interviews by me, who recorded each interview for coding purposes and to ensure that all information is managed using Zoom. No exit protocol was used. Once I gathered all available information, I concluded by thanking them for participating in the research. The interviews were performed until the information presented started to get repetitive, saturation was reached, 7 subjects had been interviewed.

These recordings were uploaded to the NVivo site for coding. All collected information was saved in a password-protected external hard drive that will be kept in a locked filing cabinet. The respondents were assigned initials representing their first and last names. The initials along with the date of the interview determined the naming of the information files. No other identifying information was present in the files to secure confidentiality in this research process and to ensure that the presentation of the information incorporates and accounts for any biases that may show up in the

participants' information. A hermeneutic circle was employed to ensure all levels of information are gathered on the topic in question (Peoples, 2021). The hermeneutic circle is the best option to use because it allows the researcher the opportunity to continue asking questions until all potential information has been gathered and all meaning is gleaned from the information. This concept reflects the nonlinear analysis of information presented during the interview process.

### **Data Analysis Plan**

The NVivo program software program was utilized by the researcher using key words added to the program to report the results in a thematic categorical manner to look for commonalities, categorize differences, and describe the quality of the information and the process of decision-making utilized by the respondents (QRS International, n.d.). Additionally, the researcher accounted for and incorporated her experiences and lived knowledge of the situations under scrutiny to synthesize meaning from the interviews. According to QRS International (n.d.), NVivo is an information collection program used in qualitative analysis and mixed methods studies that work in conjunction with SPSS if needed. In this study, the program was used for only qualitative analysis. Additionally, this program offered the ability to code information from visual, audio, and online survey sources to decrease the time spent coding information and help create connections between information sources (QRS International, n.d.). Finally, the NVivo software came with a transcription program that works in conjunction with the program. Any “.wms” program can be uploaded to create a report from audio-visual files much more efficiently and any changes needed can be added or edited through this process (QRS International,

n.d.). This program also offered a way to track bias and help incorporate and synthesize the bias by performing the coding electronically based on present norms and standards of practice and by being a part of the audit trail used to account for and incorporate, synthesize, and include any researcher bias (QRS International, n.d.). While this is not the only available qualitative program, this one offered the best options for the purpose of this study. Any discrepant information will be incorporated into the report as outliers. They will not be excluded due to the variability in responses, since we are specifically looking at the differences in the experiences of these psychologists. The only exclusions will be those therapists who respond inappropriately, do not fit the criterion for the study, or are too close to the researcher to be recruited in the study.

### **Issues of Trustworthiness**

Researcher bias is one of the limitations inherent in qualitative research. However, opting for qualitative research will provide the researcher with the opportunity to increase the understanding of psychologists' decision-making experiences in their own words. Measures will be taken to first acknowledge and then address researcher bias. The use of journaling during each process and interview, triangulation of three or more potential data points or clumps of points, and peer review will ensure the researcher bias is recognized and accepted. The researcher has preconceptions and viewpoints about the topic of this study due to her experience working with the population being studied. This researcher accounted for potential bias by maintaining an audit trail of the study and keeping a journal of personal reactions to all aspects of the study (Flick, 2014; Van Manen, 1990).



Since the researcher works with children with ASD-1 and ADHD, researcher bias can potentially surface during the recruitment of the participants as well as during data collection and analysis of the information. The researcher employed strategies to address researcher bias such as journaling before, during, and after each interview, which will allow the researcher to account for her thoughts, beliefs, and personal reactions to incoming data (Flick, 2014; Giorgi & Giorgi, 2003; Peoples, 2021). Accounting for and incorporating bias into the study is part of the process, besides the use of triangulation and an audit trail during the interview process. An audit trail used to document each step of the study involved the recording of responses before, during, and after each interview. Subsequently, the researcher can return to the audit trail to check the thematic analysis against the original data.

Bias is the primary challenge faced by qualitative researchers in providing information that can be trustworthy and have integrity. Bias can affect how participants are recruited and how data is collected and categorized. The researcher employed various methods throughout the research process to make sure bias is acknowledged and incorporated into the process to ensure the trustworthiness and credibility of data. Triangulation involves pulling together information from three or more sources to ensure the credibility of the research.

An audit trail was used throughout the process of the study to ensure bias is checked, accounted for, and incorporated in as many levels as possible to ensure transferability. Each clinician interviewed will add a layer of information to process the whole picture, enhance the applicability of the research to the general population, and

allow for the dissemination of information with additional details incorporated. This will allow for the information to be transferable to other formats and clinical practices.

The researcher will perform journaling, triangulation, and maintenance of an audit trail, and will check with the participants to ensure that the coding narratives used offer dependable information. The psychologists were asked to look at their responses before the responses are incorporated into the report, which will offer additional dependability and ensure that the information is accounted for with regard to each piece of potential bias. Additionally, each level of interpretation will present a pattern that incorporates bias rather than excluding it.

According to Peoples (2021), confirmability is the way in which a researcher accounts for their own bias, incorporates it into their study, and builds their questions within that bias. Since this is a hermeneutic phenomenological study that allows for bias incorporation, I will incorporate the bias and accept it rather than remove it. This will allow for the bias to be confirmed by listing each area of bias in the details from the journaling process that will be performed throughout the interview process.

### **Ethical Procedures**

To ensure research laws are maintained and consent is given by all participants, each of them will be provided with consent documents (See Appendix B). Additionally, since psychologists within the purview of the researcher's area of practice may potentially ask to participate, steps will be taken to ensure dual relationships or the issue of having worked with or for a participant does not compromise the research by excluding such participants if they request to participate in the study. No surveys or

questionnaires used in this study will exist on any website; hence, this should not cause any ethical issues. However, if an ethical issue arises, it will be dealt with by providing the information there is no need for surveys or questionnaires and these will not be accepted for use. No research was carried out until IRB approval was achieved, following which the research commenced until the amount of information needed was reached to start processing the information presented. All information is kept on a secure server site and is password protected and coded according to the date, random letters assigned, and the time of each interview. After the report is written, the information gathered from the dissertation research will be kept in a secure location for five years after the completion of the study, after which it will be deleted from the external server. If information was printed from this secure server, it will be shredded using ethical shredding practices.

### **Summary**

This hermeneutic phenomenological study will employ a Heideggerian information processing protocol to include and incorporate all levels of potential bias and provide a detailed narrative account of the study results with enough information to indicate a need for further study if necessary. NVivo program was employed to help account for and incorporate bias. Furthermore, interviews were conducted in a questionnaire format using the psychologists' cases to understand the process they use to answer questions about their experiences with diagnostic decision-making. The interview questions were guided by the literature, and the information gathered, or interviews stopped when saturation was reached. The participants were randomly selected from those requesting to participate in the study via the electronic means detailed in the

methods section above. Steps were taken to ensure information is protected and properly stored during the research. Informed consent was obtained prior to the interviewing process; however, the participants had the right to withdraw at any time from the study. The following chapter presents the data collected for this research reported in APA format to provide the reader with a coherent and detailed description of the findings from this study.

## Chapter 4: Results

This is a qualitative phenomenological study with a hermeneutic focus on how psychologists experience, perceive and conceptualize their diagnostic process as they differentially diagnose children with ADHD, ASD-1 or both as they occur co-morbidly. The question was “What are the lived experiences of psychologists as they differentially diagnose childhood ADHD and ASD-1?” The purpose of asking this question was to address the gap such as, it is not known how their level of experience affects how they are experiencing the diagnostic process and whether they are using automatic System 2 thinking based on how thoroughly detailed they describe their process, or whether they are examining how they are diagnosed based on a slower more deliberate approach or System 1. Often after years of experience, psychologists start to create a set criterion for how to diagnose these different childhood challenges (Kahneman, 2011, 2013). In this chapter, I review the findings from semi-structured interviews performed with licensed psychologists via Zoom.

Additionally, the use of the hermeneutic focus allows for not only narrowing down of the information being presented, but also allows for incorporation of and acceptance of outlines related to the biases inherent in this type of research. I used the Heideggerian style since it allows for and accounts for the researchers’ lived experiences as meaning is made from the participants lived experiences (see Flick, 2014; Peoples, 2021; Vagle, 2018). This then connects back to the gap that was identified as the lack of research about how clinicians conceptualize and diagnose these childhood problems.

In this chapter, I examine the results of the participants' responses to determine how their lived experiences as clinicians have led them to develop long term behaviors using set assessments based on needs of the clients, or whether they are using financial/insurance-based decision processes to decide how they proceed in diagnostic practices. A few of the themes on initial examination of the interviews indicates that the more experienced clinicians tended to have a predetermined set of protocols for determining a diagnosis, while the group with lesser experience took a different approach to describing their diagnostic process.

I also review the settings of the psychologists, the demographics, how data was collected under data collection, data analysis based on findings, evidence of trustworthiness, the results of the interviews and will finish with the summary of the chapter. Each section is clearly labeled for content and reviewed for analysis of the information presented. Participant selection was based on experience diagnosing combined with affirmative responses to the flyer that was posted.

Ethical considerations were considered in the selection and interview process in the request for clinicians to mentally review cases they had that fit the criteria, but to leave out any identifying information to ensure confidentiality was maintained. There were no other ethical problems noted, and the IRB board quickly reviewed the premise for this study without problem since the population being studied was not a protected population. Each respondent was coded according to the order of the interview and names while present in their files due to the nature of the emails were kept private to ensure

privacy was and is maintained. These records will be destroyed upon completion of this study.

### **Setting and Demographics**

Participants were selected from email responses to flyers posted on TPA website and were vetted to ensure they were licensed in their state as psychologists. While Texas is a state rich with a diverse population of people, the sample of clinicians who responded were predominantly Caucasian with three male and four female respondents. Since the advertising was only within the state of Texas, the sample resulted in a narrow demographic sample potentially introducing a bias. While the seven participants were predominantly Caucasian, their locations were random and scattered between eastern, southern, northeastern, and western regions of the state and were interviewed in their own office settings via Zoom. There were no interruptions in the interview process, and it continued in a smooth manner to the conclusion. Experience levels ranged from 12 years as a clinical psychologist to one who had more than 45 years of experience diagnosing these challenges. Work sites were also variable with some working for hospital systems, some working in a state-run facility of some sort, and the rest working as independent clinicians with their own practices or working for another private practice. Table 1 presents demographic information.

**Table 1**

*Demographics*

<i>Participant</i>	<i>Region of TX</i>	<i>Responded via</i>	<i>Gender</i>	<i>Experience level</i>
1	Central	Email	F	12 years
2	Western	Email	M	30 years +
3	South-East	Flyer	F	21 years

4	South-East	Email	F	45 years
5	North-East	Email	M	28 years
6	Central	Email	M	30 years +
7	South-West	Email	F	30 years +

Locations ranged from central Texas to the North-Western portion of the state, some in the South-West, who experienced a heavy workload from the border areas and one in the south-east who was heavily influenced by the multitude of educational institutions in that area. Due to the variety of locations within just the state, the sample interviewed should still represent the larger mental health practitioners throughout the states. Some indicated they did not take insurance and were therefore influenced by the costs to the patient of each type of assessment and in those cases described a set of measures used that minimized cost, rather than a set of prescribed measures. All consented to be audio recorded and appeared in good health at the time of each recording. One participant was hearing impaired and requested a minor accommodation to ensure the questions were understood. The accommodation involved ensuring that my full face was visible to the interviewee so the person could read the lips of the interviewer. Additionally, it appeared the interviewee was not fully comprehending the lip reading and required some additional explanation to clarify.

Each interview was reviewed, coded and analysis started with understanding each clinician's process and how their responses were unique in some ways yet depending on level of experience and where they worked, some were based on financial concerns to alleviate the cost to themselves or to the clients. Some did not take insurance, so the cost out of pocket to purchase the assessments, score them and type up a report determined



how many assessments were used and what type of cost outlay occurred based on needs for training, or time constraints or even issues with length of time for training to use certain assessments.

### **Data Collection**

Each participant was recorded via Zoom and the interviews all took between 15 to 30 minutes to perform. Participants appeared to be either in an office setting or within a home office setting as I was. There were five interview questions with some explanation provided to define one of the terms used in the questions. (see Appendix B) The only variation noted was that the more experienced clinicians had a quick ready answer, while the one who had just over 10 years' experience took a little extra time to consider their responses. The more experienced clinicians may have enough experience to have an idea of what process worked best for them and were able to access that information quickly, while the less experienced clinician was trying to ensure their responses were thorough while also providing the responses to the questions being asked. The most unusual item noted was one of the clinicians was hearing impaired and required being able to lip read to respond to the questions being asked. The need for me to keep my head up high enough to allow for the hearing-impaired person to lip read did not change the responses or the interview questions.

### **Data Analysis**

This was a hermeneutic study focused on the lived experiences of psychologists as they consider the steps to diagnose ADHD, ASD-1 and/or both as they occur

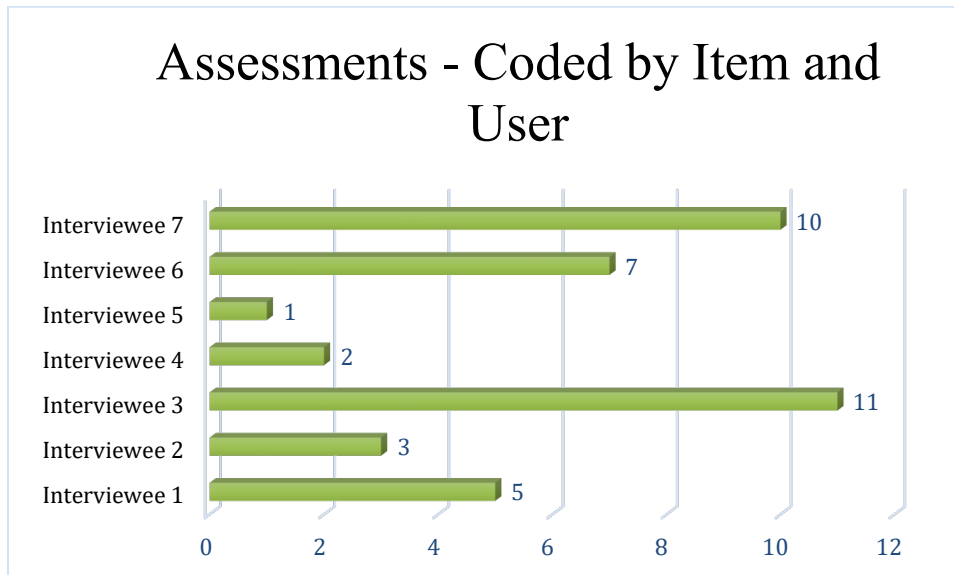
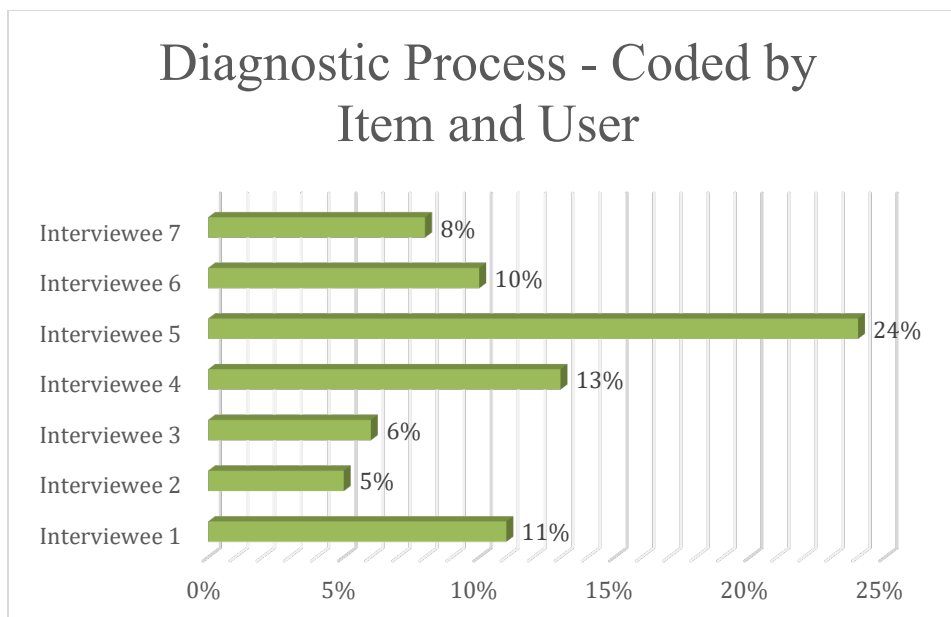
comorbidly. Within the hermeneutic focus, the strategies I employed included writing an outline to detail the different categories presented, then narrowing down the focus to provide a deeper look at how these categories broke down into meaning units. The data was then put aside and reviewed after a brief break away from the information to allow for things to settle in and for additional information to be sought once that time had passed, which resulted in seeing the differences in how fast each clinician responded for instance. Finally, the data was reviewed to determine whether any themes emerged in addition to any potential that had already been presented. The data was put aside four separate times to allow time for me to discuss the data with other parties to ensure all the insight into what was presented was gathered and reported. Data was then back traced to determine whether there were any hidden themes, which resulted in the figures presented.

Codes used included assessment tools, experiences compared to level of training, interpretation compared to their clinical judgment, any cognitive bias affecting clinical judgment, what protocols clinicians described and whether the clinician discussed treatment planning as something they took into consideration as they prepared to diagnose. Initially, a broad search of common codes was performed, then the terms were weeded out that were not applicable to the topic and additional searches then provided the data noted in Figures 1 and 2 below.

I noted that themes emerged during the final stage of data analysis. For instance, the level of experience and whether clinicians accepted insurance affected how they approached diagnosing these childhood problems. One stated he would “not increase healthcare cost like, you know, some healthcare professionals do or maybe the majority

of healthcare professionals, but I've always decided I don't want to contribute to the problem with rising healthcare costs.” The focus therefore was on accurate diagnosis at minimal cost to the patient or the insurance company, if it was an insurance (s)he took or an assessment (s)he used.

This therefore was the only real difference between the psychologists as they described their process of diagnosing these childhood problems. Those that had access to medical records or who worked within a medical system indicated a higher level of historical research using those medical records. The clinicians in private practice who took insurance indicated the need to keep the costs down to themselves and to the clients. Financial versus whether the insurance companies allowed or required certain types of assessments, therefore, this was included in the analysis to show most are fairly cognizant of costs, while also performing what they consider their due diligence in their diagnostic process. The protocols described by each clinician involved, direct observation and interviews with the client and their parent(s), history gathering, deciding on, and requesting authorization for specific assessments (see Figures 1 and 2).

**Figure 1***Assessments***Figure 2***Diagnostic Process*

As noted in Figure 1, Participant 3 and Participant 7 placed heavier emphasis on the use of assessments, while Participant 4 and Participant 5 (see Figure 2 above) named

a larger variety of assessment tools. Pulling in the information from Figure 2 it can be noted that Participant 5 focused on describing their diagnostic process thoroughly and placed a heavy emphasis on that process as compared to the other participants.

The hearing-impaired interview could potentially have an added bias built in due to the nature of the process required to convey the questions and responses to the questions. The biggest difference in that interview was the need to ensure the participant could see the lips of the interviewer so lip reading could occur, with some additional explanations required when the question was not making sense to the participant. Additionally, being hearing impaired meant the participant appeared more likely to rule out medical problems before being willing to consider mental health diagnosis.

### **Themes and Findings**

The primary theme noted was how each clinician conceptualizes the two disorders, how they gather their information from the child, the family of the child, the teachers, doctors and then use assessments to complete the information gathering process. Each clinician appeared to have a set type of assessment they prefer to use, with some minimizing cost to the client if insurance does not cover the diagnostic process. Two of the seven clinicians preferred to use free assessments to minimize both cost outlay to the patients' families, and to decrease how much time was needed to perform the diagnostic process. All clinicians reported a process of typing up a report that assisted them in solidifying how they were seeing the symptoms being presented.

### Cross-Theme Analysis

The level of experience appeared to have little to do with what assessments were chosen to be used, but rather the cost of time to perform the assessments, and/or learn them as well as the cost to purchase the assessments appeared to carry more weight for many of the clinicians who reported being in private practices. The seven clinicians reported variable job experiences, with three of them reporting working in private practices. The clinicians who worked for larger corporate companies appeared to pay little attention to the cost outlay for clients or for purchasing of the necessary assessments. Additionally, that group did not appear to put much weight on how long it took to perform the assessments, or how long it took for them to learn to be qualified to administer the assessments. (see Table 2)

**Table 2**

*Level of Experience as Compared to Clinical Process*

Clinicians	Assessments	Clinical experience level	Diagnostic process	Financial incoming costs	Financial outgoing cost	Treatment of planning
Interviewee 1	5	12 years	9	0	0	0
Interviewee 2	3	30 years	3	0	0	0
Interviewee 3	11	21 years	11	0	1	0
Interviewee 4	2	45 years	9	2	0	1
Interviewee 5	1	28 years	6	0	0	2
Interviewee 6	7	30 years	7	2	4	1
Interviewee 7	10	30 years	7	0	0	0

In Table 2, the different types of assessments are shown in column A, how long each clinician has been in practice and how many times their diagnostic process was mentioned in their interviews. Following those, the financial output is both what the clinician has to pay in time and/or money to administer and/or learn the assessments (Column D) and how much the client has to pay or the insurance will pay for these assessments (Column E). The last column shows how many times each clinician mentioned treatment planning as part of their reasons for diagnosing.

### **Evidence of Trustworthiness**

I noted while journaling that as this study was performed, my own bias concerning believing qualitative data effectively interfered with some of the interpretations of the study. Otherwise, there was no other bias that emerged within the process used. I reflected on each step as I worked through the information to ensure bias was accounted for and that it did not interfere with the results. Each time the information was reviewed, another piece was put together, and another direction was found to focus on. There were a few false directions that led back to starting over and reframing the question to ensure there was a thorough understanding of the results.

Bracketing the information being presented was applied to provide an idea of which direction to focus on. Brackets included years in the field, level of experience, how well trained the clinicians were and what their general focus was in the diagnostic process. This led to another potential bias that may have appeared within the study was the information provided by 3 of the 7 participants. The set of 3 participants in this case reported using fewer assessments and relying more heavily on their own intuition and on

the observations, citing the fact that there is “no one assessment that will absolutely diagnose something” (Interviewee 1, 2 and 5). These three participants also identified as having also been diagnosed with ADHD. This potentially introduced a different type of bias within how they report and assess these problems.

It was noted during the completion of the study that the I had expected clinicians with more experience to have a more standard set of answers ready and that the younger, less experienced clinicians would have to think more about it. This bias is being identified to ensure validity is maintained since it was noted, but not involved in the interviewing process or in the interpretation of the findings other than noting each clinician responded similarly to the questions with two that were distinctly different. The two that stood out were simply because in their private practice, they preferred to minimize the cost of time and cost to the clients, rather than adhere to a set group of assessments or protocols (see Figure 2 above).

Each participant was treated and interviewed equally with additional definition provided to all 7 participants in the final question about differential diagnosis. The hearing-impaired person who struggled with comprehending the questions being asked was given additional explanations to ensure it was understood what the question was referring to, when the interviewee requested it. It was noted I was mildly surprised to have a hearing-impaired psychologist volunteer to be interviewed, but took steps to ensure the interview questions were answered as best as possible by the party involved. This participant in this case was very thorough and tended to rule out medical conditions before assuming mental health, potentially because of the hearing challenges.



The only potential bias in recruitment was in the fact that all the participants were from the state of Texas since the APA was unwilling to allow a posting to request participants. The potential transferability still stands as the sample was broadly covering from east, west, north, and south side of the state, though all the participants were Caucasian. This study should be easily confirmable, transferable, and dependable due to the simplicity of the questions being asked and the participants within the field who responded.

### **Results**

The results of the study indicate that most psychologists rely on what Kahneman, (2011) and Kahneman & et al., (2021) referred to as system 2 decision making. Except for the psychologist who was in practice just over 20 years, the responses to the questions were often referred to “the same as for...” and their protocols did not vary in that sense between them. It was also noted that 3 of the 7 self-identified as also being diagnosed with ADHD themselves, therefore “noise” potentially contributes to those clinicians’ processes.

Themes based on the RQ1 that emerged in the process are listed in detail.

#### **Theme 1: Observations as Part of Diagnostic Process**

Office, school, parental report was some of the processes that were noted to show up between all 7 of the participants. Many indicated their first step was to interview the child and the parents of the child before deciding on a direction for diagnosis. Most indicated the observations started always with either of these conditions. “I always start with what I see in the lobby” (participant 6). Three of the participants indicated there

were often trips to the child's school to observe them within that setting to get a better idea of where the behavioral challenges existed for that child. All the participants used observation as part of their diagnostic process and then followed that up with the next theme, assessments. I expected to see some of the participants taking the easy way and just going straight to the diagnostic process due to my own experience within the field and the way clients have indicated the methods used by other clinicians. This bias may be because of those that did not respond to participate who are taking those types of short cuts, but without having their added interviews, it cannot be confirmed or disconfirmed.

### **Theme 2: Use of Assessments**

Following the use of observations, it was noted there was a variety of assessments used by Clinicians with very few indicating the same sets of assessments. Three of the seven indicated the use of ADOS-2 as the standard to use when diagnosing ASD-1, the rest indicated the cost of using this assessment was too high, both in time to administer and in output cost from the client and/or insurances and they preferred simpler assessments “and I don't believe the ADOS is the gold standard for autism. It's a useful tool and I'll use it when I have to because it costs me time and money to administer” (participant 4). All the participants indicated the use of assessments as part of their diagnostic process. It was noted the more experienced clinicians appeared to be using fewer assessments and relied more on the DSM-5-TR and their own observations. As mentioned in the previous theme, I expected heavy emphasis on this area, but not that the clinicians would be this thorough in ensuring quality diagnostic practices. This again may be because there were 7 participants, and this group were practicing well within their

purview and were using appropriate methods and protocols to ensure accuracy of their diagnostic practices, therefore the bias the interviewer experienced, cannot be confirmed or disconfirmed.

### **Theme 3: Years of Experience**

All the participants indicated they had been in practice for more than 10 years with most over 20 years. The four participants with over 30 years of experience tended to answer questions quickly without much thought about what protocols they are using in their diagnostic processes. It was noted that the newer clinicians also used newer assessments in their process as they diagnosed these challenges. The years of experience affected both what types of assessments were used, as well as whether there was a belief these assessments diagnosed what they were supposed to diagnose. The more experienced group appeared to struggle with the basic belief that mental health is very subjective in nature and therefore concrete answers are not possible as a result. This bias that the researcher experienced was the expectation that the more experienced clinicians would already know their own processes so well that they would use faster thinking and would be less likely to pause in how they conceptualized a diagnosis. In this case, this was a proven bias in that most more experienced clinicians stated, “same as for...” (participant 2, 4, 5, 6, 7).

### **Theme 4: Variability of Protocols in Use**

The cost of the assessments was noted, as well as the cost to the client and the cost of time and/or training time affected which assessments clinicians decided to employ. In one of the cases, the clinician has a large hospital program to draw from and

cost was not part of the process. Another participant worked independently and therefore was much more cognizant of cost output to the client and tended towards identifying fewer uses of assessment tools. Of the seven participants, all used observation as part of their process, all used assessments, but not the same sets of assessments, and all went over the client history. There was significant variability in which assessments clinicians decided to use both due to cost output to the patient and potential time loss to the clinician without reimbursement from the insurances. The interviewer did not have any expectations or bias in this area since she had very little interaction within the diagnostic tools that could be used. There was simple curiosity to see what types of assessments other clinicians tended to gravitate towards and why.

#### **Theme 5: Costs of Assessment use Affecting Choices**

Many of the clinicians interviewed indicated a concern over the cost of the assessment to the client, as well as to themselves when it was something they had to purchase, train to use and bill for use. Half of the clinicians indicated the challenges involved in insurance reimbursement also affected how they viewed their choices of what to use. Since some of the insurances will not pay for an ADOS-2 assessment for instance, it was not chosen as a tool because the cost output for the patient was often enough to make the clinician uncomfortable. Interestingly, one commented that there was significant discomfort in raising healthcare costs and the preference to try to alleviate that, with an indication of a belief that others were not as cognizant. It was noted of the 7, all were at some level cognizant of cost in time and/or output to the clients and whether

the insurances reimbursed for certain assessments. The one that believed otherwise therefore was biased and faulty in their thinking process.

As noted within these themes, clinicians start their process when the client first walks into their offices. In most clinical practices, this is a common theme in that even within the work environment, it's noted the clinicians are noting behaviors before the official "assessment" begins. This then leads to the next theme in what assessments are chosen based on the symptoms being presented during the observation stage, which leads to how much time is going to be spent performing an assessment and concludes with the amount out of pocket that may or may not impact a client who does or does not have certain types of insurance. The themes presented above cannot be separated from each other because each is intrinsically linked to the other to provide a larger picture of how a clinical interview is performed with clients presenting for a diagnosis.

### **Summary**

In summary, it was found that many clinicians have a preferred group of assessments they use, paired with observations both in office, in school and in some cases in the home. Some of the clinicians took special care to ensure the cost to them and/or the patient was minimized to ensure children received what was needed to allow them to succeed in school and life, while also ensuring they remained ethical to their tasks. All clinicians reported a similar process for reporting their findings with a formatted report provided to parents, schools and other clinicians where needed. The research question in this case was how clinicians conceptualized their diagnostic process as they diagnosed ADHD and/or ASD-1 or both as they occur comorbidly. The answer noted is that many

processes are through observations, then through assessments and finally fully pulling in all the information gathered to present a diagnosis often based on the DSM-5-TR.

Chapter 5 will introduce the findings and interpret those findings, recap the limitations noted within this study, describe in detail recommendations for future studies, a description of potential implications of this study and will complete this dissertation with a thorough discussion.

## Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this study was to examine the decision-making process of clinicians as they conceptualized and diagnosed ADHD, ASD-1 or both as they occur comorbidly. I used phenomenological processes to examine the results, with a focus on the hermeneutic circle to ensure all aspects of the data was covered and reported. I noted the gap in the research is related directly to a lack of information on how clinicians approach the process of diagnosing clients who present to their offices either through referrals, parental inquiries, school referrals or other behavior problems that resulted in the need to diagnose these conditions. I interviewed licensed clinical psychologists to discover what their focus is on as they conceptualize and diagnose childhood disorders.

I noted that within the parameters of the study many clinicians incorporate school findings with parental report, observations, patient history from their physicians as well as documenting assessments to assist them in determining an appropriate diagnosis. Most, if not all, were concerned about the efficacy of the assessment tools, some were more focused on minimizing the cost output to the patient and/or family of the child being diagnosed. Those clinicians in private practice tended to assess whether the cost in time, to use and learn the assessment, as well as the cost outlay to perform the assessment and whether the insurance company would reimburse them for the assessment. The clinicians who had been in practice longer appeared to use System 2 decision making when switching topics from diagnosing ADHD to ASD-1 and often indicated it was the same for both. In the following sections I cover the interpretations, limitations, recommendations, and implications, concluding with a summary of the results.

## **Interpretation of the Findings**

### **Theme 1: Observations as Part of Diagnostic Process**

What I found from interviews with the participants was that many different variables are affecting what assessments clinicians decide to use when diagnosing ADHD, ASD-1 or both as they occur comorbidly. All the clinicians interviewed used observation as part of their diagnostic process, as well as the production of a written report at the completion of the assessment process that incorporated all the assessment data and interview data. Additionally, Kentrou et al. (2019) and Young et al. (2020) highlighted new insights into how clinicians' experiences shape their diagnostic decision making and this study supports those complex challenges noted previously in how symptom similarity confuses the diagnostic process.

### **Theme 2: Use of Assessments**

It was noted in the literature review that the number of assessments available to use for diagnosis of these challenges is extensive and the variability of choices appears to contribute to what assessments clinicians choose to use. Additionally, after so many years in practice may went straight to a set group of assessments used commonly in their offices, rather than pulling in new more recent assessment tools that could clarify the diagnostic process, which is evidence that System 2 information processing is taking place (see Kahneman, 2011; Kahneman et al., 2021). This System 2 processing is also part of the noise Kahneman et al. (2021) described when pointing out how this noise can interfere in how someone conceptualizes and decides on a direction to take when deciding. In this case, deciding what measure to use is using System 2, and noise and



therefore not attempting to gain additional training on the newer measures, or purchasing the newer measures to provide a less bias based clinical picture (Kahneman, 2011; Kahneman et al., 2021).

### **Theme 3: Years of Experience**

The level of experience was the next effect I noted to determine how many different assessments were used and whether those assessments could be billed through insurance or had to be paid for by the parents/clients presenting for assistance. Some of these fit under the costs of assessments as well as years of experience due to how the level of training contributes to how many assessments a clinician has available to pull from as compared with someone who has not yet been trained in some and who may not have access as yet.

### **Theme 4: Variability of Protocols in Use**

The protocols in use vary in how many different assessments can be chosen for use. Most still believe the ADOS-2 is the gold standard, despite the presentation of new measures such as the Monteiro Interview Guidelines for Diagnosing Autism Spectrum – 2 that take less time, cost less to administer, and could potentially offer better outcomes in the end. There are so many different choices available for clinicians to use that the variability of these measures ensures clinicians will gravitate towards those that work best for them, or they can use effectively with positive outcomes in the use.

### **Theme 5: Costs of Assessment Use Affecting Choices**

Another effect noted had to do with practices or the cost output was both in time to learn, purchasing of, and training to use each assessment and whether the clinicians

were working independently within their own practices, or had a larger corporate structure to draw from. Kahneman, (2011) and Kahneman et al., (2021) discussed fast and slow thinking processes and noise potentially interfering with how people make decisions. Many of the clinicians self-identified as ADHD themselves, which is a type of noise that could be contributing to how the clinicians are approaching the diagnostic process.

### **Limitations of the Study**

The limitations I noted were the small sample size, the lack of variability in ethnic background, and the fact that all were primary English-speaking clinicians. Additionally, I noted that four of the clinicians self-identified as ADHD adults which may have added a bias to the results. Those who self-identified as ADHD tended to use fewer assessment tools and more observational data as compared to the neurotypicals who did not identify as ADHD adults. Another limitation was the use of financial as compared to unlimited use of any assessment in the larger company participants. Those working independently tended to use fewer assessments due to cost out of pocket as well as cost of time and learning time needed to master administration of some of the assessments.

Another limitation I noted within this study was that all seven clinicians were Caucasian and were not necessarily representative of other cultures within the mental health community. This exclusion was not deliberate or intentional, it was simply the nature of who responded to the requests for interviews. This limitation should not be excluded, but the sample should still provide enough representation of the field to ensure this study can be repeated on a larger audience.

I used a hermeneutic phenomenological design with a focus on Kahneman's Type I or Type 2 decision making process also paying attention to the potential noise that could have contributed to another limitation of the study (see Kahneman, 2011; Kahneman & et al., 2021). In this case, the four clinicians who were self-identified as ADHD themselves could have added their own noise to the decision-making process. The noise each clinician may have not accounted for within their interviews may have contributed to a built-in bias. In the future, to address these limitations, pulling in a larger cohort of clinicians from across the United States to ensure the variety of cultures is presented, as well as assisting in making a similar study more applicable to all populations. My expectations that each would account for their own inner biases may have led to a misreading of the results as well, despite attempts to bracket and journal responses. The belief that many are capable of self-monitoring within the field still maintains the efficacy of this study.

### **Recommendations**

For future studies, it would be beneficial to expand the search parameters to include other states and hopefully other cultures to see if these themes continue to be represented within the broader range of the world. Taking this study to the next level would also mean determining how much clinicians are willing to spend on time to administer, cost to purchase, and how much they are willing to allow to pass through to clients seeking help. Based on the limitations previously mentioned, further research should focus on clinicians who are also not diagnosed with ADHD and/or ASD-1 or both. This would need to be an exclusionary factor to attempt to counter one of the potential

built in biases noted since those who self-identified tended to minimize what assessments they used. A full quantitative study encompassing the entire larger community and looking at similarities between assessments chosen and whether there are deciding factors influencing the clinicians on how, why or what assessment was used and could lead to additional information for future generations who are training to become psychologists. Finally, another future recommendation would be to include training within the doctoral programs that incorporate keeping knowledge up to date, how to save money to enhance effective diagnostic practices, and the best way to ensure insurances cover the assessments.

### **Implications**

This study emphasizes the need for further study of the decision-making processes of clinicians as they diagnose ADHD, ASD-1 and/or both as they occur comorbidly. It highlighted the significant differences between clinicians in what types of assessments were chosen, some based on availability within their offices, or training achieved to perform the assessments, or based on financial aspects of giving or providing these assessments. At the same time, it also highlighted the similarities in how each chose to use observation with assessments and more observation, history taking, interviews with family and/or teachers or others who were within the purview of the child's life, combined with use of the DSM-5-TR to determine the diagnosis after all the information gathering was completed. Additionally, the performance of a formal document listing the results of these processes completed their diagnostic process. Improvement of diagnostic practices could be simplified into the observational interviews, combined with the using

of the most cost-effective assessments, while also employing the assessment that demonstrated the best consistency in results, and finalizing this with the report on the best application for the results in assisting the child and their family.

This information can then lead instructional institutions towards better training practices within the diagnostic processing area, as well as assisting the psychological association to continue narrowing down their parameters for each diagnostic category based on information gathered from a more thorough quantitative study. Additionally, providing educational institutions with enough information to create protocols for narrowing down diagnosis of each of these childhood disorders and creating more specific assessment tools that become more standardized across the profession. This then leads to a trickle-down process where the clinicians become part of the community after their educational programs complete and they then lead the next generation towards simplifying and streamlining the diagnostic process.

### **Conclusion**

The most important take away from this study is the need to clarify more standardized tools and help clinicians by decreasing the out-of-pocket costs of training for these assessments by making them a standard part of any educational program. Many are using the least expensive to alleviate costs out of pocket to them and to the clients to decrease healthcare costs, as well as how long it takes to get trained in certain assessments. For instance, training in the use of the ADOS-2 is extensive and expensive and often prohibitive, adding in the amount of time it takes to administer, this assessment then becomes too costly in three areas to use effectively as a diagnostic tool.

Additionally, the improvement of diagnostic tools assists children with receiving the correct treatment plans and medication management programs when accurately diagnosed. Continued studies need to be performed by reviewing how much each assessment costs to purchase, train in, perform in time to use and time to learn, as well as how long it takes to score and report the results. Add to this, making the diagnostic categories clearer between the different childhood challenges can assist clinicians as well in the future to provide them with a better idea of what to focus on when deciding what to diagnose. Additionally, many of the clinicians start the observation stage the minute the client walks into the office. This adds additional time to the diagnostic process, but appears to not only be a standard practice, even a common practice, but is additionally a necessary part towards the conceptualization of the client's potential diagnostic impression. Perhaps in the future, part of the training that clinicians need to undergo involves helping them learn how to "see" or observe the behaviors noted in the DSM.

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## Appendix A: Recruitment Flyer

### **Invitation Template for Email, Social Media, and Flyers**

There is a new study about exploring the decision-making experiences of psychologists who diagnose children with attention deficit hyperactivity disorder (ADHD) and/or high-functioning autism referred to as autism spectrum disorder - level 1 (ASD-1) when symptoms of either one or both are present in children that could help psychologists and mental health workers better understand their own diagnostic practices and beliefs. For this study, you are invited to describe your decision-making experiences as you diagnose ADHD and/or ASD-1 or both as they occur co-morbidly.

#### **About the Study:**

- One 45-to-60-minute phone interview that will be audio recorded (no videorecording)
- A thank you email for taking time away from your busy day to contribute to this work
- To protect your privacy, the published study will not share any names or details that identify you

#### **Volunteers must meet these requirements:**

- Participants must be licensed in their state of residence as a Clinical Psychologist
- Must have experience in and be actively engaged in diagnosis in childhood occurrences of ADHD, ASD-1 and/or both as they occur co-morbidly
- Has used or engaged in diagnostic processes

This interview is part of the doctoral study for Donna Kelly, a PhD. Student at Walden University. Interviews will take place by appointment.

Please reach out to Email –to let the researcher know of your interest. You are welcome to forward it to others who might be interested.

## Appendix B: Interview Questions

### **Instructions to read for participants:**

*Before we start the interview, I have a private mental exercise for you. Close your eyes if this helps you. Mentally review cases in your mind in which you have had children who might fit the diagnostic criteria for ADHD and/or ASD-I. Prepare to describe to the researcher when asked what processes you have used in diagnosing these types of cases. When you have been able to visualize and mentally review cases that you have had that fit these criteria and feel ready to start the interview, please raise one of your hands to signal you are ready to begin:*

1. Describe what approaches you use to diagnose ADHD as it occurs in childhood?
2. Describe what approaches you use to diagnose ASD as it occurs in childhood?
3. Describe what approaches you use to diagnose ADHD, ASD as they occur comorbidly in childhood?
4. Describe what steps you decide to take in your clinical decision-making to arrive at a diagnosis?
5. How do you explain the steps taken to arrive at a differential diagnosis?