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Clinical Specialists' Perceptions of Their Ability to Diagnose Autism in Toddlers

Donna Morgan Johnson
Walden University

Walden University

College of Psychology and Community Services

This is to certify that the doctoral dissertation by

Donna Morgan Johnson

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Review Committee
Dr. Shari Jorissen, Committee Chairperson,
Human and Social Services Faculty

Dr. Dorothy Seabrook, Committee Member,
Human and Social Services Faculty

Chief Academic Officer and Provost
Sue Subocz, Ph.D.

Walden University
2025

Abstract

Clinical Specialists' Perceptions of Their Ability to Diagnose Autism in Toddlers

by

Donna Morgan Johnson

MS, Walden University, 2015

BS, University of Phoenix, 2011

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

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Abstract

Autism is diagnosable by a clinical specialist, and toddlers who receive an early diagnosis by a clinical specialist are more likely to receive the appropriate early intervention services and supports that meet their needs. However, researchers have found that clinical specialists have doubts regarding the accuracy of their diagnoses in toddlers. The purpose of this generic qualitative study was to provide an understanding of clinical specialists' perceptions of their abilities to make an early diagnosis of autism in toddlers. Self-efficacy theory served as the theoretical framework. Semi structured interview data were collected from 12 clinical psychologists with experience diagnosing autism in toddlers. Data were analyzed using Braun and Clarke's six-phase approach to thematic analysis. Themes derived were (a) a variety of training and experiences better prepares clinical specialists to make an early diagnosis of autism spectrum disorder in toddlers; (b) the ability to acquire information from multiple sources increases clinical specialists' confidence in making an early diagnosis; and (c) differential diagnosis, comorbid and co-occurring conditions, and the potential for misdiagnoses reduce clinical specialists' confidence in their abilities to make an early diagnosis of autism in toddlers. The findings have the potential to effect positive social change by informing human and social service professionals of specialized training and experiences to support clinical specialists' efforts and confidence in diagnosing autism in toddlers. Furthermore, human and social service professionals may be able to use the study findings to advocate for changes in laws, licensing, and practice to support clinical specialists who diagnose autism in toddlers.

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Dedication

This dissertation is dedicated to my parents, brother, and children, who have been my rock and the reason for this path. To my sweet daddy, Henry O. Morgan: I wanted so much for you to see me finish this, but you joined Mommy in heaven this past year. Even though you are not present on this earth I know you have the biggest smile on your face saying, “that’s my baby.” Thank you for loving, supporting, encouraging, and guiding me. Thank you for instilling in me the importance of investing in yourself.

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Chapter 1: Introduction to the Study

Autism spectrum disorder (ASD) is a lifelong complex neurological condition that has become a growing global public health concern (Franz et al., 2017; Garcia Primo et al., 2020; Mazurek et al., 2019). Although there is no cure for autism, researchers have indicated that, with appropriate early intervention services and support, many children can grow, thrive, and have meaningful and fulfilling lives (Christensen et al., 2019; Elder et al., 2017; Erratum, 2018). Autism is diagnosable by a clinical specialist (e.g., developmental-behavioral pediatrician, clinical child psychologist, child and adolescent psychiatrist, or child neurologist) within a toddler's 2nd year of life (Hyman et al., 2020; Pierce et al., 2019). Toddlers (e.g., young child between 1 and 3 years old; Merriam-Webster, n.d.) who receive an early diagnosis of autism by a clinical specialist are more likely to receive the appropriate early intervention services and supports that meet their needs (Hyman et al., 2020).

The problem is that clinical specialists' diagnosis of ASD in toddlers is often delayed, resulting in missed opportunities for early intervention and managing symptoms (Jennings Dunlap, 2019; Manohar et al., 2019). Clinical specialists who do not diagnose ASD in toddlers early may contribute to the child missing beneficial services provided through early intervention programs (Manohar et al., 2019). Toddlers with ASD who do not receive timely and proper early interventions may experience long-term challenges in academics and social situations. Additionally, they may develop behavioral challenges, such as self-injury and aggression, as coping mechanisms (Kasilingam et al., 2021). In this chapter, I provide information about the study's background, problem, and purpose.

Additionally, I offer a research question, theoretical framework, nature, definitions, assumptions, scope and delimitations, limitations, and significance of the study.

Background

ASD is a neurological developmental disability that can affect a child's communication, behavior, and social skills (American Academy of Pediatrics, 2023; Garcia Primo et al., 2020; Mazurek et al., 2019). Individuals diagnosed with autism may exhibit behaviors such as limited interactive eye contact, difficulty imitating or understanding the intent of others, repetitive conversation or play, and difficulty adjusting to change (Hyman et al., 2020). The abilities of a person with ASD can vary significantly. A person with ASD may be able to work and live in their community with limited to no support; others may require assistance with daily living, safety, engaging with others, and accessing their community (U.S. Centers for Disease Control and Prevention [CDC], 2022). Essential diagnostic features for ASD require a person to have (a) persistent impairments in social interaction and social communication and (b) repetitive and restricted patterns of activity, behaviors, and interests (American Psychiatric Association [APA], 2013). The symptoms may be present from early childhood and impair or limit everyday functioning (APA, 2013).

The CDC's (2021) Autism and Developmental Disabilities Network have monitored and reported on prevalence rates in the United States since 2000. Autism is more commonly diagnosed now than in past decades (Franz et al., 2017; Garcia Primo et al., 2020; Gordon-Lipkin et al., 2016; Hyman et al., 2020; Li et al., 2019; Mazurek et al., 2019). Within the past 10 years, autism prevalence has increased substantially (Myers et al., 2019; Zhang & Han, 2020). In 2010, the CDC estimated that 1 in 110 eight-year-old children in the United States had autism (Maenner et al., 2020). In comparison, the CDC estimated that in 2023 1 in 36 eight-year-olds in the United States have autism (Maenner, 2023). There is no consensus on the primary reason prevalence numbers have continued to rise. Some researchers theorize that changes in diagnostic criteria and increased national campaigns within the past decade to broaden awareness about ASD for families, pediatricians, and researchers may also contribute to increased ASD prevalence rates (Nelson et al., 2018).

The definition and understanding of autism evolved from being a singular condition to a spectrum of conditions. The APA has revised the definition and diagnostic symptomology for autism several times since Kanner (1949) coined the term "infantile autism" and proposed a new diagnostic category (Adler et al., 2014; Gyawali & Patra, 2019). The *Diagnostic and Statistical Manual of Mental Disorders* (2nd ed.; *DSM-II*; APA, 2013) was updated to classify autism as a psychiatric condition, a form of childhood schizophrenia. The *Diagnostic and Statistical Manual of Mental Disorders* (3rd ed.; *DSM-III*) manual was updated to establish an entirely new class of conditions, pervasive developmental disorder-not otherwise specified (PDD-NOS), separate from schizophrenia (Cooper & Michels, 1981). The reclassification included specific criteria for a child to be diagnosed with infantile autism, which was undefined in previous manuals and created varied interpretations of the requirements for autism (Cooper & Michels, 1981).

The APA revised the criteria for autism in the Diagnostic and Statistical Manual of Mental Disorders (3rd ed., rev.; *DSM-III-R*) to acknowledge that the condition is pervasive and is not limited to infants (Cooper & Michels, 1988). The update in *DSM-III-R* also included 16 criteria across the three domains and the requirement that children must meet eight of the 16 criteria for a diagnosis of autism (Cooper & Michels, 1988). As knowledge about autism rapidly increased, the definition and criteria for meeting the diagnosis changed again in the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM-IV*; Guze, 1995). The update included the grouping of autism categories (e.g., Asperger's disorder, autistic disorder, and PDD-NOS) under the classification of PDD-NOS, each of which has significant clinical overlap (Guze, 1995). The change had significant impact on clinical decision-making because disintegrative disorder and Rett syndrome, a genetic disorder with prominent features similar to autism, were included under the umbrella (Oberman & Kaufmann, 2020).

To address the unclear definition of PDD-NOS and Asperger's syndrome in the *DSM-IV* (Guze, 1995; Ferrara et al., 2021), leaders clarified the definition of PDD-NOS and made other text corrections in the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev.; *DSM-IV*-TR; APA, 2000). The APA made another significant change to the criteria for an autism diagnosis in the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM-5*) to include a range of impairments, severity of ASD diagnoses, and requirements related to meeting sub criteria (APA, 2000, 2013; Evers et al., 2021; Oberman & Kaufmann, 2020).

The American Academy of Pediatrics recommended pediatric primary care providers implement universal developmental screening to support the early identification of ASD and other developmental conditions (Miller et al., 2020; Shaw et al., 2020). Children who screen positive for ASD should be referred to an experienced clinician for a comprehensive assessment (Hyman et al., 2020; Jennings Dunlap, 2019). The *DSM-5* does not specify or define the clinical personnel needed for an ASD assessment (APA, 2013; Zwaigenbaum & Penner, 2018). Researchers and the profession have found difficulty establishing the experience necessary for a clinical specialist to complete an ASD assessment, but many countries have developed recommended best practices (Brian et al., 2019; Pang et al.,2018; Ruparelia et al., 2016). Researchers have expressed that best practice for confirming or ruling out ASD is a multidisciplinary team (MDT) approach (Brian et al., 2019; Hayes et al., 2018; Penner et al., 2018).

The MDT approach should include a clinical specialist, such as a clinical child psychologist, developmental-behavioral pediatrician, child and adolescent psychiatrist, or child neurologist trained to diagnose ASD (Brian et al., 2019; Hayes et al., 2018; Penner et al., 2018). Allied health professionals, such as speech-language pathologists and occupational therapists, should also be included (Hansen et al., 2016; Yates & Le Couteur, 2016). If an MDT is not available, a single clinician assessment is an option if the case is not complex, although it can be beneficial to have another professional review the results of the diagnosis (Subramanyam et al., 2019; Whitehouse et al., 2018; Yates & Le Couteur, 2016). A clinician who has experience and clinical judgment could diagnose

ASD in a child accurately using the *DSM-5* criteria and diagnostic instruments appropriately (Brian et al., 2019; Kaufman, 2020).

Clinical specialists are healthcare professionals qualified in the clinical practice of medicine who have completed advanced education and clinical training in a specific area (Centers for Medicare & Medicaid Services, 2021; Cigna Insurance, n.d.). Children suspected of having ASD should be referred to a clinical specialist who is trained and experienced in providing a comprehensive assessment and diagnosis for ASD (Hyman et al., 2020; Lord et al., 2020; Whitehouse et al., 2018). Clinical specialist includes clinical child psychologists, child neurologists, child and adolescent psychologists, or developmental-behavioral pediatricians (Hyman et al., 2020; Lord et al., 2020; Whitehouse, et al., 2018).

The social problem that this study focused on is that a clinical specialists' diagnosis of ASD in toddlers is often delayed, resulting in missed opportunities for early intervention and managing symptoms (Jennings Dunlap, 2019; Manohar et al., 2019). Toddlers with ASD who do not receive timely and proper early interventions may experience long-term challenges in academics and social situations. Additionally, they may develop behavioral challenges, such as self-injury and aggression, and use them as coping mechanisms (Kasilingam et al., 2021).

Researchers have observed trends among clinical specialists where their ability to diagnose children under 4.5 years of age appears hampered by certain conditions that impact their confidence in their ability to give an ASD diagnosis to those in this age group (Atun-Einy & Ben-Sasson, 2018; McDonnell et al., 2019; Miller et al., 2019).

When faced with diagnostic uncertainty, some clinical specialists take a *wait-and-see* approach or provide an alternative or inaccurate diagnosis, which can delay a child's receiving needed interventions, services, and support (Bent et al., 2020; Gibbs et al., 2019). Clinical specialists must rely on their judgment in making an ASD diagnosis, but they may struggle with feelings of uncertainty about their final clinical decision (Gibbs et al., 2019; McDonnell et al., 2019). A person must believe in their abilities or self-perceived qualities of being able to do so to have confidence in carrying out a task (Bandura, 2006). This study sought to address a gap in the literature regarding clinical specialists' perceptions of their abilities to make an early diagnosis of autism in toddlers.

Diagnostic uncertainty is the clinical specialists' perception of their inability to precisely delineate a patient's health concern (Bhise et al., 2018). Clinical specialists may experience diagnostic uncertainty when a toddler does not present with distinctive behaviors that are immediately recognizable, referred to as *classic* ASD (de Marchena & Miller, 2017). Toddlers with ASD can have multiple challenges or delays in developmental areas with complex traits and features (Bajko & Bazgan, 2017). Factors such as a toddler not exhibiting *classic* ASD symptoms, comorbid conditions, or a differential diagnosis could contribute to clinical specialists lacking confidence or feeling uncertain in diagnosing ASD in a toddler (Gibbs et al., 2019; Hedley et al., 2016; Ward et al., 2016). Even an experienced clinical specialist could be uncertain in accurately assessing ASD in a toddler with multiple developmental areas of concern (Kanimozhiselvi et al., 2019).

Clinical specialists have the daunting task of analyzing information from various sources and diagnostic instruments to diagnose ASD accurately (McDonnell et al., 2019). Variability of symptoms (e.g., comorbid or co-occurring conditions, milder symptoms, differential diagnosis), changes in diagnostic criteria, and diagnostic tools can affect a clinical specialist's belief in their ability to diagnose ASD in a toddler accurately (Penner et al., 2018; McDonnell et al., 2019; Ward et al., 2016). Clinical specialists must provide a diagnosis for ASD in a toddler within a structure constructed as an *uncertain entity* (Hollin, 2017; Hayes et al., 2021). Uncertain entity means that diverse techniques and methods for diagnosing ASD make results challenging to reconcile (Hollin, 2017). The system in which clinical specialists operate contains ambiguity, contradictions, and uncertainty, especially in diagnosing toddlers who score below the diagnostic threshold (Hollin, 2017; Hayes et al., 2021).

Problem Statement

In 2020 the CDC estimated that 1 in 54 eight-year-olds in the United States had ASD, compared to their findings in 2021, which indicated that the number increased to 1 in 44 (CDC, 2021; Maenner et al., 2020) and 1 in 36 eight-year-olds in the United States have autism (Maenner, 2023). As prevalence rates have increased, so has the need for early diagnose ASD in toddlers so they can receive appropriate early intervention services to improve their outcomes (Christensen et al., 2019; Erratum, 2018; Maenner et al., 2020). Symptoms associated with ASD are typically recognizable between 12 and 24 months, but severe developmental delays may be noticeable as early as 12 months of age (APA, 2013). Researchers have established that clinical specialists can make an ASD diagnosis as early as 18 months of age (Erratum, 2018; Hyman et al., 2020; Juárez et al., 2018; Pierce et al., 2019). Despite clinical specialist being able to reliably diagnose ASD before the age of three, children are often diagnosed after 4.6 years (Bent et al., 2020; Christensen et al., 2019; Erratum, 2018; Maenner et al., 2020).

The ASD diagnostic process can be lengthy and complex because various symptoms and behaviors may be ambiguous or associated with other conditions leading to hesitancy in rendering an ASD diagnosis in a toddler (Gibbs et al., 2019; Hayes et al., 2021; Richard et al., 2019). Factors that may lead to a clinical specialists' hesitancy and lack of confidence in diagnosing ASD in toddlers include a child having comorbid/co-occurring conditions or presenting with milder ASD symptoms (Gibbs et al., 2019). Comorbid/ co-occurring conditions may also complicate the accuracy of a clinical specialists' diagnosis or willingness to make a diagnosis at all (Penner et al., 2017). Other factors that may impact a clinical specialists' self-efficacy in diagnosing ASD in toddlers are lack of training on autism-specific diagnostic instruments for toddlers and continuous changes in ASD criteria (Atun-Einy & Ben-Sasson, 2018; Buffle et al., 2022; Gibbs et al., 2019; Mazurek et al., 2019; Nowell et al., 2020).

Although research illuminates important factors that may lead to a clinical specialists' hesitancy or lack of confidence in diagnosing ASD in toddlers (Jennings Dunlap, 2019; Manohar et al., 2019), I did not find research that specifically explored clinical specialists' perceptions of their abilities to make an early diagnosis of autism in toddlers. Given such, further research was warranted to explore clinical specialists' perceptions of their abilities to make an early diagnosis of autism in toddlers. Clinical specialists who lack confidence in their ability to diagnose ASD in toddlers may not provide a diagnosis (Ben-Sasson et al., 2018; Davidovitch et al., 2015), which may delay the child's receipt of needed services.

Purpose of the Study

The purpose of this generic qualitative study was to understand clinical specialists' perceptions of their abilities to make an early diagnosis of ASD in toddlers. Although quantitative data was available on ASD related to prevalence, comorbidity or co-occurring conditions, demographic covariates, or diagnostic tools (Hossain et al., 2020; Howes et al., 2021; Maenner et al., 2020), there was scant literature on the perspectives of other health professionals (e.g., psychologists, pediatricians, psychiatrists) who provide an ASD diagnosis (Penner et al., 2017). I was not able to find previous studies specific to clinical specialists who diagnose ASD in toddlers (e.g., Penner et al., 2017). In general, researchers conveyed that clinical specialists must rely on their judgment in making an ASD diagnosis, but they may struggle with feelings of uncertainty about their final clinical decision (Gibbs et al., 2019; McDonnell et al., 2019). Researchers also stated that clinical specialists often utilize medical exams to help inform an ASD diagnosis, but no laboratory test can confirm that a toddler has ASD (CDC, 2020; Hyman et al., 2020).

Although ASD assessment instruments have improved, a clinical specialist experienced in diagnosing ASD may still feel uncertain about the final diagnosis (McDonnell et al., 2019). Researchers have studied self-efficacy in diagnosing ASD in children using specific diagnostic instruments (e.g., McDonnell et al., 2019).

Additionally, researchers have studied self-efficacy related to primary care physicians' decision-making in screening children and referring them to a clinical specialist for an ASD diagnosis (e.g., McCarty & Frye, 2020). However, the studies were not limited to early diagnosis of ASD in toddlers or clinical specialists' perception of their abilities to render a diagnosis in toddlers, leaving a gap in the research. By understanding what clinical specialists believe contributes to their abilities to diagnose ASD in toddlers, it was possible to gain information about how to better train clinical specialists who serve this population (Ben-Sasson et al., 2018).

Research Question

The research question for this study was, What are clinical specialists' perceptions about their abilities to make an early diagnosis of ASD in toddlers?

Theoretical Framework for the Study

The supporting theoretical framework used to inform this study was self-efficacy theory. Perceived self-efficacy is a person's judgment of their abilities to perform a specific task (Bandura, 1977). The premise of self-efficacy was relevant to this study because it may inform why a clinical specialist may or may not choose to diagnose ASD in a toddler. If a clinical specialist lacks confidence in their abilities to diagnose ASD accurately, the child may not receive a diagnosis (Ben-Sasson et al., 2018; Davidovitch et al., 2015). In some cases, the child may receive an alternative or inaccurate diagnosis, which can delay the child's receiving needed interventions, services, and support (Bent et al., 2020; Gibbs et al., 2019).

Self-efficacy refers to a person’s beliefs about their ability to accomplish a task affects their decision to act or not (Bandura, 1977, 1986, 1997). A person with low self-efficacy may give up on performing the task if they are faced with challenges. In contrast, a person with high self-efficacy may be inclined to continue working on and executing the task (Bandura, 2012). Perceived self-efficacy, motivation, intellect, and behaviors are needed to respond to the demands of a task (Bandura, 1986; Wood & Bandura, 1989). A person's beliefs about their ability to perform elements of a task determines their motivation, behaviors, thoughts, and feelings (Bandura, 1977, 1986).

Self-efficacy is an extension of social cognitive theory (Bandura, 1977, 1997, 2012). Social cognitive theory suggests that people learn and attain skills and knowledge by observing others in social settings (Bandura, 1977, 1986, 1997, 2012). The theory emphasizes that through vicarious (observational) learning a person can model and retain the action or behavior observed and is motivated to do so (Bandura, 1977). A person's expectancy in the outcome is developed through social interactions between the observer and modeling (Schunk & DiBenedetto, 2020). Social cognitive theory was used to explain psychosocial functioning through a conceptual framework of triadic reciprocal causation (Bandura, 1986). The concept offers that functional dependence exists between personal, environmental, and behavioral factors, and the influence between factors may happen bidirectionally.

Self-efficacy is dependent on four constructs: (a) enactive mastery (performance outcomes/feedback), (b) vicarious experience, (c) verbal or social persuasion, and (d) physiological states (Bandura, 1977). Each construct affects a person's judgment of their abilities to perform a related task (Byars-Winston et al., 2017). A person's perception of their effectiveness can determine if they will complete a task or make a change (Bandura, 1977). Enactive mastery (performance outcomes/feedback) is founded on the idea that a person develops patterns of behavior through observing others. By receiving feedback on their performance, they make adjustments to their behaviors. The person is motivated by the feedback and creates self-rewards based on accomplishing specific goals. Personal performance accomplishment has been found to have the greatest impact on a person's belief in their ability to accomplish a task (Lent et al., 1994; Schönfeld et al., 2017).

Through vicarious experiences a person has the opportunity to observe others performing a challenging task without experiencing adverse consequences (Bandura, 1977). Vicarious experiences do not provide feedback about the observer's abilities, but modeling the observed behavior could provide a source of motivation for the observer to make changes (Bandura, 1977). A person could observe someone they feel has similar competency to complete a task and believe they are just as capable of achieving success in completing the task (Schunk, 1987). The effectiveness of observational learning or modeling is dependent on a person's attention, retention, production, and motivation to make a change (Bandura, 1986; Locke et al., 1984; Schunk, 1987).

Verbal or social persuasion is the process of receiving feedback and encouragement about their ability to carry out a challenging task from others. The feedback and encouragement can potentially strengthen a person's self-efficacy if the feedback is convincing and from a credible source, such as an expert in the field (Bandura, 1994; Palmer, 2011). Verbal persuasion may help encourage a person to believe they can complete a task. However, if the person previously had a negative experience performing the task, their expectations for accomplishing the task could be reduced (Bandura, 1977). Their self-efficacy could also be affected based on the content of the feedback (Bandura, 1977).

Physiological arousal is the level of anxiety, vulnerability, and stress related to completing a task (Bandura, 1977). A person's emotional connection to an experience can impact and diminish self-efficacy related to a behavior (Bandura, 1977; Wang et al., 2017). A person may experience feelings of ineptitude when they encounter a challenge, which could create fear about their ability to complete a task and can diminish self-efficacy (Bandura, 1977). When people believe in their competence, they are more likely to respond to different conditions, be proactive, and be persistent (Lisbona et al., 2018). Previous negative past experiences that produced high levels of stress, anxiety, and fear, and cause anticipatory self-arousal, have been linked to low self-efficacy (Bandura, 1997). On the contrary, a person who had a positive experience in performing an associated task, may feel relaxed and efficacious, expecting a positive outcome (Wang et al., 2017).

Understanding the perspectives of clinical specialists who diagnose autism in toddlers includes exploring similarities and differences between groups. Self-efficacy in diagnosing ASD in toddlers may be affected by demographic variables, such as gender, race, advanced education, profession, and years of experience. I also explored if there are similarities and differences between a clinical specialist’s efficacy and demographic variables. Gender is one of the most critical influences on self-efficacy because of social roles and expectations (Bandura 1997). Gender role expectations, cultural beliefs, and stereotypes affect how people assess their abilities (Marshman et al., 2018). Researchers suggested that although men and women believe in their abilities, they express self-efficacy differently (Hartman & Barber, 2020). Women prefer to feel confident they are prepared and can meet expectations of a task or role before they act to avoid appearing incompetent. Men may be inclined to approach opportunities head-on, even if they do not have the experience and knowledge to perform a task or role (Bandura et al., 2001; Barnes et al.,2019; Hartman & Barber, 2020; Sandberg, 2015).

Differences in self-efficacy and racial identity levels vary based on the area of focus. Researchers have established that in accomplishing a personal goal or task (e.g., healthy eating and exercise) there are no significant differences in racial identity and self-efficacy (Assari et al., 2017; Benjamin & Stewart, 1989; Stephens et al., 2017). Researchers have also affirmed that no self-efficacy and racial identity differences exist across academic disciplines. Students experience high levels of self-efficacy in different academic disciplines regardless of their racial identity (Assari et al., 2017). The levels of self-efficacy and racial identity in academic disciplines are associated with the student's comfort level and interest in the selected discipline or topic, which makes them more confident in carrying out the task related to the discipline (Assari et al., 2017). Differences in racial identity and self-efficacy may exist in the teaching profession. Differences in racial identity and self-efficacy exists in some teachers' ability to support student well-being and boost confidence for students whose racial and cultural background differs from the teachers (Bentley-Edwards et al., 2020; David & Hill., 2021; Lindsay & Hart, 2017; Milner, 2006).

There is a positive correlation between self-efficacy and advanced education. People who receive advanced education, specialty certifications, or continuing education have been found to have higher levels of self-efficacy (Boyle et al., 2021; Nowell et al., 2020; Showalter et al., 2021; Williams et al., 2014). Advanced knowledge about a topic has been found to be associated with a person's motivation to change (Atun-Einy & Ben-Sasson, 2018; Crane et al., 2019; Dehghani et al., 2020; Williams et al., 2014). Researchers have not found a direct correlation between self-efficacy in providing specialty care and years of experience working in a particular discipline (Dehghani et al., 2020; Evenblij et al., 2019). However, advanced training and education can contribute to improvement in a person's attitude and performance, which is essential when faced with challenging situations (Dehghani et al., 2020). There is also a positive correlation between self-efficacy and advanced education for individuals who pursue higher degrees (e.g., master’s or doctoral degree).

Self-efficacy associated with a person's profession can vary based on the type of career. A person's level of self-efficacy regarding their profession is often associated with the training they received to do the job (Atun-Einy & Ben-Sasson, 2018; Crane et al., 2019; Mazurek et al., 2019; Nowell et al., 2020). Training in areas that increases a person’s knowledge about variables, such as comorbidities and motivational interviewing is associated with higher levels of self-efficacy (Liebhart et al., 2022; Miller Perrin et al., 2005). Factors that contribute to low self-efficacy levels include lacking content knowledge and experience in an area needed to perform a task (Cervato & Kerton, 2017; Kinskey & Callahan, 2022; Menon & Sadler, 2016).

There is a relationship between self-efficacy and years of experience. Researchers suggested that a person with many years of experience working in their field is more likely to have higher levels of self-efficacy (Atun-Einy & Ben-Sasson, 2018; Morrison & Lent, 2018). The length of a person's work experience measures mastery, observations, verbal feedback, and relevant information gathered over time (Morrison & Lent, 2018). A person with limited years of experience is less likely to be as confident in their ability to accomplish a task (Ben-Sasson et al., 2018; Buffle et al., 2022). However, a person's years of experience in a role does not determine how they process sources of information or the impact on self-efficacy (Morrison & Lent, 2018).

Nature of the Study

The generic qualitative approach was appropriate for this study because the method is used to understand the perspectives, beliefs, and opinions of the people involved in a phenomenon or process (Caelli et al., 2003; Cooper & Endacott, 2007; Merriam, 1988; Percy et al., 2015). A generic qualitative approach supported the research question and purpose of the study to understand the perspectives (Kahlke, 2014) of clinical specialists who diagnose ASD in toddlers. I collected data through semistructured interviews of clinical specialist who are experienced in diagnosing ASD in toddlers. I analyzed the data by identifying themes that answered the research question (Boddy, 2016; Galvin, 2015; Hennink & Kaiser, 2022; Mason, 2010).

I considered other approaches but concluded that they did not fit this study. For example, a phenomenological qualitative approach focuses on understanding the participants lived experience associated with a phenomenon (Percy et al., 2015). Phenomenological researchers investigate participants feelings, beliefs, and attitudes about a phenomenon, which shapes how they internalize and process the experience (Percy et al.,2015). Because the phenomenological approach focuses on the internal experience, it did not align with the intent of this study to understand the subjective opinions and reflections of the phenomenon (Percy et al., 2015). A quantitative descriptive research study, which can be helpful in understanding the demographics (Lowhorn, 2007) of clinical specialist who diagnose ASD in toddlers was also considered. The quantitative descriptive approach also does not get to the intent of this study to understand the subjective opinions, perceived abilities, and reflections of clinical specialists who diagnose ASD in toddlers.

Definitions

The following are definitions and operational terms used in this study:

Autism spectrum disorder (ASD): A neurologically based developmental disability that affects a child's communication, behavior, and social skills. The range of symptoms and degree to which a child may be affected varies (American Academy of Pediatrics, 2023; Garcia Primo et al., 2020; Mazurek et al., 2019).

Clinical specialist: A developmental-behavioral pediatrician, clinical child psychologist, child and adolescent psychiatrist, or child neurologist who is trained and experienced in providing comprehensive assessment and diagnoses of autism (Hyman et al., 2020).

*Comorbid/co-occurring condition*s: Two or more conditions are present simultaneously (Wang et al., 2018). A comorbid condition is a second-order diagnosis that has core symptoms that are different from the primary condition. A toddler with autism may have symptoms of other conditions in addition to the primary symptoms associated with autism (e.g., language delay, social challenges, repetitive behaviors, etc.; Al-Beltagi, 2021).

*Diagnostic uncertainty***:** Clinical specialists' perception of their inability to precisely delineate a patient's health concern (Bhise et al., 2018).

Early diagnosis: Diagnosis before the age of 3 (Bent et al., 2020).

Early intervention services: Services and supports for babies and young children with developmental delays and disabilities and their families. Services may include occupational, speech, physical therapies, and other types of supports that are based on the needs of the child and their family (CDC, 2018).

Toddler: A young child usually between 1 and 3 years old (Merriam-Webster, n.d.).

Assumptions

Assumptions are beliefs associated with the study that were necessary to conduct the research but cannot be proven (Simon & Goes, 2013). I made assumptions in this study that aligned with the generic qualitative inquiry methodology. One assumption associated with a qualitative inquiry was that one person's knowledge is not absolute but is based on how the person made meaning of their experience (Ellis & Levy, 2009; Kahlke, 2014). Another assumption was that the study would be based on the clinical specialists' descriptions of their experiences diagnosing ASD in toddlers. Furthermore, that the participant sample would be appropriate to ensure the experiences have been similar (Wargo, 2015). This was addressed by selecting participants that met the inclusion criteria for participating in the study. Another assumption was that I needed 12-15 participants to reach saturation in the study. This was addressed by having a qualitative sample large enough to ensure critical information was uncovered, but not too large that the data became repetitive (Mason, 2010). I collected data until I reached saturation (Boddy, 2016).

A third assumption was that the participants would feel comfortable during the interview process and provide honest and truthful responses to the interview questions. Informing participants that steps would be taken to keep their responses confidential and their identity concealed was a way I increased the likelihood of receiving honest answers to questions (Ellis & Levy, 2009). A fourth assumption was that categories and patterns would emerge from participant responses that could be used to understand the research question. Sending the participants transcripts of their interview assisted in determining the accuracy of the responses, which supported determining the accuracy of emergent patterns (Simon & Goes, 2013).

Scope and Delimitations

The scope denoted what I as the researcher studied and the parameters for the research (Simon & Goes, 2013). The scope of this study was the social problem of what clinical specialists' perceptions were about their abilities to make an early diagnosis of ASD in toddlers. Delimitations were the boundaries or limitations I established as the researcher to ensure the goal and objective of the study were attainable (Ellis & Levy, 2009; Theofanidis & Fountouki, 2019). Generalization of the results was not made outside of the scope of the study (Korstjens & Moser, 2017). The sample population for this study was clinical specialists (e.g., developmental-behavioral pediatrician, clinical child psychologist, child and adolescent psychiatrists, or child neurologist) in the United States, who were at least 18 years of age or older, speak, read, and understand English, and had at least 1 year experience diagnosing ASD in toddlers (e.g., young children between 1 and 3 years old). Some of the findings from this study were transferable to understanding the experiences of clinical specialist who diagnose ASD in children older than 3.

Limitations

Limitations were potential weaknesses and constraints beyond my control that could impact the design and outcome of this study (Ellis & Levy, 2009; Morrison, 2015; Simon & Goes, 2013; Theofanidis & Fountouki, 2019). A potential limitation of this study was recruiting a sufficient number of participants who were experienced in diagnosing ASD in toddlers. There has been a decline in the number of clinical specialists due to the COVID-19 pandemic and many have retired, which has reduced the number of potential participants (Abramson, 2022; Minot 2022). Additionally, it was unknown how many clinical specialists diagnose ASD in toddlers. To address this limitation, I used purposive and snowball sampling to assist in recruiting potential participants.

Limitations of snowball sampling included the predisposition to several biases, such as community bias. In community bias, the initial participant could potentially have an impact on the sample by referring members of their community (Raina, 2015). Snowball sampling could also contradict assumptions that supported the conventional thought that the selection of participants should have been randomly selected (Raina, 2015). Lastly, a limitation of snowball sampling was not knowing if the sample was an accurate interpretation of the target population (Raina, 2015; “Positivism”, 2008).

Another potential limitation was related to the truthfulness and amount of information participants provided during interviews. The amount of information participants provided in response to interview questions could have had an impact on understanding the phenomenon (Patton, 1990, 2014). I used prompts in an effort to allow participants to clarify or expound on their responses (Leech, 2002). The ability to generalize or transfer findings was a limitation for this qualitative study because the meanings and perspectives of the phenomenon were subjective to the participant (Höijer, 2008: Morrison, 2015). Findings from this study are not transferrable to all clinical specialists who diagnose ASD in toddlers because of the sample size and criteria for participation in the study. I addressed transferability issues by maintaining memos and notes throughout data collection and analysis (Cope, 2014; Anney, 2014).

My personal and professional experiences, beliefs, and perspectives as a parent of two adults with ASD could have created bias and influenced data analysis, which is an implied limitation in qualitative research (Goodell et al., 2016; Råheim et al., 2016; Simon & Goes, 2013). To address this potential bias, I used strategies such as reflexivity.

Reflexivity involved engaging in self-reflection of my biases, beliefs, and values (Råheim et al., 2016; Urban & van Eden-Moorefield, 2018).

Significance

Findings from this study provided insight into the types of experiences that may support clinical specialists in diagnosing ASD in toddlers. Diagnosing ASD in toddlers may help them receive appropriate early intervention services and supports that meet their needs (Hyman et al., 2020). This understanding could contribute to identifying specialized training for clinical specialists to receive during residency or early in their careers to support their efforts in diagnosing ASD in toddlers. Human and social service professionals could use the information to advocate for changes in laws, licensing, and practice to support the workforce of clinical specialists.

The study could also provide families with an understanding of the types of experiences, trainings, and skill sets that contribute to clinical specialists' confidence in diagnosing ASD in a toddler. While this study is limited in its potential outreach, it is reasonable to expect that some parents may understand clinical specialists' self-perceptions of their abilities and how it might factor in their decision-making towards making an early diagnosis. The study has the potential to be beneficial to positive social change because it may provide information regarding what clinical specialists who diagnose ASD in toddlers perceived contributed to their abilities to render a diagnosis, which could support children receiving an early diagnosis.

Summary

In this chapter, I described the topic of this generic qualitative research study and the potential social implications. I provided information on the research, a knowledge gap, and why the study was needed. Additionally, I addressed the research problem, the purpose of the study, the research question, and the theoretical framework that related to the study. I explained the nature of the study and definitions, assumptions, scope and delimitations, and limitations. I also discussed the study’s significance, including the potential contributions to the human services field and the potential for social change.

In Chapter 2, I provide an overview of current literature that established the relevance of the problem and the literature search strategy. Then, I share the theoretical framework, rationale, and relevance to this study. Finally, I provide an exhaustive review of literature related to the fundamental concepts of this study and summarized significant themes in the literature.

Chapter 2: Literature Review

Introduction

The purpose of this generic qualitative study was to understand clinical specialists' perceptions of their ability to make an early diagnosis of ASD in toddlers. For the purpose of this study, a clinical specialist was defined as a developmental-behavioral pediatrician, clinical child psychologist, child and adolescent psychiatrist, or child neurologist who is trained and experienced in providing a comprehensive assessment and diagnosis for ASD (Hyman et al., 2020). Also, for this study, toddler was defined as a young child between 1 and 3 years of age (Merriam-Webster, n.d.). By understanding what clinical specialists believe contributes to their ability to diagnose ASD in toddlers, I was able to gain information about how to better train clinical specialists who serve this population (Ben-Sasson et al., 2018).

A clinical specialist generally must rely on their judgment in making an ASD diagnosis (Gibbs et al., 2019; Hedley et al., 2016), but they may struggle with feelings of uncertainty about their final clinical decision (McDonnell et al., 2019). Uncertainty can result in a clinical specialist not making a diagnosis at all (Bent et al., 2020; Gibbs et al., 2019). Self-efficacy is the belief that one has about their ability to complete specific tasks (Bandura, 1986). Confidence extends to the belief that a clinical specialist has to appropriately diagnose an individual using appropriate instruments and sources of data. Additionally, the clinical specialist must use data to correctly label an individual with a diagnosis that could affect their entire life (McDonnell et al., 2019).

While researchers have studied the self-efficacy constructs related to clinical decision-making in diagnosing ASD in children using diagnostic instruments (McDonnell et al., 2019), they have not studied clinical specialists' perceptions of their *ability* to render an appropriate diagnosis of ASD in toddlers. While there is research specific to clinical specialists' decisions to diagnose ASD (McDonnell et al., 2019), I found no researchers who have explored clinical specialists' perceptions of their *abilities* to make an early diagnosis of autism in toddlers. There is a gap in the research regarding clinicians' perceptions of their abilities to make an early diagnosis of autism in toddlers. I begin this chapter by providing information about the literature search strategy and theoretical framework I used for the study. I also review key literature related to the research problem and associated topics to justify the importance of the study.

Literature Search Strategy

I searched Walden University Library databases to complete the literature review. I limited the search parameters to the past 5 years, except for seminal literature. I searched for articles on clinical specialists who diagnose ASD in toddlers. Databases used in my comprehensive literature search included Walden University Library EBSCO, ProQuest, Google Scholar, National Institutes of Health, CDC, and the American Academy of Pediatrics. Literature obtained from the databases included scholarly peer-reviewed journal articles. The following is the list of keywords and terms used to search for relevant literature: *age of ASD diagnosis, ASD, ASD diagnosis, ASD diagnosis in toddlers, autism, autism assessment, autism characteristics in children, autism diagnosis, autism diagnostic criteria, autism, diagnostic instruments, autism diagnostic instruments* *for toddlers, autism early diagnosis, autism early identification, autism evaluation, autism identification, autism spectrum disorder, autism spectrum disorder in toddlers, autism symptoms, barriers to identifying autism in children, barriers to identifying autism in toddlers, challenges diagnosing autism, child neurologist, child and adolescent psychiatrists, clinical child psychologists, clinical certainty, clinical judgment, clinical self-efficacy, clinical uncertainty, co-occurring conditions with autism, co-morbid conditions with autism, delayed ASD diagnosis, developmental-behavioral pediatrician, diagnosing autism, diagnostic ability, diagnostic uncertainty, differentiating autism diagnosis, pediatric neurologists, perceived self-efficacy, perceptions of ability, prevalence of autism, self-efficacy, self-efficacy and behavior, self-efficacy and performance, self-efficacy theory self-efficacy and behavior, self-efficacy and demographics, self-efficacy and gender, self-efficacy and profession, self-efficacy and race, self-efficacy and years of education, self-efficacy and years of experience, social cognitive theory*, and *upgrading autism diagnosis*.

Theoretical Foundation

The theoretical framework used to support this study was self-efficacy theory. Bandura (1977) initially described self-efficacy as a person's judgment of their ability to perform a specific task (Bandura, 1977, 1986). I used this framework to better understand *perceived abilities* (a nested construct under the auspices of self-efficacy). Therefore, I explained Bandura's self-efficacy theory and then used the perceived abilities construct to understand better clinical specialists' perceived ability to diagnose ASD in toddlers.

Development of Self-Efficacy Theory

Perceived self-efficacy, motivation, intellect, and behaviors are needed to respond to the demands of a task (Bandura, 1986; Wood & Bandura, 1989). Accomplishing a task requires a person to possess the aptitude and awareness of their ability (Gangloff & Mazilescu, 2017). A person's beliefs about elements related to self-efficacy determine their motivation, behaviors, thoughts, and feelings (Bandura, 1977, 1986). A person who is confident in their abilities tends to approach a challenging task as an opportunity to master the challenge. In contrast, people who doubted their abilities viewed the task as a threat and avoided the challenge (Bandura, 1977, 1986). Efficacious attitudes become the driver for setting goals, maintaining commitment, and quickly recovering when presented with failure (Bandura, 1977, 1986). A person with an efficacious perspective of their abilities attributes the failure to deficits in knowledge and attainable skills (Bandura, 1977, 1986).

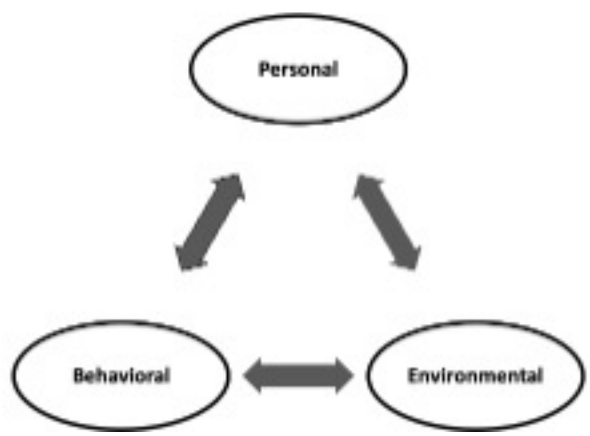
Extension of Social Cognitive Theory

Bandura (1977, 1997, 2012) developed self-efficacy theory as an extension of social cognitive theory. Social cognitive theory indicates that people learn and attain skills and knowledge by observing others in social settings (Bandura, 1977, 1986, 1997, 2012). It stressed the significance of social variables and motivation related to human behavior (Bandura, 2012; Schunk & DiBenedetto, 2020; Wood & Bandura, 1989,). This theory accentuates the importance of vicarious (observational) learning (Bandura, 1977). Observational learning is effective if the person can model and retain the action or behavior observed and is motivated to do so (Bandura, 1977). Motivation is directly linked to a person’s cognitive belief that they will have a positive outcome if they model an action or behavior (Bandura, 1977). A person's expectancy in the outcome is established through social interactions between the observer and modeling (Schunk & DiBenedetto, 2020).

Social cognitive theory was used to explain psychosocial functioning through a conceptual framework of triadic reciprocal causation (Bandura, 1986). The concept proposes that functional dependence exists between personal, environmental, and behavioral factors, and influence between factors may happen bidirectionally (see Figure 1).

Figure 1

Triadic Reciprocal Causation Components of Social Cognitive Theory



Although reciprocal causation exists, the factors may not have equal strength and may not occur simultaneously (Wood & Bandura, 1989). Reciprocal causation between personal and behavioral factors is associated with the belief that what a person thinks, feels, and believes affects how they behave (Bandura, 1986, Wood & Bandura, 1989). Each factor in the triadic reciprocal causation structure (personal, environmental, and behavioral) is an essential contributor to how people reconcile their beliefs (Bandura, 1999). Personal and environmental factors of reciprocal causation are associated with the belief that a person's expectations, beliefs, emotional resolve, and cognitive abilities are developed and altered by social influences that provides information and stimulates emotional reactions through social persuasion (Bandura, 1986; Wood & Bandura, 1989).

Reciprocal causation between environment and behavior is based on the premise that a person's environment impacts their behavior and vice versa. Social cognitive theory suggests that a person may engage in three types of environments, imposed, constructed, or selected (Bandura, 1997). A person who engages in activities and associates with people who align with their preferences and competencies is both the product and producer of their environment (Bullock & Merrill, 1980; Emmons & Diener, 1986; Wood & Bandura, 1989).

Clarification of Self-Efficacy Theory

Self-efficacy is a principal construct linked to achievement that was expanded and clarified in self-efficacy theory (Beatson et al., 2018). Personal factors, such as self-belief in abilities (self-efficacy), aspirations, and expected outcomes, guide a person's behavior (Bandura, 1999). The connection between self-efficacy, motivation, intellect, and behavior is needed to respond to the demands of a task (Bandura, 1986; Wood & Bandura, 1989). Accomplishing a task requires a person to possess the aptitude and awareness of their ability (Gangloff & Mazilescu, 2017).

A person's beliefs about their self-efficacy determines their motivation, behaviors, thoughts, and feelings (Bandura, 1977, 1986). A person who is confident in their abilities tends to approach a challenging task as an opportunity to master the challenge. In contrast, people who doubt their abilities view the task as a threat and avoid the challenge (Bandura, 1977, 1986). Efficacious attitudes can become the driver for setting goals, maintaining commitment, and quickly recovering when presented with failure (Wood & Bandura, 1989). A person with an efficacious perspective of their abilities attributes the failure to deficits in knowledge and attainable skills (Wood & Bandura, 1989). A person's perceived efficacy affects their thoughts, actions, and emotional arousal, and can ultimately lead to greater levels of self-efficacy and personal accomplishment (Bandura, 1986).

Constructs of Self-Efficacy Theory

Self-efficacy is reliant on four constructs: (a) enactive mastery (performance outcomes/feedback), (b) vicarious experience, (c) verbal or social persuasion, and (d) physiological states (see Figure 2; Bandura, 1977). Each construct contributes to a person's judgment of their abilities to perform a relevant task (Byars-Winston et al., 2017). A person's perception of their effectiveness can determine if they will cope with a situation or make a change (Bandura, 1977).

Figure 2

Constructs of Self-Efficacy Theory

Enactive Mastery (Performance Outcomes/Feedback)

Individuals develop behavior patterns by observing others, and these behaviors are refined through self-correction based on performance feedback (Bandura, 1971, 1976, 1977). People develop skills through modeling and feedback, which motivates self-evaluation and goal setting (Bandura, 1971, 1976, 1977). Self-motivation provides a method to evaluate performance and create self-rewards based on accomplishing specific goals. People rely on personal performance accomplishment as it has been found to have the largest impact on a person's self-efficacy beliefs (Lent et al., 1994; Schönfeld et al., 2017). The ability to goal set and self-efficacy are critical factors in enhancing motivation and performance accomplishments (Bandura & Locke, 2003; Lent et al., 1994; Usher & Pajares, 2008).

Vicarious Experience

Vicarious experiences contribute to self-efficacy by creating opportunities to observe others performing a challenging task without experiencing adverse consequences (Bandura, 1977). Although vicarious experiences do not provide information about the observer's abilities, modeling could serve as a source of motivation for the observer to make a change (Bandura, 1977). Through vicarious experiences, a person could observe someone they feel has similar competency to complete a task and feel they are just as capable of success as that individual was (Schunk, 1987).

People interpret information differently, and some use other sources of information, such as social comparisons, to gauge their ability to complete a task (Webb-Williams, 2018). The effectiveness of observational learning or modeling is based on a person’s attention, retention, production, and motivation to make a change (Bandura, 1986; Locke et al., 1984; Schunk, 1987). The actions of the person modeling also needs to be meaningful to the observer.

The observer retains the steps and information based on their memory and cognitive review of what is being modeled (Bandura, 1986). Production involves the observer translating the modeled action into apparent behaviors, and motivation results from vicarious, direct, and concrete experiences (Bandura, 1986). Vicarious experiences (coupled with other sources of information) might predict changes that lead to self-efficacy. However, there is no evidence that observation and modeling alone can predict a person’s self-efficacy (Pfitzner-Eden, 2016; Usher & Pajares, 2008). For example, a clinical child psychologist who observes a peer perform an autism assessment on a toddler may feel motivated to perform autism assessments based on the vicarious experience and belief that they are as capable as their peer. While the clinical child psychologist may believe they can diagnose autism in a toddler after observing a peer, it does not necessarily mean they feel efficacious based on observation and modeling alone.

Verbal Persuasion

Verbal or social persuasion is the process of receiving feedback and encouragement about a person's ability to carry out a challenging task from others. This can strengthen self-efficacy if the feedback is convincing (Bandura, 1994). The potential effectiveness of verbal or social persuasion is increased if the feedback is from a credible source, such as an expert in the field (Palmer, 2011). Through the *in situ feedback* model, an expert in the field observes a person doing a task and provides feedback afterward, which adds to the construct of persuasion (Dorfman & Fortus, 2019; Palmer, 2011; Tschannen-Moran & Johnson, 2011). Verbal persuasion may help encourage a person to believe they can complete a task. However, if the person previously had a negative experience, the mastery of expectation could be reduced and affect their self-efficacy based on the content of the verbal persuasion (Bandura, 1977). For example, a clinical specialist who is observed and receives feedback on their diagnostic process by someone who is considered an expert in the field may feel more confident in their ability to diagnose autism in toddlers, even if they had a bad experience in the past or was skeptical about their abilities.

Physiological Arousal

Physiological arousal is the level of anxiety and vulnerability to stress related to completing a task (Bandura, 1977). A person's emotional connection to an experience contributes to, and can diminish, self-efficacy related to a behavior (Bandura, 1977; Wang et al., 2017). A person could have feelings of ineptitude when challenged, which could create fear about their ability to complete a task which can diminish self-efficacy (Bandura, 1977). When people believe in their competence, they are more likely to respond to different conditions, be proactive, and be persistent (Lisbona et al., 2018).

Previous negative past experiences that produced high levels of stress, anxiety, and fear, which results in anticipatory self-arousal, have been found to be related to low self-efficacy (Bandura, 1997). If a person has a positive experience, they may feel relaxed and efficacious, expecting a positive outcome (Wang et al., 2017). A person’s belief in their ability could lead to greater persistence and absorption in their work, which is a prerequisite for dedication (Lisbona et al., 2018; Llorens et al., 2007). For instance, a clinical specialist’s psychological state may contribute to higher self-efficacy if they are certain about their ability to diagnose a toddler suspected of having ASD.

Behavior and Performance

Behavior and performance are closely tied to self-efficacy in that performance influences a person’s perception of self-efficacy and impacts behavior (Schunk, 1989). A person who is successful in completing a task experiences an increase in self-efficacy, while a person who experiences failure in completing a task may have a decrease in self-efficacy (Schunk, 1989). There is also a correlation between previous performance outcomes and a person's ability, goal setting, and strategy for completing a task (Locke et al., 1984).

A person's self-efficacy level guides actions, direction, and the persistence of behaviors (Schunk, 1989). A person with a high degree of self-efficacy may exhibit behaviors that help them improve their strategies and assumptions about the task instead of making excuses or showing a lack of interest (Heslin & Klehe, 2006). High self-efficacy has been found to be related to behaviors such as setting more advanced goals, being persistent in their efforts, feeling more confident, and investing more energy toward mastering the task than someone with low self-efficacy (Bandura, 2006; Bandura & Schunk, 1981; Boyle et al., 2021). Being persistent and investing extra effort is often a high level of performance (Vancouver et al., 2002). A person with a high level of self-efficacy may take on a difficult task and views it as a challenge, while those with a low level tend to view the task as a threat (Bandura, 2018). For example, clinical specialists who assess ASD in toddlers and present with symptoms that align with other conditions may invest additional time and effort in strengthening their knowledge of different conditions to improve their ability to differentiate between conditions.

A person with low self-efficacy may blame others or the situation if the outcome is not as expected and feel easily discouraged if they experience failure (Boyle et al., 2021). They may demonstrate erratic analytical thinking, which impedes their ability to problem solve and obtain competence in performing the task (Boyle et al., 2021; Heslin & Klehe, 2006). Behaviors associated with low self-efficacy can negatively impact performance, inhibiting their opportunity to perform the task in the future effectively (Bandura, 1982; Heslin & Klehe, 2006).

Self-Efficacy Theory and Demographics

Understanding the perspectives of clinical specialists who diagnose autism in toddlers includes exploring similarities and differences between groups. Self-efficacy can impact career goals, performance, and persistence (Marshman et al., 2018). Therefore, I explored whether there are similarities and differences between a clinical specialist's efficacy and demographic variables, such as gender, race, advanced education, profession, and years of experience.

Self-Efficacy and Gender

Gender is one of the most critical influences on self-efficacy because of social roles and expectations (Bandura 1997). Gender role expectations, cultural beliefs, and stereotypes affect how people assess their abilities (Marshman et al., 2018). For example, men typically consider themselves better leaders than women (Paustian-Underdahl et al., 2014). Researchers have established that in the area of leadership, men overestimate their abilities (Brutus et al., 1999; Huszczo & Endres, 2017). In contrast, women more often accurately assess their leadership abilities (Hartman & Barber, 2020). Men's overconfidence in their competence and overvaluing of their performance can put women at risk of undervaluing their abilities (Bench et al., 2015; Watt, 2010).

Although men and women believe in their abilities, they express self-efficacy differently (Hartman & Barber, 2020). Women prefer to feel confident they are prepared and can meet expectations of a task or role before they act to avoid appearing incompetent. Men are inclined to approach opportunities head-on, even if they do not have the experience and knowledge to perform a task or role (Bandura et al., 2001; Hartman & Barber, 2020; Sandberg, 2015).

Women tend to have higher levels of conscientiousness than men, which is a predictor of leadership efficacy (Huszczo & Endres, 2017). Inputs associated with task-specific self-efficacy also differ for men and women (Huszczo & Endres, 2017). For example, age has more impact on self-management and time self-efficacy for women than for men (Bausch et al., 2014; Huszczo & Endres, 2017). A man's level of education does not predict entrepreneurial self-efficacy, but it does for a woman (Huszczo & Endres, 2017). Furthermore, researchers assert that behaviors such as being agreeable, extraverted, and neurotic predict self-efficacy in computer skills for women but not for men (Huszczo & Endres, 2017; Saleem et al., 2011). These findings are relevant to this research because they helped in understanding self-efficacy by gender.

Self-Efficacy and Racial Identity

Differences in self-efficacy and racial identity levels vary based on the area of focus. Researchers have posited that there are no significant differences in racial identity and self-efficacy between recipients of public assistance and non-recipients when controlling for factors such as socioeconomic status and family status (Benjamin & Stewart, 1989). Additionally, there appear to be no significant differences in self-efficacy and racial identity pertaining to healthy eating and exercise (Assari et al., 2017; Stephens et al., 2017). Researchers have also affirmed that no self-efficacy and racial identity differences exist across academic disciplines. Instead, students experience high levels of self-efficacy in different academic disciplines regardless of their racial identity (Assari et al., 2017). The levels of self-efficacy for students are associated with their comfort level and interest in the selected discipline or topic, which makes them more confident in carrying out the task related to the discipline (Assari et al., 2017).

Differences in racial identity and self-efficacy also exist in some teachers' ability to support student well-being and boost confidence for (Davis et al., 2022). A strong correlation has been found between teacher self-efficacy towards teaching students if they are of the same race and cultural background as the students (Davis et al., 2022). Racial congruence between the student's racial and ethnic backgrounds related to the teachers may be considered a factor in how teachers perceive the students' behavior and self-efficacy in managing the classroom (Davis et al., 2022; Geerlings et al., 2018; Kunemund et al., 2020; McCarthy et al., 2020). Self-efficacy levels for teachers from the same racial and cultural background may be associated with understanding the cultural context of the students they support. Conversely, differences in racial and cultural backgrounds may contribute to lower self-efficacy for teachers supporting students from different races and backgrounds (Bentley-Edwards et al., 2020; Lindsay & Hart, 2017; Milner, 2006).

Differences exist between members of different racial groups in relation to self-efficacy in caring for mental and physical health (Assari, 2017). African Americans have lower levels of self-efficacy in managing their psychosocial, health, and long-term mortality risk (Assari, 2017). There is also a strong correlation between race and socioeconomic factors, such as education and income, and lower levels of self-efficacy for African Americans in these areas (Assari, 2017, Stennis, 2015).

Self-Efficacy and Advanced Education

There is a positive correlation between self-efficacy and advanced education. People who receive advanced education, specialty certifications, or continuing education have been found to have higher levels of self-efficacy (Boyle et al., 2021; Nowell et al., 2020; Showalter et al., 2021; Williams et al., 2014). Advanced knowledge about a topic has been found to be associated with a person's motivation to change (Atun-Einy & Ben-Sasson, 2018; Crane et al., 2018; Dehghani et al., 2020; Williams et al., 2014). For example, nurses may not be well-versed or prepared to provide palliative care, so patient needs often go unmet (Dehghani et al., 2020). However, the desire to understand how to prevent and reduce suffering and assist with pain management, psychological support, and social well-being for end-of-life patients can be a motivator to expand their knowledge and skills in this area (Dehghani et al., 2020). Advanced palliative care training increases nurses' perceived self-efficacy in these areas (Di Giulio et al., 2019; Lai et al., 2019). Nurses who don't seek out advanced education or training are not as confident in what is needed to meet the needs of the patient and family (Dehghani et al., 2020).

Researchers have not found a direct correlation between self-efficacy in providing specialty care and years of experience working in a particular discipline (Dehghani et al., 2020; Evenblij et al., 2019). However, advanced training and education can contribute to improvement in a person's attitude and performance, which is essential when faced with challenging situations (Dehghani et al., 2020). There is also a positive correlation between self-efficacy and advanced education for individuals who pursue higher degrees (e.g., master's or doctoral degree). Students experience an increase in self-efficacy regardless of the setting in which they receive the training (e. g. in-person classes or self-study) (Nasir & Iqbal, 2019). Data suggest that students who attend in-person classes have higher self-efficacy than those in self-study programs, but the differences in scores are not statistically significant (Nasir & Iqbal, 2019). The differences in academic efficacy may indicate that students who attend in-person classes have stronger beliefs in their capabilities than those in self-study programs (Nasir & Iqbal, 2019). Other theories propose that a person's overestimation of their abilities may contribute to a reduced level of performance (Nasir & Iqbal, 2019).

Postgraduate continuing medical education for practitioners is another type of training that increases self-efficacy (Williams et al., 2014). Researchers noted that the commitment to change and address barriers are intervening variables between knowledge and practice implementation (Williams et al., 2014). Results support a strong correlation between self-efficacy and a person's perception of barriers associated with implementing changes in practice (Williams & Kessler, 2013). Findings from previous research are relevant to this study because they helped in understanding the differences and similarities in self-efficacy for participants who have or have not received advanced ASD education. Furthermore, it helped in understanding the effect of training on a clinical specialist motivation and perceptions of barriers related to implementation.

Self-Efficacy and Professions

Self-efficacy associated with a person's profession can vary based on type of career. A person's level of self-efficacy regarding their profession is often associated with the training they received to do the job (Atun-Einy & Ben-Sasson, 2018; Crane et al., 2019; Mazurek et al., 2019; Nowell et al., 2020). For example, pediatric obesity has elevated the need for pediatricians' early involvement in counseling about prevention and initiation of treatment (Miller Perrin et al., 2005). An essential factor in pediatricians supporting children with obesity is confidence in their ability to provide care (Liebhart et al., 2022). Self-efficacy in obesity management is associated with screening and counseling the patient and family (Liebhart et al., 2022; Miller Perrin et al., 2005). Pediatricians have high levels of self-efficacy in their abilities to counsel patients and families on weight-related topics, such as consuming sugary sweets but they may not be confident in their abilities to manage obesity (Walls et al., 2018). Training in comorbidities, pediatric obesity, motivational interviewing, and counseling support higher levels of self-efficacy (Liebhart et al., 2022). Factors such as a pediatrician not having enough time to provide counseling, experiences with failure, and their beliefs that patients and families don't take time to practice healthy behaviors contribute to lower levels of self-efficacy (Liebhart et al., 2022; Miller Perrin et al., 2005).

A person's level of self-efficacy can enhance their readiness for leadership and support career progression in their profession (Shirey et al., 2020; Van Dyk et al., 2016; Winslow et al., 2014). A person's confidence and experience associated with serving in informal leadership roles influences their decision to pursue formal leadership roles (Van

Dyk et al., 2016). Factors such as informal mentoring, skill development, and temporary management roles increase self-efficacy for professions associated with leadership (Van Dyk et al., 2016). Each opportunity to develop and lead positively can affect a person's confidence and motivation to pursue ambitions in leadership positions, consistent with Bandura's theory (Bandura, 1977; Cziraki et al., 2017).

A person with high self-efficacy sets and achieves lofty goals and works hard to produce results in their profession (Shirey et al., 2020). For example, teacher self-efficacy is essential to student development (Singh, 2022). Unfortunately, many elementary teachers do not feel prepared and lack confidence in their abilities to teach science specifically (Menon & Azam, 2021). A teacher with low self-efficacy in teaching science tends to focus more on providing instruction in other subjects that do not meet the student's needs (Appleton & Kindt, 1999; Kinskey & Callahan, 2022). Teachers with high levels of self-efficacy are motivated to pursue other methods of teaching, such as student-centered approaches and hands-on learning experiences for science instruction (Kinskey & Callahan, 2022; Trauth-Nare, 2015). There is a strong correlation between low self-efficacy in teaching and negative learning experiences (Kinskey & Callahan, 2022). Other factors contributing to teacher low self-efficacy levels include lacking content knowledge and experience in teaching the subject (Cervato & Kerton, 2017; Kinskey & Callahan, 2022; Menon & Sadler, 2016).

A teacher's self-efficacy beliefs or confidence in their ability to teach science are shaped or altered during their time as preservice teachers (Ilhan et al., 2015). Preservice experiences, which offer student-teaching practicums and opportunities to expand knowledge, positively impact self-efficacy (Bautista, 2011; Gunning & Mensah, 2011; Kinskey & Callahan, 2022; Palmer, 2006). Teachers can replace negative experiences through positive preservice experiences (Kinskey & Callahan, 2022). Positive preservice experiences which help increase a teacher's confidence include methods courses that offer (a) microteaching episodes, (b) classroom facilitation during field experiences, or (c) participation in science lessons (Avery & Meyer, 2012; Flores, 2015; Gunning & Mensah, 2011). Another positive preservice experience is receiving feedback during microteaching episodes and from collaborating teachers (Kinskey, 2018; Kinskey & Callahan, 2022). Previous research on self-efficacy in different professions is relevant to this study because helped in understanding the differences and similarities in different profession groups that assess autism in toddlers.

Self-Efficacy and Years of Experience

There is a relationship between self-efficacy and years of experience. Researchers suggest that a person with many years of experience working in their field is more likely to have higher levels of self-efficacy (Atun-Einy & Ben-Sasson, 2018; Morrison & Lent, 2018). The length of a person's work experience measures mastery, observations, verbal feedback, and relevant information gathered over time (Morrison & Lent, 2018). A person with limited years of experience is not as confident in their ability to accomplish a task (Ben-Sasson et al., 2018; Buffle et al., 2022). However, years of experience do not determine how a person processes sources of information or the impact on self-efficacy (Morrison & Lent, 2018).

Experienced allied professionals (e.g., Speech-language pathologists, occupational therapists, and physical therapists) have been found to have higher levels of self-efficacy in screening and referring children at risk of developmental conditions (Atun-Einy & Ben-Sasson, 2018). Allied professionals with higher levels of self-efficacy indicate that years of experience helped to increase their knowledge and understanding of ASD, the diagnostic process, intervention services, and the availability of resources (Atun-Einy & Ben-Sasson, 2018). Experienced allied professionals indicated that each source of information improved the screening and referral process, ultimately increasing their confidence (Atun-Einy & Ben-Sasson, 2018).

Self-efficacy in counselors or therapists rises with years of experience (Ladany et al., 1999; Lent et al., 2003; Morrison & Lent, 2018; Reese et al., 2009). Counselors or therapist with more experience recognizes their competencies in working with clients with challenging situations (Morrison & Lent, 2018). While self-efficacy increases as a professional gains experience, some professionals reduce overambitious goals during mid-to-late career stages due to waning self-efficacy (Bandura, 1997). Possible contributors to the lowering of self-efficacy over time are high stress and job satisfaction (Betoret, 2006; Klassen et al., 2010). Factors such as engagement, management, and the use of effective strategies increase with experience but may decline during the late stage in a person's career (Klassen et al., 2010). The conclusions of the studies are relevant to this research because they helped in grasping the differences and similarities in self-efficacy and the number of years of experience for clinical specialists.

Literature Review Related to Key Variables and/or Concepts

Clinical Specialists

Clinical specialists are healthcare professionals qualified in the clinical practice of medicine who have completed advanced education and clinical training in a specific area (Centers for Medicare & Medicaid Services, 2021; Cigna Insurance, n.d.). Individuals are referred to clinical specialists to receive evaluation and mental health diagnoses (Brian et al., 2019; Hayes et al., 2018; Hyman et al., 2020; Penner et al., 2018). Children suspected of having ASD should be referred to clinical specialists, such as clinical child psychologists, child neurologists, child and adolescent psychologists, and developmental-behavioral pediatricians who are trained and experienced in providing a comprehensive assessment and diagnosis for ASD (Hyman et al., 2020; Lord et al., 2020; Whitehouse et al., 2018).

Clinical Child Psychologists

Clinical child psychologists diagnose and treat psychological, cognitive, emotional, developmental, and behavioral issues experienced by infants, toddlers, children, and adolescents (American Psychological Association, 2022). They may serve as consultants to primary care physicians or provide continuing care for primary or secondary psychological problems (American Psychological Association, 2022). Clinical child psychologists are board-certified psychologists by the American Board of Clinical Child and Adolescent Psychology (American Board of Professional Psychology, n.d.), a specialty board of the American Board of Professional Psychology (American Board of Professional Psychology, n.d.). They have a doctoral degree from a program in professional psychology and have completed a training program with specialized experience in clinical child and adolescent psychology, which includes an internship (American Board of Professional Psychology, n.d.).

Clinical child and adolescent psychologists receive a minimum of 3 years of postdegree experience. This includes 1 year of supervised postdoctoral practice experience in clinical child adolescent or pediatric psychology. The postdegree experience includes a minimum of 1 hr per week of face-to-face supervision by a licensed clinical psychologist specializing in clinical child/adolescent psychology, plus 2 additional years of work in the field (American Board of Professional Psychology, n.d.).

Child Neurologists

Child neurologists diagnose and treat conditions associated with the nervous system (brain, spinal cord, and nerves) and muscles (American Board of Psychiatry and Neurology, n.d.). They may serve as consultants to primary care physicians or provide continuing care for primary or secondary neurological problems (American Board of Psychiatry and Neurology, n.d.). Individuals who work in this field are board-certified by the American Board of Psychiatry and Neurology Diplomates, who confirm that they have met the requirements of the profession. They have completed medical school, at least 1 to 2 years of general pediatrics as an intern or resident, and 3 years of residency training in child neurology (American Academy of Pediatrics, 2022; American Board of Psychiatry and Neurology, n.d.). Some child neurologists have additionally completed fellowships where they learn about epilepsy, neuromuscular disease, or genetics in children. Most child neurologists are board-certified by the American Board of Pediatrics and the American Board of Psychiatry and Neurology (American Academy of Pediatrics, 2022; (American Board of Psychiatry and Neurology, n.d.).

Child and Adolescent Psychiatrists

Child and adolescent psychiatrists diagnose and treat conditions associated with thinking, feeling, and behaviors affecting children, adolescents, and their families (American Academy of Child & Adolescent Psychiatry, 2022). They have completed 4 years of medical school and at least 3 years of approved residency training in medicine, neurology, and general psychiatry with adults (American Academy of Child & Adolescent Psychiatry, 2022; American Academy of Pediatrics, 2022; American Board of Psychiatry and Neurology, n.d.). Child and adolescent psychiatrists also receive two years of specialized training in an accredited residency, which includes psychiatric care for children, adolescents, and their families (American Academy of Pediatrics, 2022).

Developmental-Behavioral Pediatricians

Developmental-behavioral pediatricians care for children through young adulthood suspected of, at risk for, or diagnosed with developmental and behavioral conditions (Weitzman et al., 2022). Developmental-behavioral pediatricians provide assessments and treatments by understanding multifaceted influences on the development and behavior of children and addressing them using a neurodevelopmental strengths-based approach and system-based practices to optimize functioning (American Academy of Pediatrics, 2022; Weitzman, 2022). Developmental-behavioral pediatricians are board-certified pediatricians who have completed 4 years of medical school and 3 years of residency training in pediatrics (American Academy of Pediatrics, 2022). Additionally, a

DPB is certified by the American Board of Pediatrics and has completed a 3-year fellowship training in developmental-behavioral pediatrics by the Accreditation Council for Graduate Medical Education (American Board of Pediatrics, 2022).

Autism Spectrum Disorder

Diagnosis Criteria Over Time

Autism was first described as an infant having psychosis, which included fantasies and hallucinations (Bleuler, 1950; Evans, 2013; Gyawali & Patra, 2019). The definition and understanding of autism evolved from a singular condition to incorporate a spectrum of conditions. Kanner (1943, 1949) coined the term *infantile autism* and proposed a new diagnostic category based on his observations of infants who presented with psychosis during the first 2 years of life, which differed from schizophrenia (Adler et al., 2014; Gyawali & Patra, 2019). Infantile autism was characterized as toddlers lacking a desire to interact with people but having an affectionate relationship with objects, an obsessive desire for consistency, and language skills that did not support interpersonal communication (Barahona-Corrêa & Filipe, 2016; Chaste, 2018).

The definition and diagnostic symptomology of autism have changed dramatically over the years. The *DSM-II* (APA, 2013)*,* was updated to classify autism as a psychiatric condition, a form of childhood schizophrenia, evident by a detachment from reality (Ferrara et al., 2021). The *DSM-III* manual was updated to establish an entirely new class of conditions, PDD-NOS, separate from schizophrenia (Cooper & Michels, 1981). The new classification, PDD-NOS, was broader and allowed children who did not completely meet the criteria for an autism diagnosis to be included (Cooper & Michels, 1981; Rosen et al., 2021). The reclassification in the manual divided PDD into two categories: infantile autism and childhood, based on the age of onset (Cooper & Michels, 1981).

The reclassification provided specific criteria for a child to be diagnosed with infantile autism, which was undefined in previous manuals leading to varied interpretations of the requirements for autism (Cooper & Michels, 1981; Masi et al., 2017). The criteria for *infantile autism* included (a) a lack of interest in people, (b) bizarre responses to the environment with the absence of schizophrenia, (c) severe communication impairments, and (d) development of symptoms within the first 30 months of life (Cooper & Michels, 1981). Criteria were expanded again in *DSM-III-R* to acknowledge that the condition is pervasive and is not limited to infants (Cooper & Michels, 1988). The expansion in *DSM-III-R* included higher-functioning individuals who did not present with symptoms early in life to receive an autism diagnosis (Cooper & Michels, 1988; Masi et al., 2017). There was also a significant update that included 16 criteria across the three domains and the requirement that children must meet 8 of the 16 criteria for a diagnosis of autism (Cooper & Michels, 1988).

As knowledge about autism rapidly increased, the definition and criteria for meeting the diagnosis changed again in *DSM-IV* (Guze,1995). One important change was the grouping of autism categories (e.g., Asperger's disorder, autistic disorder, and PDD-NOS) under the classification of PDD-NOS, each of which has significant clinical overlap (Guze,1995). The change had a far-reaching impact on clinical decision-making because disintegrative disorder and Rett syndrome, a genetic disorder with prominent features similar to autism, were included under the umbrella (Oberman & Kaufmann, 2020). Since the *DSM-IV* lacked clarity in the definition of PDD-NOS and Asperger's syndrome (Guze,1995; Ferrara et al., 2021), it led to clarification for PDD-NOS and text corrections in the *DSM-IV-TR* (APA, 2000).

Another important change to the criteria for an autism diagnosis occurred in the *DSM-5* in relation to the range of impairments and severity of ASD diagnoses (APA, 2013; Evers et al., 2021; Oberman & Kaufmann, 2020). Three of the changes in the *DSM-5* were closely aligned with the *DSM-IV-TR's* three criteria: (a) all diagnoses under the PDD-NOS category were merged and moved under a new term "autism spectrum disorder"; (b) childhood disintegrative disorder and Rett syndrome were removed; and (c) social communication symptom domains outlined in *DSM-IV-TR* were merged into one domain, communication and interaction. Another change was the characterization of ASD according to the two core domains of (a impairments in social communication and interaction and (b) repetitive and restricted patterns of behaviors, activities, and interests (APA, 2013).

An ASD diagnosis per the *DSM-5* requires the child to meet all three subcriteria under the social interaction and social communication domains and two out of four subcriteria within the Repetitive and Restricted Patterns of Behaviors, Activities, and Interests (RRBIs) domain (APA, 2000, 2013). The change was important because there was a greater focus on RRBIs than in the *DSM-IV-TR*, which only required the child to meet one of the four RRBIs subcriteria. The *DSM-5-TR,* released in March 2022, made changes to improve and clarify the text, which included the word "all" to maintain a high diagnostic threshold (APA, 2022). Due to the recent changes, it is important to note that clinical specialists would not have diagnosed children with ASD in 1980 based on the current *DSM-5* criteria (APA, 2022; Cooper & Michels, 1981; Sherrer & Stott, 2017).

Common Manifestations of Autism Spectrum Disorder

Essential diagnostic features for ASD require a person to have (a) persistent impairments in social interaction and social communication and (b) repetitive and restricted patterns of activity, behaviors, and interests (APA, 2013). The symptoms must be present from early childhood and impair or limit everyday functioning (APA, 2013). The assessment should include specified levels of severity for both domains of impairment based on the required level of needed support (APA, 2013).

Autism is described as a neurodevelopmental condition which can affect how a person communicates, learns, interacts with others, and behaves (National Institute of Mental Health, 2022). Behaviors exhibited may include limited interactive eye contact, difficulty imitating or understanding the intent of others, repetitive conversation or play, and difficulty adjusting to change (Hyman et al., 2020). The abilities of a person with ASD can vary significantly. A person with ASD may be able to work and live in their community with limited to no support; others may require assistance with daily living, safety, engaging with others, and accessing their community (CDC, 2022). Autism is a condition that can be stressful and affects the emotional and physical needs of the entire family. Caring for a child with autism can be expensive and requires a high investment of time and patience to ensure their needs are met (APA, 2022).

Prevalence of Autism Spectrum Disorder

The CDC's (2021) Autism and Developmental Disabilities Network have monitored and reported on prevalence rates in the United States since 2000. Autism is more commonly diagnosed now than in past decades (Franz et al., 2017; Garcia Primo et al., 2020; Gordon-Lipkin et al., 2016; Hyman et al., 2020; Li et al., 2019; Mazurek et al., 2019). Within the past 10 years, autism prevalence has increased substantially which may be due to an increase in the factors that contribute to the development of ASD or due to ability of professionals to diagnose the condition (Myers et al., 2019; Zhang & Han, 2020). In 2009, the CDC estimated that 1 in 110 eight-year-old children in the United States had autism (Rice, 2009). In 2020 the CDC estimated that 1 in 54 eight-year-olds in the United States had ASD and in 2021 where the number was estimated to be to be 1 in 44 (CDC, 2021). The CDC estimated that in 2023 1 in 36 eight-year-olds in the United States have autism (Maenner et al., 2023).

The increase in prevalence rates in the United States is consistent with findings in other countries. In Norway ASD rates doubled between 2012 and 2016 (Özerk et al., 2018). Arabia experienced a 15% increase in ASD rates between 2011 and 2018 (Al-Mamari et al., 2019). Researchers have speculated that differences in methodology, case definition, and interpretation might contribute to variances related to prevalence across the United States and globally (Sheldrick & Carter, 2018; Zhang-Han, 2020). Although researchers agree that the prevalence rates for ASD have increased, there is no consensus on the primary reason the numbers have continued to rise. Some researchers theorize that changes in diagnostic criteria may contribute to more accurate diagnoses (Brosnan, 2020; Erratum, 2018).

Additionally, the intensification of national campaigns within the past decade to broaden awareness about ASD for families, pediatricians, and researchers may also contribute to increased ASD prevalence rates (Nelson et al., 2018). There is also speculation that families and the medical community are more knowledgeable about ASD symptoms and the importance of early diagnosis and intervention than a decade ago when prevalence rates were lower (Dababnah et al., 2018; Gadomski et al., 2018). Parents are now more comfortable sharing concerns about their child's development and seeking evaluation. Additionally, pediatric providers have increased ASD screenings during well-child visits, followed by a referral to a clinical specialist for an assessment and diagnosis (Carbone et al., 2020; Richard et al., 2019).

Diagnosis of Autism Spectrum Disorder

Clinician Qualifications. The American Academy of Pediatrics recommends that primary care providers refer children who screen positive for ASD to an experienced clinician for a comprehensive assessment (Hyman et al., 2020; Jennings Dunlap, 2019). The *DSM-5* does not specify or define the clinical personnel needed for ASD assessment (APA, 2013; Zwaigenbaum & Penner, 2018). Researchers and the profession have found difficulty establishing the experience necessary for a clinical specialist to complete an ASD assessment, but many countries have developed recommended best practices (Brian et al., 2019; Pang et al., 2018; Ruparelia et al., 2016). Findings from a systematic review of ASD clinical guidance yielded multiple documents for guiding the ASD diagnostic process but emphasized that they varied in content, recommendations, and quality (Penner et al., 2018).

Various researchers indicated that best practices endorse an MDT approach for confirming or ruling out ASD (Brian et al., 2019; Hayes et al., 2018; Penner et al., 2018). It is recommended that clinical personnel on an MDT should include a clinical specialist, such as a clinical child psychologist, developmental-behavioral pediatrician, child and adolescent psychiatrist, /or child neurologist trained to diagnose ASD (Brian et al., 2019; Hayes et al., 2018; Penner et al., 2018). Allied health professionals, such as speech-language pathologists and occupational therapists, should also be included (Hansen et al., 2016; Yates and Le Couteur, 2016). If an MDT is not available, a single clinician assessment is an option if the case is not complex although it can be beneficial to have another professional review the results of the diagnosis (Subramanyam et al., 2019; Whitehouse et al., 2018; Yates & Le Couteur, 2016).

Even though an MDT assessment is considered best practice, there is limited guidance on the negotiation and definition of roles or resolving different opinions related to a diagnosis (Hayes et al., 2018; Zwaigenbaum & Penner, 2018). It is unclear if the MDT approach yields more accurate results than an experienced solo clinician providing an ASD assessment (Penner et al., 2018). An experienced clinician who has prior involvement and clinical judgment could diagnose ASD in a child accurately using the *DSM-5* criteria and diagnostic instruments appropriately (Brian et al., 2019; Kaufman, 2020).

Process for Diagnosis in Children. In 2006, the American Academy of Pediatrics recommended pediatric primary care providers implement universal developmental screening to support the early identification of ASD and other developmental conditions (Miller et al., 2020; Shaw et al., 2020). The Academy recommends pediatric primary care providers screen for developmental delays with a validated screening tool during 9-, 15-, and 30-month well-child visits (Lipkin et al., 2020). At 18 months, and again at 24 or 30 months, they recommend screening of at-risk children (e.g., a sibling with ASD or genetic condition) and those exhibiting early red flags (e.g., poor response to name or eye contact, loss of language or social skills, limited pretend play, and rigidity) with a validated and reliable ASD screening tool (Hyman et al., 2020; Jennings Dunlap, 2019; Talbott et al., 2020).

Medical, allied health workers, and community providers refer children who screen positive for ASD to an experienced clinical specialist for a comprehensive ASD assessment and conclusive diagnosis (Hodges et al., 2020; Jennings Dunlap, 2019; Sanchack & Thomas, 2016). A clinical specialist should then assess the child for identifiable clinical behavioral symptoms that meet diagnostic criteria defined in the *DSM-5* to make an ASD diagnosis (APA, 2013; Brian et al., 2019). To facilitate this, other professional bodies have provided additional guidance related to ASD diagnosis.

The APA (2013) provided a three-pillar diagnostic framework for clinical specialists to collect information for an assessment and determine if the findings meet the diagnostic criteria for ASD. This includes determining whether (a) the current symptoms exhibited by the toddler meet the established criteria, (b) the developmental history is consistent with ASD, and (c) clinical confirmation of ASD can be made. The *DSM-5* also provides clinicians with a structure to determine if a toddler meets ASD criteria, including interviewing the parent for a complete developmental history, observing the child for ASD symptoms, interacting with the child, and conducting an evaluation using various ASD diagnostic instruments (see also Juárez et al., 2018; Sanchack & Thomas, 2016).

After collecting and analyzing data, the clinical specialist should use the *DSM-5* checklist to ascertain if the toddler presented with at least six of 12 symptoms from three domains and if symptoms occurred before 36 months of age (APA, 2013; Wiggins et al., 2019). The evaluation must include assessments for adaptive behavior, social behavior, communication skills (verbal and nonverbal), cognitive status, and comorbidities (Kamp-Becker et al., 2018; Randall et al., 2018). Even though the *DSM-5* establishes the criteria for meeting an ASD diagnosis, the complexity of the diagnostic process requires a clinical specialist to know and understand differentiating conditions that may have similar symptomology (Turowetz & Maynard, 2018; Wiggins et al., 2019). This results in a diagnostic process that is partially related to current *DSM* criteria but also experience with diagnosing ASD.

Clinical specialists need to be skilled in differentiating milder forms and early signs of ASD to ensure timely diagnosis of ASD in toddlers (Elder et al., 2017; Gibbs et al., 2019; McDonnell et al., 2019). Given the complex ASD diagnostic process, a clinical specialist may perceive it as challenging and not have confidence in their abilities to diagnose autism in a toddler. Furthermore, having low self-efficacy in diagnosing ASD in toddlers could contribute to a late or misdiagnosis.

Diagnostic Instruments. Conducting an ASD assessment and feeling certain about a diagnosis are complex processes for a clinical specialist that involve using various diagnostic tools to support decision-making (McDonnell et al., 2019). Correct diagnoses weigh heavily on diagnostic decision-making (Kamp-Becker et al., 2018). Outcomes depend on coding accuracy, the coder's experience with the instrument being used, and the tool's administration quality (Kamp-Becker et al., 2018). Therefore, clinical specialists should not rely only on the results of ASD diagnostic assessments but use the results to inform their clinical judgment (Brian et al., 2019).

The *DSM-5* delineates criteria and target symptoms for diagnosing ASD, but in the absence of a formal test, clinical specialists rely on various diagnostic instruments to assist in the diagnostic process (McCarty & Frye, 2020). Clinical specialists use various ASD-sensitive tools to detect and diagnose ASD in toddlers (Randall et al., 2018). The gold standard and most commonly used diagnostic assessment tool for ASD is the Autism Diagnostic Observation Schedule (ADOS; Hayes et al., 2020; Pang et al., 2018).

Autism Diagnostic Observation Schedule. The ADOS is a standardized, semistructured observation tool used by a clinical specialist for assessing social communication and repetitive behaviors and interests (Berger et al., 2021; Zwaigenbaum & Penner, 2018). The Autism Diagnostic Observation Schedule, Second Edition (ADOS-2) is a diagnostic instrument that includes modules based on the toddler's chronological age and expressive language. Additionally, the ADOS-2 consists of age-appropriate materials and tasks for assessing a young child's play, communication, social, and stereotypical behaviors (Ferre-Rey et al., 2019). The clinician observes the child to gather data with this instrument.

Autism Diagnostic Interview-Revised. The gold standard for diagnosing ASD in toddlers is the ADOS-2 paired with the Autism Diagnostic Interview-Revised (ADI-R) (Brian et al., 2019; Langmann et al., 2018). The ADI-R targets children between 12 and 30 months (Ferre-Rey et al., 2019). The ADI-R guides the clinical specialists in asking questions that prompt caregivers for detailed information about the toddler's repetitive behaviors and social and communication skills (Havdahl et al., 2017). While the ADO-2 and ADI-R have improved diagnostic agreement and are heavily relied on to assess ASD in toddlers, clinical specialists use other diagnostic tools to support their clinical decision (Havdahl et al., 2017). The clinician observes the child to gather data with this instrument.

Other Diagnostic Tools. The Childhood Autism Rating Scale is commonly used to assist a clinical specialist in accurately differentiating toddlers with ASD from those with a developmental delay but no symptoms of autism (Chen et al., 2018; Moulton et al., 2019). Some clinical specialists use the Mullen Scales of Early Learning to measure verbal and nonverbal skills in infants up to 68 months. This instrument may not be as reliable in younger children (Pierce et al., 2019; Vermeirsch et al., 2020). The clinician observes the child to gather data with these instruments.

Parent Reported. Clinical specialists may also use parent-reported diagnostic instruments to assess ASD symptoms in toddlers, such as the Social Responsiveness

Scale, Second Edition, and Social Communication Questionnaire (Chen et al., 2018; Vermeirsch et al., 2020). Clinical specialists often use the Social Communication Questionnaire to differentiate ASD from attention-deficit hyperactivity disorder (ADHD) symptoms, but it may not help them make a definitive diagnostic assessment (Zwaigenbaum & Penner, 2018). The Vineland Adaptive Behavior Scales-II is a parent questionnaire used by some clinical specialists to assess adaptive functioning in toddlers that also addresses socialization, motor skills, communication, and daily living skills (Cederlund, 2019). It should be noted that parental reports can have issues with reliability so only using these instruments can result in diagnostic errors.

Issues With Correctly Diagnosing Autism Spectrum Disorder

Mild Symptoms. Toddlers with ASD can display various symptoms, and some clinical specialists are not knowledgeable about early indicators and the milder forms of ASD. This can lead to delays in a child receiving a diagnosis (Gibbs et al., 2019). Clinical symptoms might vary in severity and complexity related to areas, such as communication and behaviors (Di Renzo et al., 2021). Conversely, toddlers with mild or moderate symptoms or above-average intelligence may create uncertainty for clinicians (Hyman et al., 2020; McDonnell et al., 2019).

Clinical specialists diagnose toddlers with milder ASD symptoms much later than those with more severe symptoms (Kentrou et al., 2019). Researchers have found that 88% of the children who presented with more severe symptoms were diagnosed accordingly by the clinical specialists, while children with milder symptoms were diagnosed with ASD later (Gibbs et al., 2019; Safer-Lichtenstein & McIntyre, 2020;

Shrestha et al., 2019). Clinical specialists who are not knowledgeable about subtle behavioral markers of ASD might miss ASD in children with milder symptoms (Shrestha et al., 2019). Toddlers with higher functioning adaptive behavior skills and higher IQ are more difficult to diagnose. For example, girls interact socially and hide their symptoms better (Hayes et al., 2021). Girls may engage in social communication, including using gestures, staying on topic, and taking turns when talking and playing.

Differential Diagnosis. When a clinical specialist determines a toddler has ASD, the process also involves further delineating where the child fits under two broad subcategories of (a) differential diagnosis within pervasive developmental disorders or (b) differential diagnoses with other psychiatric conditions (Suthar et al., 2020). The difficulty is when there is an overlap between two conditions is attributing symptoms to one specific diagnosis (Stavropoulos et al., 2018). Clinical specialists who are uncertain might underidentify or prolong the diagnosis in what is called diagnostic overshadowing (McDonnell et al., 2019).

Diagnostic overshadowing is when clinical specialists diagnose a child with developmental disabilities with a more obvious condition, such as a learning disorder, due to overlapping symptoms for some conditions (Duvall et al., 2021). The *DSM-5* introduced an alternative diagnosis related to ASD, social (pragmatic) communication disorder, which further complicates the differential diagnosis process (Frigaux et al., 2021). The new condition, social (pragmatic) communication disorder, is intended to diagnose children who do not meet ASD criteria but have social interaction and communication impairments (SCI) (Flax et al., 2019; Frigaux et al., 2021; Mandy et al., 2017). The addition of social (pragmatic) communication disorder has raised many questions for clinical specialists regarding the utility of the new category, availability of diagnostic instruments, standard measures to make the differential diagnosis of ASD, and the similarity to other subtypes of ASDs (Flax et al., 2019).

Comorbid/Co-occurring Conditions. Comorbid/co-occurring conditions are two or more conditions that are present at the same time (Wang et al., 2018). Comorbid or co-occurring conditions are commonly associated with ASD, which increases the need for a clinical specialist to be aware of and evaluate children for other conditions as well (Hodges et al., 2020; Thurm et al., 2019; Supekar et al., 2017; Young et al., 2018). Up to 94% of individuals with ASD have at least one co-occurring diagnosis (Hossain et al., 2020; Sala et al., 2020).

Autism and epilepsy often co-occur, and there is a correlation between children who have seizures during their 1st year of life, an increased risk of ASD, and poorer developmental outcomes (Holmes et al., 2021). One of the most common comorbid conditions with ASD is ADHD, which has overlapping symptoms and shares deficits across domains related to cognitive, developmental, and executive functioning (Andersen et al., 2017; Mansour et al., 2017; Zachor & Ben-Itzchak, 2019). Overlapping symptoms associated with ASD and ADHD might make it challenging to identify ASD during the initial assessment, resulting in a misdiagnosis (Kentrou et al., 2019).

Two of the most common symptoms of ASD (aggression and self-harm) are often related to underlying psychiatric comorbid conditions versus a developmental condition (Sapmaz et al., 2018). Comorbid or co-occurring conditions also increase disease potential, which can burden families and lead to clinical degeneration (Hyman et al., 2020; Sapmaz et al., 2018). For example, a family and clinician caring for a child diagnosed with autism and Down syndrome have to focus on the needs associated with each condition, which can be overwhelming.

Given the prominent effect a comorbid or co-occurring condition can have on ASD, the clinical specialist must determine if the symptoms are a phenotype of ASD or a comorbid condition (Turowetz & Maynard, 2018). Clinical specialists may feel uncertain about assessing a toddler for ASD if the toddler's mental age (e.g., verbal or nonverbal communication skills) is below the range for the diagnostic measure and there are competing comorbid, medical, or sensory challenges (Thurm et al., 2019). For instance, intellectual disability, language, behavioral, and psychiatric conditions (e.g., aggression, anxiety, and attention deficit hyperactivity) often occur with ASD and may affect clinical specialists' confidence in diagnosing toddlers for ASD (Esler et al., 2017). Other factors, such as behaviors, may also contribute to a clinical specialist's uncertainty about a diagnosis of ASD (McDonnell et al., 2019; Penner et al., 2018).

Another area of consideration for a clinical specialist is difficulty rendering an ASD diagnosis for children during structured diagnostic interviews because the child may engage in repetitive behaviors (e.g., repeating certain phrases, rituals, intense interest in things, and insistence on sameness) or psychiatric behaviors, which can be associated with other conditions (DeFilippis, 2018a; Stadnick et al., 2017). When assessed using structured diagnostic interviews, more than 70% of children with ASD also meet the criteria for a minimum of one comorbid psychiatric illness, and 40% may have two or more conditions (Hossain et al., 2020; Wang et al., 2018). Clinical specialists deal with challenges associated with diagnosing toddlers with comorbid/co-occurring psychiatric conditions when there are limited validated diagnostic instruments for assessing and measuring this age group which means the clinical specialists must rely on their clinical judgment (Hossain et al., 2020).

Diagnostic Uncertainty. A clinical specialist should be able to reliably diagnose ASD in children before the age of three (Bent et al., 2020). An early diagnosis remains stable for 85% to 90% of children later in life (Barbaro & Dissanayake, 2017; Clark et al., 2018). While a clinical specialist can diagnose ASD early, the diagnostic process can be lengthy and complex because various symptoms and behaviors may be ambiguous or associated with other conditions (Hayes et al., 2021; Richard et al., 2019). ASD is a pervasive condition because children can have multiple difficulties in developmental areas with complex traits and features (Bajko & Bazgan, 2017). Even an experienced clinical specialist could be uncertain in accurately assessing ASD in a toddler with multiple developmental areas of concern (Kanimozhiselvi et al., 2019). Factors such as a toddler not exhibiting classic ASD symptoms, comorbid conditions, or a differential diagnosis could contribute to clinical specialists lacking confidence or feeling uncertain in diagnosing ASD in a toddler (Gibbs et al., 2019; Hedley et al., 2016; Ward et al., 2016).

Lack of training on autism-specific diagnostic instruments for toddlers and continuous changes in ASD criteria might affect a clinical specialist's confidence in their ability to diagnose ASD in toddlers (Atun-Einy & Ben-Sasson, 2018; Gibbs et al., 2019;

Mazurek et al., 2019). Diagnostic uncertainty is the clinical specialists' perception of their inability to precisely delineate a patient's health concern (Bhise et al., 2018). Diagnostic uncertainty is also associated with a clinical specialist's understanding of undifferentiated symptoms (Alam et al., 2017). Furthermore, diagnostic uncertainty is a function of recalling and processing previously acquired knowledge when assessing a health concern (Alam et al., 2017). Clinical specialists might experience an increase in diagnostic uncertainty when the child does not present with distinctive behaviors that are immediately recognizable, referred to as *classic* ASD (de Marchena & Miller, 2017). Diagnostic certainty may be higher when a child presents with more severe or multiple ASD symptoms. Diagnostic confidence may also decrease when the child has a higher IQ and greater adaptive functioning (Hedley et al., 2016) and increase if a child presents with higher levels of comorbid behaviors (Penner et al., 2018).

Researchers have determined that even clinical specialists (clinical child psychologists and developmental-behavioral pediatricians) with expertise in ASD may experience diagnostic certainty (Barbaresi et al., 2022; McDonnell et al., 2019). Researchers found that of the 478 children assessed, clinical specialists indicated that they were completely confident in their diagnosis of ASD in 59.2% of toddlers, somewhat certain in 30.7%, somewhat uncertain in 8.2%, and not certain at all of their diagnostic decision in 1.8% of the patients (McDonnell et al., 2019). Despite feelings of uncertainty, the clinical specialists diagnosed 70.9% of the children with ASD and 29.1% with ADHD, language disorder, and, most frequently, global developmental delay (McDonnell et al., 2019). The study did not provide information that confirmed the clinician's diagnosis. Researchers also found that, among 349 children assessed by a developmental-behavioral pediatrician, a clinical diagnosis of ASD was consistent in 90.0% of cases, with or without the use of ADOS (Barbaresi et al., 2022). The study suggested that developmental-behavioral pediatricians may not need an ADOS to diagnose ASD in toddlers and can determine if an ADOS is needed to support their decision (Barbaresi et al., 2022).

Clinical specialists respond to ASD diagnostic uncertainty in various ways. The Canadian Paediatric Society recommended that if an experienced or trained clinical specialist is uncertain of the diagnosis in ambiguous and complex cases, they should provide a provisional ASD diagnosis and ongoing monitoring (Brian et al., 2019). Some clinicians use the practice of *diagnostic upgrading* when faced with uncertainty (Rogers et al., 2016). Diagnostic upgrading is giving a person a diagnosis of ASD even though they do not meet the criteria for the condition (Rogers et al., 2016; Taylor et al., 2017). While not considered standard practice, 76% of the clinicians surveyed reported that they have to some degree engaged in diagnostic *upgrading* for ASD, with 10% reporting it was common practice (Rogers et al., 2016). Clinicians indicated the reason for *upgrading* a diagnosis was when the child did not meet the cut-offs for standardized ASD diagnostic tools. A small percentage of the clinicians stated that they *upgraded* to an ASD diagnosis because it was in the child's and family's best interest (Rogers et al., 2016).

Clinical specialists experience varying levels of uncertainty when diagnosing ASD in toddlers, coupled with the pressure to provide an early diagnosis so the child can receive early intervention. Uncertainty is a critical component of many diagnostic decisions, emphasizing clinical judgment, which involves diagnostic criteria, presentation of symptoms, and training (Hayes et al., 2018). Continuous changes in ASD criteria and lack of training on ASD symptoms and diagnostic instruments could affect a clinical specialist's confidence in their ability to diagnose ASD in children under the age of three (Ben-Sasson et al., 2018; Gibbs et al., 2019; Mazurek et al., 2019). When faced with diagnostic uncertainty, some clinical specialists take a *wait-and-see* approach or provide an alternative or inaccurate diagnosis, which can delay a child in receiving needed interventions, services, and support (Bent et al., 2020; Gibbs et al., 2019; Ward et al., 2016). Conversely, clinical specialists who feel high uncertainty might feel threatened by an indeterminate outcome and therefore focus on the perceived consequences of not taking action, which may also account for the *upgrade* and *wait-and-see* approach (Iannello et al., 2017).

Late Diagnosis and Misdiagnosis of Autism Spectrum Disorder

Age of Child. Indicators of autism can present early in a child's life, yet diagnosing autism in toddlers can be challenging because symptoms can manifest differently in each child (Becerra-Culqui et al., 2018; Hyman et al., 2020; Juárez et al., 2018; Mazurek et al., 2019). Symptoms associated with autism could present within the first 2 years of life, but the condition is diagnosable as early as 18 months (APA, 2013; Gordon-Lipkin et al., 2016; Kanner, 1949). Unfortunately, many children are not diagnosed until school age, even though experienced clinicians can reliably diagnose ASD in toddlers (Tolsgaard et al., 2016; Ward et al., 2016; Zuckerman et al., 2020).

Researchers have debated the age at which a clinical specialist can render an accurate diagnosis for ASD for many years. The accuracy of diagnosis depends on ASD stability, described as the likelihood the child meets the criteria if reevaluated later by the same or different clinical specialists (Giserman-Kiss & Carter, 2020; Hedley et al., 2016; Ozonoff et al., 2018). An ASD diagnosis could be reliable and stable in toddlers 18 months to 2 years of (Hyman et al., 2020; Pierce et al., 2019). An experienced clinical specialist can diagnose ASD in toddlers before three (Gibbs et al., 2019; Gordon-Lipkin et al., 2016; Hinnebusch et al., 2017). Despite the possiblity of a clinical specialist being able to diagnose ASD as early as 18 months in toddlers, children are being diagnosed later (Baio et al., 2018). The time between 18 months, when a clinical specialist child can reliably diagnose a toddler with ASD and when an actual diagnosis occurs represents a *diagnostic gap* (Barbaro & Yaari, 2020; Gibbs et al., 2019).

Factors Related to Late or Misdiagnosis. Several factors can contribute to a child receiving a late or misdiagnosis. Causes include but are not limited to low scores on ASD diagnostic instruments, challenges in differentiating diagnosis, and changes in diagnostic criteria (Fusar-Poli et al., 2020; Gibbs et al., 2019; Jayanath & Ozonoff, 2020; Jure et al., 2016; Kamp-Becker et al., 2018; Ward et al., 2016). Comorbid conditions and milder symptoms are also contributors, resulting in higher missed or misdiagnosis rates for ASD (Gibbs et al., 2019). A delay in identifying ASD in a toddler represents a missed opportunity to optimize development and reduce symptoms, considering the accelerated pace a child's brain develops between 3 and 4 years of age (Berg et al., 2018; Erratum, 2018; Pierce et al., 2019). Additionally, an inaccurate or delayed ASD diagnosis can damage a child’s outcomes (Mazurek et al., 2019; Zwaigenbaum & Warren, n.d.). Clinical specialists who do not identify ASD early in a child may cause the toddler to miss the beneficial services provided through early intervention programs (Manohar et al., 2019).

Impact of Late or Misdiagnosis. Identifying ASD early in a child's life is an essential public health priority to support the toddler and their families' immediate and continuing needs (Wiggins et al., 2019). As more pediatricians see children with ASD, the emphasis on early diagnosis has become critical for the toddler, family, and clinician (Sherrer & Stott, 2017). When it is present, failure to receive an ASD diagnosis might result in the toddler not receiving a clinical referral for appropriate early intervention services for symptoms associated with the condition (Becerra-Culqui et al., 2018; Juárez et al., 2018; Kentrou et al., 2019).

Toddlers with ASD who do not receive timely and proper early interventions may experience long-term challenges in academics and social situations. Additionally, they may develop behavioral challenges, such as self-injury and aggression, as coping mechanisms (Kasilingam et al., 2021). Toddlers diagnosed late or misdiagnosed may have poorer treatment outcomes by preventing them from receiving and maximizing the benefits of early intervention services and supports related to an ASD diagnosis (Rowland, 2020; Talbott et al., 2020). Despite the proven benefit of an early ASD diagnosis, some clinical specialists experience challenges diagnosing ASD in toddlers (Jennings Dunlap, 2019; Myers et al., 2019).

Benefits of Early Diagnosis of Autism Spectrum Disorder

Early intervention services are used to treat symptoms associated with ASD (Elder et al., 2017; Garcia Primo et al., 2020). Early intervention is critical for toddlers to develop vital motor speech and language skills (Kasilingam et al., 2021). Early intervention services are associated with improved overall functioning, reducing the severity of symptoms, improving social communicative and adaptive skills, and improving long-term outcomes, such as better functioning and greater independence later in life (Brett et al., 2016; Ruta et al., 2019). Early intervention services for toddlers with ASD should be tailored to the child's needs and may include speech and language therapy and social and behavioral supports (Bishop et al., 2017; Nevill et al., 2019). Interventions may also include occupational, physical, and behavioral therapies, which support a toddler's cognitive, social-emotional, motor development, and self-care skills (Clark & Kingsley, 2020; Kingsley et al., 2020). A toddler with ASD can experience improved language, social communication, cognition, and adaptive behavior when enrolled in an early intervention program (Elder et al., 2017; Garcia Primo et al., 2020).

Therapeutic response and effectiveness are more significant when children are younger and this decreases as they age (Franz & Dawson, 2019). A child with developmental concerns may receive a referral for early intervention services, but some services require a formal ASD diagnosis to address autism-specific interventions which they may not have yet (Gordon-Lipkin et al., 2016). Toddlers who receive an early ASD diagnosis may be referred to Part C of Individuals with Disabilities Education Act early intervention program, which serves children and their parents through age three (Wiggins et al., 2019). Early ASD diagnosis and intervention lead to better social-emotional and educational outcomes (Glass Kendorski & Guld Fisher, 2017).

Clinicians' Perceptions of Their Abilities to Diagnose Autism in Toddlers

Self-efficacy in clinical specialists is the belief in their ability to provide an accurate diagnosis (Bandura, 1977; Latouche & Gascoigne, 2017). Clinical specialists have the daunting task of analyzing information from various sources and diagnostic instruments to diagnose ASD accurately (McDonnell et al., 2019). Variability of symptoms (e.g., comorbid or co-occurring conditions, milder symptoms, differential diagnosis), changes in diagnostic criteria, and diagnostic tools can affect a clinical specialist's belief in their ability to diagnose ASD in a toddler accurately (McDonnell et al., 2019; Penner et al., 2018; Ward et al., 2016). Clinical specialists must provide a categorical diagnosis for ASD within a structure constructed as an *uncertain entity* (Hayes et al., 2021; Hollin, 2017). Uncertain entity means that diverse techniques and methods for diagnosing ASD make results challenging to reconcile (Hollin, 2017). The system in which clinical specialists operate contains ambiguity, contradictions, and uncertainty, especially in diagnosing those who score below the diagnostic threshold or do not typically demonstrate ASD (Hayes et al., 2021; Hollin, 2017).

Self-efficacy theory accentuates the benefits of self-efficacy perceptions (Schönfeld et al., 2017). Discrepancies between a person's perception of their ability to successfully handle a situation, such as an ASD diagnosis, and their personal goals define their actions. Perceptions of complexity may arise when the clinical specialists feel a misalignment in skills and lack of familiarity with an age group and developmental stage

(Rutherford et al., 2018). Experienced clinicians may be more confident in providing a diagnosis with limited information (Rutherford et al., 2018). Clinicians specializing in ASD assessments may also take ownership of the role, which aligns with the perception that one's ability is rooted in establishing personal goals (Langmann et al., 2018).

Summary and Conclusions

Experienced clinical specialists can reliably diagnose children between 18 months to 2 years of age (Hyman et al., 2020; Lord et al., 2020). Additionally, a late diagnosis can negatively affect a child's outcome (Mazurek et al., 2019; Zwaigenbaum & Warren, n.d.). Toddlers suspected of having ASD should be referred to a trained and experienced clinical specialist (e.g., developmental-behavioral pediatrician, clinical child psychologist, child and adolescent psychiatrist, or child neurologist) for a comprehensive assessment (Hyman et al., 2020; Lord et al., 2020). However, some clinical specialists are not confident in their ability to accurately diagnose ASD in toddlers, given the classification and diagnostic process (Frigaux et al., 2021; Hollin, 2017). A range of factors, including mild or subtle ASD, changes in diagnostic criteria, and diagnostic tools, can complicate diagnostic decisions and ultimately affect a clinical specialist’s certainty about the diagnosis (Coughlan et al., 2021; Zwaigenbaum & Penner, 2018).

I identified a variety of challenges clinical specialists experience in diagnosing ASD in toddlers. What was unknown was an additional challenge. It was unknown what contributes to clinical specialists' perceptions about their abilities to diagnose ASD in toddlers. Diagnostic uncertainty is common in medical practice because the diagnostic process involves applying clinical knowledge and interpreting the peculiarities of the toddler based on several studies (Hedley et al., 2016; Hayes et al., 2021; McDonnell et al., 2019; Morris et al., 2019; Penner et al., 2018; Ward et al., 2016). Self-efficacy may fluctuate based on the clinical specialists' experience and expertise. Experience and knowledge may help clinical specialists reach reasonable certainty even when facing contradicting evidence and inconclusive tests. Feeling ambivalence and ambiguity in assessing children are an inherent aspect of the ASD diagnostic process. Education and training relevant to diagnosis and assessment may help improve diagnostic decision-making, positively affecting clinical specialists' perceptions of their abilities to diagnose ASD in toddlers. Chapter 3 provides information on the research design and rationale for this study. Additionally, I address my role as the researcher, methodology, and handling trustworthiness issues.

Chapter 3: Research Method

Introduction

Clinical specialists are clinical child psychologists, developmental-behavioral pediatricians, child and adolescent psychiatrists, or child neurologists trained and experienced in providing a comprehensive assessment and diagnosis of ASD in children (Hyman et al., 2020). The purpose of this generic qualitative study was to understand clinical specialists' perceptions of their abilities to diagnose ASD early in toddlers. Much of the previous research literature about ASD centers on prevalence, comorbidity or co-occurring conditions, demographic covariates, or diagnostic tools (Hossain et al., 2020; Howes et al., 2021; Maenner et al., 2020). Researchers have focused on the experiences of parents whose children have been diagnosed with ASD (Anyanwu et al., 2019; Howes et al., 2021). Literature was also available on the experiences of health professionals (e.g., psychologists, pediatricians, speech-language pathologists, psychiatrists) who work with children and families after receiving a diagnosis (Crane et al., 2019; Jacobs et al., 2019; Morris et al., 2019; Rogers et al., 2016). Scant literature was available on the perspectives of health professionals who provide an ASD diagnosis (Penner et al., 2017). In this chapter, I discuss the research design, the rationale for the selected design, and my role as the researcher. I also provide information on the methodology, instrumentations, data collection, and data analysis plan. Finally, I discuss issues of trustworthiness and ethical procedures.

Research Design and Rationale

The research question for this study was, What are clinical specialists' perceptions about their abilities to make an early diagnosis of ASD in toddlers? A generic qualitative method was selected because I focused on determining what clinical specialists perceive about their abilities to diagnose ASD in toddlers while allowing some flexibility in collecting this data qualitatively (in comparison to other qualitative methodologies). The generic qualitative approach was appropriate because this method is used to explore a person's perspectives, beliefs, opinions, and reflections on their experiences with a phenomenon or process (Caelli et al., 2003; Cooper & Endacott, 2007; Merriam, 1988; Percy et al., 2015).

Researchers use a generic qualitative approach to understand a person's subjective view on actual external events or process (Percy et al., 2015). Generic qualitative studies are not driven by a single established qualitative methodology but draw from the strength of one or more approach (Kahlke, 2014). Additionally, the generic qualitative approach allows the researcher flexibility in deviating from a guideline or intent of a specific methodology (Kahlke, 2014). Not selecting a single methodology makes the research atheoretical (Neergaard et al., 2009). The generic qualitative approach leaves space for researchers to use theoretical methodologies that make sense in the context of the research question and design of the study (Kahlke, 2014; Merriam, 2009; Thorne, 1991). Through a generic qualitative inquiry, I explored the perceptions beliefs and reflections of clinical specialists with experience diagnosing ASD in toddlers.

I explored and considered using a phenomenological qualitative research design for this study. The phenomenological qualitative approach focuses on understanding the participants lived experience associated with a phenomenon (Percy et al., 2015). Phenomenological studies investigate participants feelings, beliefs, and attitudes about a phenomenon, which shapes how they internalize and process the experience (Percy et al., 2015). The phenomenological and generic designs share similarities. However, the phenomenological approach focus is on the internal experience and does not get to the intent of this study to understand the subjective opinions, perceived abilities, and reflections of the phenomenon of clinical specialists who diagnose ASD in toddlers (Percy et al., 2015).

I also explored and considered using a quantitative descriptive research design, which measures and describes the demographics of the sample (Lowhorn, 2007). Quantitative descriptive research list descriptive data about the population being studied (Singh, 2007). Descriptive research can be categorized into several types, such as a case, cross-sectional, longitudinal, or retrospective study (Singh, 2007). A quantitative descriptive research study with good descriptions of variables can be helpful in understanding the demographics of clinical specialist who diagnose ASD in toddlers (Lowhorn, 2007). However, quantitative descriptive research cannot help to determine what caused a specific occurrence or behavior (Singh, 2007). The quantitative descriptive approach does not get to the intent of this study to understand the subjective opinions, perceived abilities, and reflections of clinical specialists who diagnose ASD in toddlers.

Therefore, a generic qualitative approach was the most appropriate research design for this study.

Role of the Researcher

I served as the primary instrument for collecting data associated with this generic qualitative study. I recruited and screened potential participants and conducted all interviews. Having one interviewer instead of a team may reduce inconsistencies in approach and interview style (Herriott & Firestone, 1983; Pezalla et al., 2012). In this study, my role was observer and participant (interviewer) with a focus on capturing the subjective perceptions and opinions of the participants as they reflect on previous experiences diagnosing ASD in toddlers.

I am the mother of two adults with autism and have personal relationships with several clinical specialists who have supported the children throughout their life. I have served as a parent representative on committees (e.g., Developmental-Behavioral Pediatrics Network and the American Academy of Pediatrics Council for Children with Special Healthcare Needs Autism Sub-committee) and provided feedback on family-friendly strategies and practices. I have also worked professionally with several clinical specialists while serving in positions that support children with ASD and their families. Currently, I work for a federal agency that funds projects which focus on improving the health and well-being of mothers, children, and families, including children with disabilities.

Since I have personal and professional experiences related to autism as a parent and professional, there is the probability of having biases and preexisting relationships with some potential participants (Quinney et al., 2016). To avoid confusion or conflict, I balanced my three roles as a parent, professional, and researcher (Quinney et al., 2016). I controlled for biases by identifying and bracketing out personal judgments, assumptions, or values (Gearing, 2004). I used a journal to write notes, explore my feelings, acknowledge biases (Gearing, 2004). In the selection and interview process, I clarified that I was a researcher in this role to obtain information to understand the experiences of clinical specialists who diagnose ASD in toddlers (Quinney et al., 2016).

I also projected a positive professional image and the position of the researcher in attitude and language (Coar & Sims, 2006; Quinney et al., 2016). However, I was able to establish trust with participants and gain a better understanding of their experiences because of previous experiences and having an understanding of the culture of autism (Coar & Sim, 2006; Deane et al., 2019; Polkinghorne, 2005). Quinney et al (2016) cautioned researchers to be mindful of the interaction dynamics between eligible participants with whom there may be preexisting relationships. I debriefed with others (e.g., committee members, classmates, peers) to weigh ethical and practical considerations, such as selecting participants, managing relationships to protect the participant and researcher, and preserving the interviews' integrity (Meyer & Willis, 2019; Quinney et al., 2016).

Being aware of biases helped to ensure the trustworthiness of the research and reduce the likelihood of ethical considerations, such as arriving at a predetermined outcome of the research (either consciously or unconsciously) (Galdas, 2017; McSweeney, 2021; Pannucci & Wilkins, 2010). A form of bias I wanted to avoid was confirmation bias, which is to make the results determined through research to fit into the researcher's predetermined ideas related to the research question (McSweeney, 2021). A bias I had was believing that clinical specialists can diagnose ASD in toddlers if they receive appropriate ASD training. Study findings informed the assumption, but I remained open to ensure trustworthiness of the results (McSweeney, 2021).

To minimize personal biases that may affect the study's outcome, I used reflexive bracketing throughout to mitigate the potentially harmful effects of presumptions and understandings that may taint the research process (Dörfler & Stierand, 2021; Tufford & Newman, 2012). Through reflexive bracketing, I attempted to identify or bracket out personal assumptions, judgments, or values (Gearing, 2004). During data collection and analysis, I wrote notes in a journal to help explore feelings about the research and acknowledge biases and assumptions (Tufford & Newman, 2012). I also developed an interview guide that I followed closely when interviewing each participant. I also remembered to remain neutral when asking questions and listening to answers and not make decisions about information during the interview (McGrath et al., 2019). This was where my journaling of thoughts and feelings during interviews was helpful to (a) acknowledge and explore any biases I may have had during interviews and (b) note aspects in my analysis and interpretation of my results.

Methodology

This section explains the logic for selecting participants, including population information, sampling strategy, and size. I describe the instruments that were used to conduct the interviews. This section also outlines the procedures for recruitment, participation, data collection, and analysis.

Participant Selection Logic

Population

The population of interest for this study was clinical specialists (e.g., clinical child psychologists, developmental-behavioral pediatricians, child and adolescent psychiatrists, or child neurologists) with varying years of experience diagnosing ASD in toddlers. Collectively there are approximately 16,600 board certified clinical specialists in the United States (e.g., clinical child psychologists ~4,000, developmental-behavioral pediatricians ~709, child and adolescent psychiatrists ~12,180, and child neurologists ~2,561) (American Board Pediatrics, 2022; American Board Psychiatry & Neurology, n.d.; Abramson, 2022). It was unknown how many clinical specialists diagnose autism in toddlers.

Sampling Strategy

I utilized a combination of purposive convenience sampling and snowball sampling to recruit participants for my study. Purposive sampling involves intentionally selecting participants who can provide information on a topic based on their experience or knowledge (Palinkas et al., 2015). Convenience sampling involves targeting a population whose members meet study criteria, such as being a clinical specialist and having experience diagnosing ASD in toddlers (Etikan et al., 2016).

I also used snowball sampling, which involves networking and referrals (Etikan, 2016). In snowball sampling, the researcher starts with a small number of participants who fit the established criteria. In the recruitment materials a statement was added to let those who see the recruitment materials that they could forward the study information to others who they believe may qualify and be interested in participating (Etikan, 2016; Etikan et al., 2016; Naderifar et al., 2017). I also asked those who participated to let others they know who may qualify and be interested to know about the study and share my contact information with them. Snowball sampling may help access possible hard-to-reach groups, such as clinical specialists who diagnose ASD in toddlers (Etikan, 2016). Combining strategies supported my efforts to recruit appropriate participants for the study (Patton, 1990, 2014).

Sample Size. A qualitative research design requires no specific sample size or number of participants (Boddy, 2016; Mason, 2010). Sample sizes for a qualitative study are generally small but must be large enough to ensure saturation is reached through data collection (Boddy, 2016; Galvin, 2015; Mason, 2010). Saturation varies based on the study and design and the amount of information provided by the participants (Dworkin, 2012; Fusch & Ness, 2015). Reaching saturation is when researcher discovers that no new information is being provided in the participants' answers to questions and no new themes emerge that may inform the topic being researched (Boddy, 2016; Galvin, 2015; Hennink & Kaiser, 2022; Mason, 2010). The number of participants estimated to participate in this study was 12-15, which was in sample size range to reach saturation in studies with a homogeneous population (Hennink & Kaiser, 2022). During data collection I remained in communication with my committee chair regarding if I believed that I reached saturation and/or if I needed to request permission to interview additional participants from the Walden University Institutional Review Board (IRB).

Inclusion/Exclusion Criteria. Participants selected for this study were required to meet specific criteria. Anyone that did not meet all inclusion criteria was excluded from the study. The criteria for this study were as follows:

- at least 18 years of age or older;
- a clinical specialist (clinical child psychologist, developmental-behavioral pediatrician, child and adolescent psychiatrist, or child neurologist) in the United States;
- have at least 1 year of experience diagnosing ASD in toddlers between the ages of 1 and 3; and
- speak, read, and understand English.

Instrumentation

Demographics

I created an interview protocol (see Table 1 and Appendix A), which included the collection of demographic data on all participants so I could describe the sample and help determine generalizability of the results. The demographic information that was collected included the participants gender, race, age, highest educational degree, board certification, and years of experience diagnosing ASD in toddlers. Finally, I collected information to understand if the participant had any personal connection with autism, such as having a child, close relative, friend, or self-identifying as being autistic.

Collecting information on the participants personal connections with ASD helped to inform the lens they use related to their perceptions.

Table 1

Demographic Questions

Question	Response choice
1. What is your gender?	Male, female, other, prefer not to answer
2. What is your age in years?	Age in years
3. What is your race?	White, Black or African American, American Indian or Alaska Native, Asian, Native Hawaiian or Other Pacific Islander, two or more races, prefer not to answer
4. What is your highest degree earned?	Associate's, bachelor's, master's, doctorate, medical, prefer not to answer
5. How many years of experience do you have diagnosing ASD?	Number of years, prefer not to answer
6. How many years of experience do you have diagnosing ASD in toddlers?	Number of years, prefer not to answer
7. When diagnosing autism, which of your board certifications is related to having the ability to provide this service to clients?	List of board certifications related to being allowed to make this diagnosis
8. Do you have any personal connections with individuals with autism such as having a child, close relative, or friend with autism?	Yes, no, not sure, prefer not to answer

Note. ASD = autism spectrum disorder.

Interviews

I conducted semistructured interviews to collect data for this study. Participants responded to questions in a semistructured interview, which provided in-depth descriptions of their experiences and process and helped develop an understanding of the phenomenon (Ravitch & Carl, 2019). The second part of the interview protocol included a series of open-ended questions, which included prompts that I used for each item if I believed I needed more information related to the answer given by the participant (Gill et al., 2008; McGrath et al., 2019). The interview protocol also helped ensure consistency in all interviews (Cridland et al., 2015; Pedersen et al., 2016).

Each participant was asked the same open-ended questions about their experiences in diagnosing ASD in toddlers. I used an audio recorder for each interview session. At the beginning of each interview, I shared with each participant details of the study, that they had the right to withdraw from the study at any time, and the steps for withdrawing (Wang et al., 2017). I assured the participants that their identity would be anonymous, and responses would be confidential, which is a fundamental component of informed consent (Gill, 2008). I explained the consent form's content and process to each participant, followed by a 30 to 60-minute interview (Jamshed, 2014). I was mindful of the time by using a timer so I could make every effort to ensure the interview was conducted within the promised timeframe. The interview questions were developed to address the research question posed in this study and aligned with information obtained in the literature review. All research questions were submitted to my committee members for assessment of clarity and validity as well as their ability to provide information that answered my research questions (see Table 2).

Table 2

Interview Questions

Question	Prompt
1. Please describe the overall type(s) of ASD diagnostic training you have received.	Tell me more about X.
2. To what extent do you feel the training(s) prepared you to diagnose ASD in older children and adults?	Why do you feel X prepared you? Why do you feel Y did not prepare you?
3. Please describe the type(s) of ASD diagnostic training you have received to diagnose ASD in toddlers.	Tell me more about X. Do you use X…Why or why not?
4. To what extent do you feel your training(s) and experience has prepared you to diagnose ASD in toddlers and why?	Tell me more about X.
5. Describe how confident you feel in your ability to diagnose ASD in toddlers in comparison to diagnosing ASD in older children or adults and why.	Tell me more about X.
6. What are the main differences you see in the manifestation of ASD in toddlers compared to older clients and why?	Tell me more about X.
7. How do these differences make diagnosis of ASD in toddlers easier or more difficult than in older children and adults and why?	Tell me more about X.
8. Describe your overall confidence level in diagnosing ASD in toddlers and why.	Tell me more about X.
9. Of the trainings you received, which do you feel had the greatest impact on your confidence in diagnosing ASD in toddlers and why?	Why do you feel that that X had the greatest impact on your confidence?
10. How confident are you in the tools developed to help with the diagnosing ASD in toddlers and why?	Why do you feel that way about X?
11. What issues, if any, do you have differentiating ASD from other conditions in toddlers and why?	Tell me more about X.
12. What do you do if you are uncertain of if an ASD diagnosis should be assigned to a toddler and why?	Why do you do X in this situation?
13. How do you believe that the diagnostic process for identifying ASD in toddlers should be changed and why (tools, *DSM-IV-TR* criteria, etc.)?	Why do you feel that way about X?
14. Do you think it is beneficial or detrimental for a toddler to be diagnosed with ASD before the age of 3 and why?	Why do you feel that way about X?

Note. ASD = autism spectrum disorder; *DSM-IV-TR = Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev.).

Procedures for Recruitment, Participation, and Data Collection

Recruitment

I commenced the recruitment process after obtaining approval from the Walden University IRB. To recruit participants, I created a flyer, which provided information about the study, including the topic, inclusion criteria, and my email address for potential participants to contact me (see Appendix B). The flyer was posted on my personal social media sites on Instagram, LinkedIn, and Facebook. The flyer was posted on the Walden University participant pool and social media sites (LinkedIn and Facebook) which have groups that provide ASD information and cater to clinical specialists that did not need permission to join or post. In the recruitment flyer, I also asked anyone who saw the flyer to share the information with others who may meet the inclusion criteria (snowball sampling).

Participation

After receiving emails from potential participants, I responded via email providing inclusion criteria for the study and the informed consent form, as well as potential dates/times for the interview. I asked the potential participant to respond to my email within 10 days, stating (a) “yes” or “no” that they met all inclusion criteria and (b) “I consent,” if after reviewing the informed consent form, they consented to participating in the study and that the specified interview dates times would work for them. After determining if they met all of the inclusion criteria and consent to participate, I contacted the participant via phone, email, or text to arrange a virtual interview via Zoom or phone interview at a date and time convenient for them. Potential participants who did not respond by Day 11 to my email with the inclusion criteria and informed consent form, were sent a reminder email thanking them for their interest in participating in the study and asked them if they meet all of the inclusion criteria, would like to consent to participant, and what dates/times (new list) would work for them for the interview. If they did not respond to the reminder email in 5 days, I stopped contacting them.

Data Collection

In the arranged interview appointment, I started by welcoming the participant and asked them if they had any questions about the study or the informed consent form that they consented to via email. I answered any questions and then let them know that I was starting the audio recording of the interview (no video would be recorded). I asked them for permission to start the recording. If they declined to be recorded, I thanked them for their time and ended the interview. If they agreed to the recording, I moved on to the demographic items (see Table 1). Once I completed asking the demographic questions, I moved on to the interview questions (see Table 2) and used the prompts as needed to get additional information and/or clarity on answers. If, at any time during the interview, the participant indicated they no longer wanted to participate, I stopped the recording, thanked them for their time, let them know that the information they provided up to that point will be excluded from my data, and ended the interview appointment.

During the recorded interview, I utilized journaling to record any pauses by the participant or initial thoughts or impressions I had that may have warranted a closer look at the transcript (Javadi & Zarea, 2016). Journaling is used to help the researcher explore any potential biases or reflections during and after the interview (Meyer & Willis, 2019).

After I asked all interview and follow-up questions, I thanked the participant for their time and stopped the recording. I let the participant know that I would email them a copy of their interview transcript after it was transcribed. I asked the participant to review the transcript for any inconsistencies or clarifications they would like to provide within 7 days of receipt of the email. I also informed the participants that I would email them a summary of the results after I completed the study and would also post a one-page summary of the results to the sites where I recruited participants.

After completing each interview with a participant, I transcribed the data using the dictate feature in the Office 365 software. I paid close attention to spelling and comma placement because a shift in where a comma is placed can alter the meaning of a statement (Javadi & Zarea, 2016). Member checking was done by emailing their transcript to the participant so they could confirm the accuracy of the data and ensure its trustworthiness (Birt et al., 2016; McGrath, 2019). They were also able to add to the information if they believed that they forgot something important or thought of something after the interview (Creswell, 2013; Lincoln & Guba, 1985; McGrath, 2019).

Data Analysis Plan

I assigned an alpha-numerical code (e.g., year month day, interview number_ first two letters of last name and first name initial – 2023051201_JOD) to the recording to identify the participant to maintain privacy and confidentiality. Numerical coding helped in identifying the participant and recording in the event the participant informed me that they no longer wanted to participate in the study. I also assigned each participant a pseudonym when providing quotes in Chapters 4 and 5 of the dissertation (such as M42 or F35).

I used thematic data analysis to systematically identify, organize, and provide insight into themes or patterns of meaning across the data set (Braun & Clarke, 2012). I followed the six-phase approach to thematic analysis outlined by Braun and Clarke (2012). In Phase 1, I spent time familiarizing myself with the data by reading the transcripts and listening to audio recordings at least twice until I felt I knew the data content (Braun & Clarke, 2012). I took notes throughout each process, which helped to move beyond thinking about the data as mere words on a page. I used notes as a way to critically think about potential meaning behind the data (Braun & Clarke, 2012). As I read the data and listened to the audio, I asked myself questions about the data in relation to my research question and noted my thoughts and impressions of the information.

I then moved to Phase 2 to systematically analyze the data by generating a mix of descriptive and interpretative initial codes. The codes assisted in identifying and possibly labeling information relevant to the research question (Braun & Clarke, 2012). I included semantic and latent codes linked to the data's most basic components, which I could meaningfully evaluate concerning the topic (Braun & Clarke, 2012). During this process, I used an Excel spreadsheet to hand code the data. After generating the first round of codes, I reread the data, coded or recoded each data item to identify information that may have been missed and potentially been relevant to the research question (Braun & Clark, 2012). This process was repeated throughout each data item and the entire data set. I then reviewed the initial coding to determine if some items needed to be recoded or given new codes because the code developed throughout the coding process (Braun & Clarke, 2012).

I then shifted from identifying codes to analyzing the data for themes in Phase 3 (Braun & Clarke, 2012). The themes captured important information about the data related to the research question and denoted significant or patterned responses within the data set (Braun & Clarke, 2012). This phase included identifying overlap and similarity between codes, which could lead to broad topics. I also explored the relationship between themes and thought about how the themes collectively told the story about the data (Braun & Clarke, 2012).

I spent Phase 4 reviewing potential themes. This phase involved performing a two-step quality check (a) comparing and adjusting themes to ensure they relate to the data and (b) rereading all data to confirm that the themes represent the most critical and relevant data set in a meaningful way (Braun & Clarke, 2012). I then moved to Phase 5 in which I analyzed the themes, which included reviewing and refining each theme. I tried to ensure that each theme had a clear focus, purpose, and scope; developed and built on the previous theme; and collectively the themes provided a logical story about the data (Braun & Clarke, 2012). I also determined if subthemes emerged in the data. I summarized, defined, and named each theme in a way that was accurate, clear, and evident to a reader. The final step in the thematic analysis process in Phase 6. In this phase, I produced a report to tell a compelling story about the data based on the research analysis (Braun & Clarke, 2012).

Issues of Trustworthiness

Trustworthiness is the degree to which the findings from the study can be deemed an accurate representation of the data (Urban & van Eden-Moorefield, 2018). Ensuring the validity or trustworthiness of data is an essential aspect of qualitative research (Ravitch & Carl, 2019). In addition, trustworthiness is vital to readers' confidence in the study's findings (Connelly, 2016). Therefore, I used standards that supported the study's credibility, transferability, dependability, and confirmability (Carcary, 2009; Ravitch & Carl, 2019).

Credibility

Credibility focuses on ensuring the truthfulness of the data collected, the participant's experiences, and the researcher's interpretation and representation (Cope, 2014; Lincoln & Guba, 1985). I used strategies to establish credibility, such as reflexivity, which included self-reflection of personal biases, beliefs, and values (Lincoln & Guba, 1985; Urban & van Eden-Moorefield, 2018). I coded the interview data as transcribed and utilized a reflective journal with analytic memos throughout the process (Saldaña, 2013). I used multiple data sources (interviews, recordings, and notes) to corroborate the coding across the data, enhancing the credibility of the findings (Saldaña, 2013). Member checking, which involves reengaging participants to verify parts of the transcript and ensure accurate reporting of their experiences, was also be used (Lincoln & Guba, 1985; Urban & van Eden-Moorefield, 2018).

Transferability

Transferability is the ability to relate knowledge to practice (Korstjens & Moser, 2017). Transferability provides the readers with evidence that findings might be applied to other situations, contexts, times, and populations (Cope, 2014). To support transferability, I provided detailed descriptions of the phenomena, context, and enough information so others can determine if the findings may be transferable to other situations or populations (Carcary, 2009; Urban & van Eden-Moorefield, 2018). I provided information about the demographics of the sample in order to determine generalizability of results in relation to the overall population sampled from. I also described complexities that may have presented and made efforts to identify complex patterns to support the transferability of the research (Saldaña, 2013).

Dependability

Dependability is established through the ability to evaluate the study's findings, interpretations, recommendations, and supporting data (Korstjens & Moser, 2017). To demonstrate the study's dependability, I provided detailed information about the research process that I went through to recruit participants and collect data consistently (Urban & van Eden-Moorefield, 2018). I created an audit trail which included systematically archiving data such as transcripts, field notes, memos and audio recordings. To support dependability, I also included member checking in which the participants were asked to review transcripts of the interview to ensure accuracy and clarification (Saldaña, 2013).

Confirmability

Confirmability involves demonstrating that the study steps can be replicated with similar results (Moon et al., 2016). I established confirmability by using strategies such as interpreting the participants' responses by repeating what I thought the participants said during the interview and asking for clarification, if needed (Saldaña, 2013). I also used memos to write thoughts, insights, and potential codes that could be used during the analysis process (Urban & van Eden-Moorefield, 2018). Additionally, I replayed the interview recording continuously to capture any nuances or details that may have been missed as a part of the data analysis process (Saldaña, 2013). I provided details of steps used for recruitment, participation, and data collection so they can be followed by another researcher who desires to carry out a similar study. Additionally, I demonstrated how I executed the data analysis plan by providing examples of the different steps and connecting the data in Chapter 4.

Ethical Procedures

I completed human subjects subject training (see Appendix C). I did not begin recruitment until I received IRB approval. Informed consent was provided and obtained through the steps described earlier in Chapter 3. Participation was voluntary and participants could withdraw at any time. No incentives were provided for participation. I maintained all participants' confidentiality by ensuring their identity was not revealed to anyone besides my committee members and the Walden University IRB (if requested). I safeguarded the participants' confidentiality by using pseudonyms to refer to them in Chapters 4 and 5 (such as P1, P2, etc.) and to redacted or provided pseudonyms to any organizations or other individuals that they refer to. Electronic files including recordings, transcripts, and emails were password-protected, and paper files were secured in a file that was locked. I was the only person with access to the data, passwords, and keys (unless I need to share information with my committee and IRB if requested). After completing the research, I will retain the research paper and electronic data for 5 years in a secure location in my locked home office. After 5 years, all written and electronic data sources, including audio recordings obtained during data collection, will be destroyed. I will shred passwords and written data and permanently delete electronic and audio data.

Summary

In Chapter 3, I shared information on the research design, rationale, and research question. First, I discussed my role as the researcher, including any potential biases. Next, I provided an overview of the methodology, participant selection logic, and instrumentation. I also explained how I would use thematic data analysis to systematically identify, organize, and provide insight into themes or patterns of meaning across data. Finally, I addressed how I handled issues of trustworthiness, credibility, transferability, dependability, confirmability, and ethical practices. Chapter 4 discusses the final and specific study results related to the research question: What are clinical specialists' perceptions about their abilities to make an early diagnosis of ASD in toddlers?

Chapter 4: Results

Introduction

The purpose of this generic qualitative study was to explore clinical specialists' perceptions of their abilities to make an early diagnosis of ASD in toddlers. This project is unique because I could not find any other studies where researchers examined clinical specialists' perceptions of their abilities to diagnose ASD in toddlers. The research question that guided the study was, What are clinical specialists' perceptions about their abilities to make an early diagnosis of ASD in toddlers? This chapter includes information on the setting, demographics, data collection, data analysis, evidence of trustworthiness, and the study results concerning the research question.

Setting

I received IRB approval on August 1, 2023 (no. 08-01-23-344471). The first interview was on August 15, 2023, and the last was on November 14, 2023. Several unique situations occurred during data collection that could impact the quality and reliability of the data collected. After the first interview, I submitted a request for a change in procedure to include four questions that were listed in the research questions in Chapter 3 but were not included in the interview protocol that was sent to the IRB for approval originally (see Table 3). Also, I requested the term "medical" be included as a response choice for the demographic question "What is the highest degree earned?" Because the original choices did not adequately reflect the education level of participants with medical degrees. The IRB approved both changes on August 22, 2023.

Table 3

Additional Interview Questions

Question	Prompt
What issues, if any, do you have differentiating ASD from other conditions in toddlers and why?	Tell me more about X.
What do you do if you are uncertain if an ASD diagnosis should be assigned to a toddler and why?	Why do you do X in this situation?
How do you believe that the diagnostic process for identifying ASD in toddlers should be changed, and why (tools, *DSM-IV-TR* criteria, etc.)?	Why do you feel that way about X?
Do you think it is beneficial or detrimental for a toddler to be diagnosed with ASD before the age of 3, and why?	Why do you feel that way about X?

Note. ASD = autism spectrum disorder; *DSM-IV-TR* = *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev.).

Because of the update to include four originally planned questions in the interview protocol, variations in data collection occurred for two participants. Also, after reviewing the transcript for one of the two participants, I realized I did not ask one question listed in the interview protocol. To ensure I captured the perspectives of all participants, I emailed a request for a second virtual interview (Zoom or phone) to the two participants to ask if we could meet so I could ask the additional questions. One agreed to a second virtual interview via Zoom for just these questions. The second participant could not meet but emailed their answers.

As interviews went on, I requested IRB approval for a change to the recruitment flyer and informed consent. The request was to reduce the estimated interview time from 60 to 90 minutes to 30 to 60 minutes as several potential participants indicated they could not allow more than 60 minutes for an interview because of time constraints and previous interviews had taken less than 60 minutes. After receiving IRB approval on September 15, 2023, I updated the recruitment flyer and informed consent form. I also notified potential participants who had expressed an interest in participating in the study about the change in the estimated interview time. My final interview was conducted on November 14, 2023, and I ended recruitment and data collection as it was determined that I had reached saturation.

Demographics

The sample was comprised of 12 clinical specialists equally divided between developmental behavioral pediatrics (50%) and licensed clinical child psychologists (50%) who had board licenses and certifications related to diagnosing ASD in toddlers. The majority of participants were female (75%), and 58% were age 50 or older. Participants were equally split between the categories of highest degree earned: medical (50%) and doctorate (50%). Of the 12 participants, 75% had personal connections with individuals with autism. Sixty-six percent of participants had 16 or more years of experience in diagnosing ASD in any age group and 33% had 20 plus years' experience diagnosing ASD in toddlers. The demographics of the sample are shown in Table 4.

Table 4

*Sample Demographics (*N *= 12)*

Characteristic	No.	%
Gender	3	25
Male	3	25
Female	9	75
Age in years		
30–39	3	25
40–49	2	17
50–59	4	33
60+	3	25
Race		
Black or African American	3	25
White	8	67
White and American Indian	1	8
Highest degree earned		
Medical	6	50
Doctorate	6	50
Years of experience diagnosing ASD		
1–2	0	0
3–5	0	0
6–10	2	17
11–15	2	17
16–20	4	33
21+	4	33
Years of experience diagnosing ASD in toddlers		
1–2	0	0
3–5	0	0
6–10	3	25
11–15	2	17
16–20	3	25
20+	4	33
Boards, licenses, and certifications related to having the ability to diagnose ASD		
Developmental behavioral pediatrics	6	50
Licensed clinical child psychologist	6	50
Personal connections with individuals with autism such as having a child, close relative, or friend with autism		
Yes	9	75
No	2	17
Not sure	1	8

Note. ASD = autism spectrum disorder.

Data Collection

I followed the data collection procedures outlined in Chapter 3 but with the changes discussed in the Setting section of this chapter. During the interviews, two participants were driving to appointments during the interview as it was the only option because of limited time and availability. During these interviews there were minor issues maintaining cellular phone connection, which caused challenges at times with us hearing each other, and it was necessary for me to repeat questions. In another instance, a participant had to pause the interview several times because of personal reasons during a portion of the interview. The participant also experienced connectivity issues with their cellular service several times, and we lost the phone connection for 10 minutes. After reestablishing the phone connection, I reviewed the last question asked and continued the interview without further disruptions. There was also one participant who only works with toddlers in diagnosing ASD. This individual was not able to answer some of the interview questions as she did not have experience with other populations. This was considered a discrepant case in my interview data which I discussed further in the Data Analyses section below.

Data Analysis

After each interview I manually transcribed the data using the dictate feature in the Office 365 software and transcripts from Zoom. I used both transcripts to assist in verifying information that may have been missed or not clear on the recordings. I assigned an alpha-numerical code (e.g., year month day, interview number_ first two letters of last name and first name initial – 2023051201_JOD) to the recordings to identify the participant and maintain privacy and confidentiality. I also assigned each participant a pseudonym (such as Participant 6 or Participant 15).

I used thematic analysis as outlined by Braun and Clarke (2012) to systematically identify, organize, and provide insight into themes or patterns of meaning across the data set. The process used helped me move from coded units to larger representations, including categories and themes. Round 1 of coding process started by creating individual tabs for each participant on an Excel spreadsheet to manually code each transcript. I entered the participant responses to each question on their respective tabs. After recording the responses for each participant, I created descriptive codes to summarize the data in a second column and noted quotes to support the codes, when appropriate. Examples of this process are illustrated in Table 5.

Table 5

Round 1 Descriptive Coding Examples

Interview excerpt	Descriptive code (Round 1)
"I've gotten like, some training in the CARS. And just like you know other autism measures like the SRS and the SDQ." (Participant 2)	Trained on using several autism diagnostic instruments.
"Training in diagnostic assessments more broadly" (Participant 6)	Received training in doing broad diagnostic assessments.
"I've had lots and lots of hands-on experiential training." (Participant 8)	Training was heavy in hands-on experiences.
"ADOS training is across all modules, modules key through module. 4. I also you know, I know how to give the ADI-R through the interview of ASD with parents and caregivers." (Participant 10)	Trained on several diagnostic instruments.
"It wouldn't be a training on an instrument. It would be my training at the [name of autism center] with the team of experts, without a doubt." (Participant 6)	Training with experts in the field–observations and hands-on training–not training on a diagnostic instrument.
"Using a kit using standardized tools and things like it was good to learn that to then see some of the same interactions happening in the exam room." (Participant 11)	He feels training on how to use a diagnostic tool kit the "right way" was helpful.
"Fellowship at [autism center]. Like I said, nothing beats like, actually things like, you know training and seeing cases with like experts in the field." (Participant 12)	A fellowship at an autism center had the greatest impact on her confidence.
"I think it was my fellowship, you know, and just having practice and seeing a lot of children that presented in different ways." (Participant 5)	Hands-on training in fellowship impacted confidence in diagnosing ASD in toddlers.
"In toddlers a lot of different conditions are going to have similar clinical features." (Participant 4)	Considers several conditions that may have similar symptoms.
"Global developmental delays make it challenging." (Participant 6)	Challenges diagnosing global delays
"Important things that and I look for in differentiating autism spectrum conditions from other conditions. And that is, get a very good history, history of medical history, and psychosocial history." (Participant 7)	Uses the developmental, medical, and psychosocial history of the child to help in differentiating diagnosis from other conditions.
"I think the hardest one is getting enough information about the child's use of language." (Participant 8)	Difficult differentiating how the child is or is not using language to communicate.
"If there is pre-K, or some kind of daycare setting to talk to those kinds of provider, those kinds of teachers and things like that." (Participant 3)	Gathers more information (pre-K, daycare)–if uncertain of diagnosis.
"The first thing I'll do is I'll do some additional testing and ask some additional questions. If I'm really uncertain at that time, I will send the child to a psychologist." (Participant 4)	Get assessment by professional from another discipline to get another perspective–if really uncertain.
"There are times when I will give a provisional diagnosis." (Participant 10)	Gives provisional diagnosis.
"I would give a provisional diagnosis which you can in those young ages, and say I want to revisit this in a year's time or 2 years' time when the child's 3 or 4." (Participant 6)	Gives provisional diagnosis if unsure of ASD–Reassess later.

Note. CARS = Childhood Autism Rating Scale; SRS = Social Responsiveness Scale; SDQ = Strengths and Difficulties Questionnaire; ADOS = Autism Diagnostic Observation Schedule; ADI-R = Autism Diagnostic Interview-Revised; ASD =autism spectrum disorder; pre-K = prekindergarten.

After Round 1 coding, I created a tab entitled "across participants" on the spreadsheet and included a column for each participant and their responses. I reviewed the same interview question for each participant and color coded similar or related information/answers from Round 1 the same color. I then analyzed the data by reviewing the descriptive Round 1 codes that were the same color under each question to identify and group related codes across the interview questions. Examples of the coding from Round 1 coding to categories can be found in Table 6.

Table 6

Round 2 Coding Categories

Interview excerpt	Descriptive code (Round 1)	Category
"I've gotten like, some training in the CARS. And just like you know other autism measures like the SRS and the SDQ." (Participant 2)	Trained on using several autism diagnostic instruments.	ASD diagnostic instruments and tools
"Training in diagnostic assessments more broadly" (Participant 6)	Received training in doing broad diagnostic assessments.	Broad/global child development
"I've had lots and lots of hands-on experiential training." (Participant 8)	Training was heavy in hands-on experiences.	Hands-on–experience
"ADOS training is across all modules, modules key through module. 4. I also you know, I know how to give the ADI-R through the interview of ASD with parents and caregivers." (Participant 10)	Trained on several diagnostic instruments.	ASD diagnostic instruments and tools
"It wouldn't be a training on an instrument. It would be my training at the [name of autism center] with the team of experts, without a doubt." (Participant 6)	Training with experts in the field–observations and hands-on training–not training on a diagnostic instrument	Experts in the field
"Using a kit using standardized tools and things like it was good to learn that to then see some of the same interactions happening in the exam room." (Participant 11)	He feels training on how to use a diagnostic tool kit the "right way" was helpful.	ASD diagnostic instruments and tools
"Fellowship at [autism center]. Like I said, nothing beats like, actually things like, you know training and seeing cases with like experts in the field." (Participant 12)	A fellowship at an autism center had the greatest impact on her confidence.	Graduate or clinical training
"I think it was my fellowship, you know, and just having practice and seeing a lot of children that presented in different ways." (Participant 5)	Hands-on training in fellowship impacted confidence in diagnosing ASD in toddlers.	Hands-on–experience
"In toddlers a lot of different conditions are going to have similar clinical features." (Participant 4)	Considers several conditions that may have similar symptoms.	Differentiating diagnosis
"Global developmental delays make it challenging." (Participant 6)	Challenges diagnosing global delays.	Differentiating diagnosis
"Important things that and I look for in differentiating autism spectrum conditions from other conditions. And that is, get a very good history, history	Uses the developmental, medical, and psychosocial history of the child to help in differentiating autism	Differentiating diagnosis

Interview excerpt	Descriptive code (Round 1)	Category
of medical history, and psychosocial history." (Participant 7)	diagnosis from other conditions–always/	
"I think the hardest one is getting enough information about the child's use of language." (Participant 8)	Difficulty differentiating how the child is or is not using language to communicate	Differentiating diagnosis
"If there is pre-K, or some kind of daycare setting to talk to those kinds of provider, those kinds of teachers and things like that." (Participant 3)	Gathers more information (pre-K, daycare) if uncertain of diagnosis.	Diagnostic uncertainty
"The first thing I'll do is I'll do some additional testing and ask some additional questions. If I'm really uncertain at that time, I will send the child to a psychologist." (Participant 4)	Get assessment by professional from another discipline to get another perspective–if really uncertain.	Diagnostic uncertainty
"There are times when I will give a provisional diagnosis." (Participant 10)	Gives provisional diagnosis.	Diagnostic uncertainty
"I would give a provisional diagnosis which you can in those young ages, and say I want to revisit this in a year's time or 2 years' time when the child's 3 or 4." (Participant 6)	Gives provisional diagnosis if unsure of ASD–Reassess later.	Diagnostic uncertainty

Note. CARS = Childhood Autism Rating Scale; ASD =autism spectrum disorder; SRS = Social Responsiveness Scale; SDQ = Strengths and Difficulties Questionnaire; ADOS = Autism Diagnostic Observation Schedule; ADI-R = Autism Diagnostic Interview-Revised; pre-K = prekindergarten.

After Round 2 coding, I grouped related categories, with their codes and related quotes to develop themes. I reviewed the research question frequently throughout the process to ensure the themes demonstrated the clinical specialists' perceptions about their abilities to make an early diagnosis of ASD in toddlers. Examples of final theme coding can be found in Table 7.

Table 7

Final Theme Coding Examples

Interview excerpt	Descriptive code	Grouping	Theme
"I've gotten like, some training in the CARS. And just like you know other autism measures like the SRS and the SDQ." (Participant 2)	Trained on using several autism diagnostic instruments.	ASD diagnostic instruments and tools	1. A variety of training and experiences better prepared clinical specialists to be able to make an early diagnosis of ASD in toddlers.
"Training in diagnostic assessments more broadly." (Participant 6)	Received training in doing broad diagnostic assessments.	Broad/global child development	
"I've had lots and lots of hands-on experiential training." (Participant 8)	Training was heavy in hands-on experiences.	Hands-on experience	
"ADOS training is across all modules, modules key through module. 4. I also you know, I know how to give the ADI-R through the interview of ASD with parents and caregivers." (Participant 10)	Trained on several diagnostic instruments.	ASD diagnostic Instruments and tools	
"It wouldn't be a training on an instrument. It would be my training at the [name of autism center] with the team of experts, without a doubt." (Participant 6)	Training with experts in the field–observations and hands-on training	Experts in the field	
"Using a kit using standardized tools and things like it was good to learn that to then see some of the same interactions happening in the exam room." (Participant 11)	He feels training on how to use a diagnostic tool kit the "right way" was helpful.	ASD diagnostic instruments and tools	
"Fellowship at [autism center]. Like I said, nothing beats like, actually things like, you know training and seeing cases with like experts in the field." (Participant 12)	A fellowship at an autism center had the greatest impact on her confidence.	Graduate or clinical training	
"I think it was my fellowship, you know, and just having practice and seeing a lot of children that presented in different ways." (Participant 5)	Hands-on-training in fellowship impacted confidence in diagnosing ASD in toddlers.	Hands-on experience	

Interview excerpt	Descriptive code	Grouping	Theme
"The first thing I'll do is I'll do some additional testing and ask some additional questions. If I'm really uncertain at that time, I will send the child to a psychologist." (Participant 4)	Get assessment by professional from another discipline to get another perspective–f really uncertain.	Diagnostic uncertainty	2. The ability to acquire information from multiple sources increases clinical specialists' confidence in making an early diagnosis.
"If there is pre-K, or some kind of daycare setting to talk to those kinds of provider, those kinds of teachers and things like that." (Participant 2)	Gathers more information (pre-K, daycare)–if uncertain of diagnosis.	Diagnostic uncertainty	
"If I, I was seeing a child under the age of 3, and I wasn't certain that they had autism or wanted more information before making that diagnosis, then I would refer them to a psychologist, probably to get an idea of cognitive IQ testing, you know, cognitive level as well as you know, administering an ADOS or something similar." (Participant 5)	Get assessment by professional from another discipline to get another perspective.	Diagnostic uncertainty	
"Gather more information, whether it be from case consultation with our colleagues, talking to any teachers or caregivers, other people that might be involved trying to get some, get families to send us some video of their child and other like, more naturalistic settings." (Participant 3)	Gathers more information (pre-K, daycare)–if uncertain of diagnosis.	Diagnostic uncertainty	
"In toddlers a lot of different conditions are going to have similar clinical features." (Participant 4)	Considers several conditions that may have similar symptoms.	Differentiating diagnosis	3. Differential diagnosis, comorbid or co-occurring conditions, and the potential for misdiagnoses reduce clinical specialists' confidence in their abilities to make an early diagnosis of ASD in toddlers.
"Global developmental delays make it challenging." (Participant 6)	Challenges diagnosis of global delays.	Differentiating diagnosis	
Important things that and I look for in differentiating autism spectrum conditions from other conditions. And that is, get a very good history, history of medical history, and psychosocial history." (Participant 7)	Uses the developmental, medical, and psychosocial history of the child to help in differentiating autism diagnosis from other conditions–always.	Differentiating diagnosis	

Interview excerpt	Descriptive code	Grouping	Theme
"I think the hardest one is getting enough information about the child's use of language." (Participant 8)	Difficulty differentiating how the child is or is not using language to communicate–Gets speech evaluation.	Differentiating diagnosis	
"If there is pre-K, or some kind of daycare setting to talk to those kinds of provider, those kinds of teachers and things like that." (Participant 2)	Gathers more information (pre-K, daycare)–if uncertain of diagnosis.	Diagnostic uncertainty	
"The first thing I'll do is I'll do some additional testing and ask some additional questions. If I'm really uncertain at that time, I will send the child to a psychologist." (Participant 4)	Get assessment by professional from another discipline to get another perspective–if really uncertain.	Diagnostic uncertainty	
"There are times when I will give a provisional diagnosis." (Participant 10)	Gives provisional diagnosis.	Diagnostic uncertainty	
"I would give a provisional diagnosis which you can in those young ages, and say I want to revisit this in a year's time or 2 years' time when the child's 3 or 4." (Participant 6)	Gives provisional diagnosis if unsure of ASD–Reassess later.	Diagnostic uncertainty	

Note. CARS = Childhood Autism Rating Scale; ASD =autism spectrum disorder; SRS = Social Responsiveness Scale; SDQ = Strengths and Difficulties Questionnaire; ADOS = Autism Diagnostic Observation Schedule; ADI-R = Autism Diagnostic Interview-Revised; pre-K = prekindergarten.

Evidence of Trustworthiness

Credibility

To establish credibility, I used reflexivity, which includes self-reflection of personal biases, beliefs, and values (Lincoln & Guba, 1985; Saldaña, 2013; Urban & van Eden-Moorefield, 2018). I coded the interview data as transcribed and utilized a reflective journal with analytic memos throughout the process. I used reflexive bracketing throughout the data collection and data analysis process to identify or bracket out personal assumptions, judgements, or values. Reflexive bracketing can help the researcher minimize personal biases and mitigate the potentially harmful effects of presumptions and understandings based on personal and professional experiences that may have tainted the research process (Dörfler & Stierand, 2021; Gearing, 2004; Tufford & Newman, 2012).

I used multiple data sources (transcripts of the interviews, recordings, and my notes) to corroborate the coding across the data. I used member checking to increase confidence in the data collection process (Cope, 2014). Member checking involved asking the participants to verify the contents transcript and ensure accurate reporting of their answers by emailing the transcript to each participant so they could confirm the accuracy of the data. Participants were provided an opportunity to make corrections and add information if they believed that they forgot something important or thought of something after the interview. I received responses from six of the participants and two of those made corrections and/or added information.

Transferability

To support transferability, I used purposeful sampling, and I provided detailed descriptions of the phenomena, context, and enough information so others can determine if the findings may be transferable to other situations or populations. I provided information about the demographics of the sample in order to determine generalizability of results in relation to the overall population sampled. I also described complexities that may have presented and made efforts to identify complex patterns to support the transferability of the research.

Dependability

To demonstrate dependability of the results of the study, I provided detailed information about the research process that I went through to recruit participants and collect data. This detailed description can allow other researchers to replicate my study to see if they arrive at similar results (Urban & van Eden-Moorefield, 2018). I also created an audit trail which included systematically archiving data such as transcripts, field notes, memos, audio recordings, and choices I made regarding data collection and analysis. Member checking, which included asking participants to review transcripts of the interview to ensure accuracy and clarification was also used as it is a process that has been shown to help to increase the dependability of the results of a qualitative study (Saldaña, 2013).

Confirmability

Confirmability involves demonstrating that the study steps can be replicated with similar results (Moon et al., 2016; Saldaña, 2013; Urban & van Eden-Moorefield, 2018).

I established confirmability by using strategies such as interpreting the participants' responses by repeating what I thought the participants said during the interview and asking for clarification if needed. I used memos to write thoughts, insights, and potential codes that recorded my initial thoughts when I was conducting interviews so that I could refer to them during the analysis process. I replayed the interview recording multiple times to ensure that the data was accurate and so that I could compare what was being said in the interview to the codes I was developing in order to ensure that I was coding the information correctly. Detailed steps used for recruitment, participation, and data collection were provided so they can be followed by another researcher in the same way.

Results

The research question for this study was, What are clinical specialists' perceptions about their abilities to make an early diagnosis of ASD in toddlers? Three themes emerged as answers to the research question during the coding and data analysis process: (a) a variety of training and experiences better prepares clinical specialists to be able to make an early diagnosis of ASD in toddlers; (b) the ability to acquire information from multiple sources increases clinical specialists' confidence in making an early diagnosis; and (c) differential diagnosis, comorbid and co-occurring conditions, and the potential for misdiagnoses reduce clinical specialists' confidence in their abilities to make an early diagnosis of ASD in toddlers

Theme 1: Varied Training and Experiences as a Confidence Builder

Preparation and Skill Development Through Training

When I asked participants to what extent they felt training and experience prepared them to diagnose ASD in toddlers, they were quick to point out that no one training contributed to their confidence but going through different trainings helped to develop their ability to diagnose. Participant 9 shared, “I don't know a specific training that I've gone to that's really, that I can pinpoint to say, wow, this is the one training session I've ever attended that is allowed me to do this.” Participant 10 stated, “I think the most helpful has really been experience, but I do think it came from getting initial formal training.” Based on the information shared by participants, participating in various trainings helped to prepare clinical specialists to diagnose ASD in toddlers.

Participants discussed different types of trainings and how they helped to prepare and build confidence in their abilities to diagnose ASD in toddlers. Participant 6 expressed that they were “fairly confident” in diagnosing “toddlers … because of my training.” When I asked the participants which trainings had the greatest impact on their confidence in diagnosing ASD in toddlers, they shared the following: (a) a strong foundation in child development, (b) hands-on experience and feedback from experts in graduate and residency programs, and (c) a good understanding of various ASD diagnostic instruments/tools. The three types of trainings provided clinical specialists with foundational knowledge and skills needed to diagnose ASD in toddlers.

A Strong Foundation in Child Development. Receiving extensive training on child development was something that participants indicated aided them in identifying delays in development in toddlers. Participants expressed that having a good understanding of child development is a critical component in identifying if a toddler is not doing things that are developmentally appropriate for their age. Participant 10 explained,

> You have to have a good understanding and a good grasp on what is developmentally appropriate at different early stages around language, around imitative play, creative play. When does separation anxieties fit in? When is it expected for a child to not be as responsive to a stranger? When should a child be requesting and asking through non-verbals, or even starting to vocalize and things like that. When should a child be responding to his or her name, or socially smiling, or showing interest in other people? All of those things are really important and they're so important because these are typically areas that can be affected, if a child is considered on the autism spectrum.

Having a good understanding of when a toddler should be doing different things (developmental milestones) is a foundation of knowledge that can assist a clinical specialist in identifying possible developmental delays. Participant 9, who trains psychologists, shared “one of the things that we try to work with our students on is explaining to them, you need to understand what children are supposed to be doing at this age.” Clinical specialists who don’t have a good understanding of child development may not have the foundational skills needed to determine if a toddler is meeting age-appropriate developmental milestones and what that may mean in terms of completing additional evaluations and referrals to determine what, if any, issues the child may be experiencing.

Participants who taught at medical schools and hospitals emphasized the need for medical programs to have more time for residents to strengthen their understanding of child development in order to better evaluate and make referrals. Participant 4 explained that in his experience teaching pediatric residents, their “developmental month is very fractured, and they view a lot of things and a lot of programs at once, without a lot of follow-ups.” Not having time to invest in understanding child development may impact a residents’ ability to recognize if a toddler is developmentally delayed in an area.

I asked participants to share how clinical specialists can strengthen their understanding of child development beyond didactic training. Participant 9 shared, how having her own children supported her understanding of child development. She said, “you take those courses, and you know you memorize what children should be doing at certain ages, and what they shouldn't be. But it doesn't really sink in until you start having your own children.” She added that engaging with and watching her children interact with each other helped her see “child development and what it looks like.”

There are many ways to strengthen a person’s understanding of child development. Spending time playing, talking, and interacting with young children also provides opportunities to see how toddlers with and without autism navigate their environment. Having cared for a child and/or spending time with children and watching them play and interact can be supplemental “training” per participants. Participant 10 explained that her

> ability to connect with other children, whether they are able to verbally communicate or not, extend back so many years from my early days, my senior year in college. Being able to connect through all types of play, expressive hands on, all of that stuff, social games, imitative games, the classic stuff from spider, peek-a-boo, all of that, and so doing that we had to learn about child development.

Hands-On Experience and Feedback From Experts. Many participants I interviewed talked about how the learning opportunities they received in their fellowship, internship, practicum, or residency program prepared them and positively impacted their confidence in diagnosing ASD in toddlers. Throughout the interviews participants shared with me that getting hands-on experience and receiving feedback strengthened their confidence. For example, when I asked Participant 2 about her training, she talked about the importance of getting feedback during her initial training. She shared,

> it's training, experience and I mean at this level of training, getting feedback on that just being a strength. I feel like I've gotten the most experience just from like watching a lot of ADOSs, doing a lot of ADOSs, getting a lot of feedback on them.

Participant 10 recalled that the most rewarding, beneficial, and helpful part of her journey was the clinical experience received through her graduate program. She said,

> I couldn't have better supervisors than the hands-on experience that we got, because I am a hands-on learner. The hands-on experience and the learning by doing with knowing you had the support in the scaffold of your supervisors really, really helped me to be comfortable and just diving into all-things autism and

> development and early development, and to be able to just learn and be open to accepting the constructive feedback, to make me even better when it came time.

Clinical specialists' understanding of autism and other developmental conditions may be strengthened by repeatedly having opportunities to learn, listen, ask parents questions about the toddlers' developmental history, and observe the toddler in settings that are not heavily focused on diagnostic instruments/tools. Participant 4 also shared that the training he received in his fellowship program helped to strengthen his ability to diagnose ASD because it offered differing opportunities to interact with toddlers and their parents. He stated that his training was

> less tool oriented and more oriented to being more eclectic. What is the child doing? What have you seen the child doing? What are the parents telling me? I think that's very powerful. We were taught to diagnose all developmental disabilities on a much more broad and eclectic fashion.

Participants also shared that having the opportunity to get repeated experience in doing ASD assessments was a valuable component to their training. For example, Participant 5 shared that during her fellowship she "had 3 years of training where we saw patients daily and did … you know it was, it's like on-the-job training." She spoke favorably about these opportunities and how the fellowship impacted her ability to diagnose ASD in toddlers. Graduate and residency programs that provide opportunities for students to practice, learn by doing with the support of experts in the field, ask questions, make mistakes, and receive feedback are excellent environments for training clinical specialists to confidently diagnose ASD in toddlers.

A Good Understanding of Various Diagnostic Instruments and Tools. Being able to efficiently and effectively use various ASD diagnostic instruments were indicated as being important to clinical specialists to inform their clinical decision in diagnosing ASD in toddlers and the confidence behind those diagnoses. When I asked about the tools that they use to assist them in diagnosing ASD in toddlers, participants shared their perspectives. Participant 7 shared that the tools “are extremely valuable because they do offer clinicians and families an opportunity to document what they experience and observe in these children and the scoring system does often correlate with what the clinical picture really is.”

All of the participants indicated that they have used different diagnostic tools and that each of the tools has positives and negatives so that it is really clinical decision-making and experience that is important in accurately determining the correct results of these tools. Participant 8 explained that she uses diagnostic instruments/tools

> to inform my clinical judgement, and I do that with all of the tests. That's the same thing like, if I were doing a blood test on someone, and I know that that blood test may be influenced by their race or ethnicity. Well, then, I'm gonna make sure that I understand the context of that lab results. Not just the face value of the lab result.

While participants were trained on a variety of ASD diagnostic instruments/tools (see Table 8), most participants were trained on the ADOS and Childhood Autism Rating Scale, which both have editions that can be used for toddlers. Through conversations with the participants, I discovered that use of the diagnostic instruments/tool for assessments varied across participants. Some clinical specialists use the same diagnostic instruments/tool each time they assess a toddler, and others only use components or rely on reports from other clinical specialists who they work with for assessments.

Table 8

Diagnostic Instruments Trained to Use

Formal training on ASD screeners and diagnostic instruments	Participant (P)
Ages and Stages Questionnaire-Social Edition	P11
Autism Diagnostic Interview and/or Autism Diagnostic Interview-R	P2, P3, P5, P6, P8
Autism Diagnostic Observation Schedule and/or Autism Diagnostic Observation Schedule, Second Edition	P1, P2, P3, P5, P6, P8, P9, P10, P11, P12
Bailey Scales of Infant Development	P4, P6
Childhood Autism Rating Scale and/or Childhood Autism Rating Scale, 2nd edition	P2, P4, P7, P8, P9, P11, P12
Differential Ability Scales-II	P6
Gilliam Autism Rating Scale and/or Gilliam Autism Rating Scale, Second Edition and/or Gilliam Autism Rating Scale, Third Edition	P4, P7
Modified Checklist for Autism in Toddlers	P1, P11
Monteiro Interview Guidelines for Diagnosing the Autism Spectrum	P6
Monteiro Interview Guidelines for Diagnosing the Autism Spectrum, Second Edition	
Mullen Scales of Early Learning	P6
A Developmental Neuropsychological Assessment	P4, P11
Parents Observation of Social Interaction	P11
Social Responsiveness Scale	P2,
Screening Test for Autism and Toddlers	P11
Survey for Wellness and Young Children	P11
Strength and Difficulties Questionnaire	P2,
Vineland Adaptive Behavior Scales	P5, P6

Note. ASD = autism spectrum disorder.

Even though participants shared that the training on ASD diagnostic instruments/tools helped to prepare them to diagnose ASD in toddlers, I learned that there are concerns and limitations associated with some ASD diagnostic instruments/tools which can affect clinical specialists' confidence in their abilities to diagnose ASD in toddlers. For example, Participant 7 expressed,

> I find those questionnaires to be very … they're confusing. I do find that they have a value, but I do find them very challenging to use for clinicians. So, it really does lend itself to some, let's say, inaccuracies and variabilities.

This sentiment was also shared by Participant 8 who indicated that she was not very confident in the diagnostic instruments/tools because "I think the tools are just that. I think they're tools that have to be used in the hands of someone who has a clinical background and differentiating autism from not autism." This indicates that just learning about the tools that can be used does not necessarily transfer to being able to use the tools with accuracy when attempting to diagnose ASD in toddlers. One area I noticed that clinicians may struggle with is that the tools utilized to help with diagnoses are subjective. For example, Participant 11 shared concerns about how the scoring of ASD diagnostic instruments/tools can play a part in clinical specialists diagnosing ASD in toddlers. He noted,

> The score on the tool can be influenced by a lot of things, including your beliefs about autism, probably, first and foremost. Certainly, implicit bias or associations that you have about that family. Sometimes I think it's influenced by, does your center have availability to take on another ABA [applied behavior analysis] case and if you don't, maybe this kid doesn't have autism and that's my thought, that's just the belief.

Participants explained that knowing how a diagnostic tool was normed, and for what group, affects their confidence when diagnosing toddlers. Using a tool that was normed with a group that with the current patient is not similar can make using the tool unreliable to be used in evaluation of the toddler. Using instruments that were normed with a different demographic group from the toddler being diagnosed can result in a false positive or negative diagnosis. Participant 8 emphasized,

> We have to make sure that we understand, especially if we're evaluating a person who is not within the kind of range that it was normed on. So, a girl or a frankly, a non-White boy, basically, if we're evaluating a child from a different culture, if we're looking at any of those other factors, we have to understand the role that that tool plays, and how much or how little that tool should influence our diagnostic decision.

I learned that this does not just apply to race but also to gender and other factors. For example, Participant 3 explained to me that, “girls are still throwing us off a lot, so you know the ADOS was made as mostly boys, right? So, what, what do these symptoms look like in girls? Regardless if they're toddlers or school age.” Knowing the demographics of the sample that an instrument was normed for can either negatively affect a clinicians’ confidence in their diagnosis as it may not be reliable in this situation and may result in a misdiagnosis. However, if a clinician is using multiple instruments that indicate the same result, and/or rely on their experience, then they can have more confidence that their diagnosis is correct.

Varied Experiences

The participants explained that having multiple experiences evaluating and diagnosing ASD in toddlers also helped to build their confidence in diagnosing ASD in toddlers. Experiences such as being a part of multi- or interdisciplinary teams working with a family and toddler strengthened clinical specialists understanding of ASD. Additionally having years of clinical experience diagnosing ASD in toddlers aided in building confidence in their abilities. When I asked Participant 3 to what extent she felt her trainings and experience had prepared her to diagnose ASD and toddlers, she shared, “What really helped me understand autism was all the case conferences we did as a group when I was a trainee, and then also much more generalist training. So, knowing what wasn't autism was extremely valuable.” Additionally, participants talked about how years of experience having been exposed to and diagnosing ASD in toddlers helped to strengthen their confidence. Having the ability to share and get feedback on cases are experiences that may build the confidence of clinical specialists in diagnosing ASD in toddlers.

Multi- or Interdisciplinary Team Approach. Participating in multi- or interdisciplinary teams provided participants opportunities to understand the perspectives of other clinicians in making an early diagnosis of ASD in toddlers. Participant 6 shared that her graduate program provided opportunities to participate on a multidisciplinary team and learn about “comprehensive best practices with experts in the field.” Multi- or interdisciplinary approaches are considered best practice because it includes the expertise of other clinical specialists (Strunk et al., 2017). Participant 1 explained that early in her experience they adhered to a multidisciplinary team approach, which allowed her to get information “from the PT [physical therapist], OT [occupational therapist], speech and language pathologists, the nurse, the social worker.” Multi- or interdisciplinary teams provide opportunities for clinical specialists to not only get feedback but learn how clinicians from other disciplines assess potential delays or concerns in a toddler. Having the ability to hear from other professionals who have different knowledge and experience can help a clinical specialist expand their knowledge. Participant 5 expressed, “I think getting those different perspectives is actually incredibly valuable and in an ideal world, I think that's how an autism diagnosis would be made.”

Multi- or interdisciplinary team models or variations are currently used by some of the participants in their practice or clinic and not depending on as many traditional one doctor one patient diagnosis processes. For example, Participant 3 explained that in her clinic,

> They have psychologists, speech language pathologists, and clinicians who come together to see toddlers … If a clinician is diagnostically uncertain there's always someone around to help put eyes on the kiddo and chat with the clinician to try and think things through. We do a diagnostic review where there's about four of us that review every case and watch some more videos and come up and see if we agree diagnostically, that's like our diagnostic review for clinician best estimate. So, we're having lots of roundtable discussions about the children and their diagnostic or their developmental trajectories.

There is value in getting feedback and hearing the opinion of other clinicians in thinking about a case collectively. Participant 9 shared,

> We utilize a team approach at our practice. When they have a tough case, we will consult with each other. And then also, if I have a case where I need some assistance, I may have another doctor do the ADOS for me, and then that way I have another pair of eyes on that child, and then we consult on you know what we see, if we're both seeing the same thing.

Throughout the interviews about using a multi- or interdisciplinary approach I noticed that participants, including Participant 3 often mentioned that "having speech, for example, on all of our toddlers is incredibly helpful. I think both for the clinicians, but also the family." When I asked participants for more information about the benefit of having a speech language pathologist on the team, participants talked about the important role this professional plays if the toddler has delays in their communication skills. Participant 5 shared,

> Speech and language pathologist really help us think through that and they also helped me think through, like, I'm not the best at thinking through, you know, intonation patterns and anything more like that in the speech, like rates and rhythms of speech and it's, you know, anything going on with their nodules, low tone, anything like that, that could indicate even some medical stuff. I think speech and language pathologists bring just that different lens to start thinking about the child. But then even more importantly, they can start thinking through appropriate recommendations with us.

Clinical specialists can benefit from either having a structured multi- or interdisciplinary team or external clinicians, such as an speech language pathologist support their clinical decision, especially if ASD is not clearly evident in a toddler. Having others to discuss areas that the clinical specialist may be having difficulty interpreting can help look at those issues from different perspectives with professionals who have had different interactions with the toddler and family.

Clinical Experience. Years of clinical experience diagnosing ASD in toddlers increased participants' understanding of ASD, various presentations of ASD, and diagnostic criteria. Participants discussed how having years of experience diagnosing ASD in toddlers improved their knowledge, skill set, and understanding of what they need to feel confident in their clinical judgement that a toddler has ASD. Participant 9 shared that she remembers,

> Early on not feeling as confident, but the more I did it, the more confident I became. And now here I am, 17 years later, and I feel very confident in my abilities. Honestly, I think my experience and my exposure to the ASD population strengthened my confidence.

Participant 9 went on to explain how her skills and understanding of ASD has increased over time.

> I've been doing it a long time, and I think you know, if you compare, when I started to where I am now, in terms of my understanding and the symptoms and what it looks like and how it changes over time, I would say I'm much more skilled, and I think that just has to do with experience.

It takes time for clinical specialist to become confident in their abilities to diagnose ASD in toddlers. Clinical specialists whose experiences includes repeated opportunities to see the many ways ASD manifest in toddlers experience an increase in their understanding of autism, diagnostic skill set, and confidence.

When I asked participants to share more about how having experience diagnosing ASD in toddlers built their confidence, participants explained that experience helped them to know what autism looks like in toddlers. For example, Participant 10 shared “I have seen and worked with so many children, both young and older and even young adults, that when I see it, I see it and I know it.” Being comfortable working with toddler who may have ASD, and having seen firsthand how ASD may present itself, can help clinical specialists better see the signs of ASD in a toddler, even if those signs are subtle. Participant 8 noted that she is very confident in her ability to diagnose ASD in toddlers “based on that I feel like I have a very good handle on what autism looks like in a toddler and what it doesn't look like in a toddler.” Clinical specialists who are repeatedly exposed to the presentations of ASD in toddlers may feel more confident in their abilities to diagnose.

Theme 2: Multiple Sources of Information as a Confidence Builder

Multifaceted Diagnostic Process

When I asked participants the importance of having a structured process for ASD assessments, they commonly shared that having the same process is important. They shared that the diagnostic process they use to assess ASD in toddlers has been structured to include observations, ASD diagnostic instruments, parent interviews, and checklists.

For example, Participant 9 stated, “I think it's important to use all of those tools, just because I want to see consistency.” Participants regularly shared that their diagnostic process started with observing the toddler through play and interaction which often included administering an ASD diagnostic instrument or components of several instruments. Participant 9 expressed,

> Doing our own observations in, you know, interacting with the child, asking the child questions, depending on the age of the child. If it's the toddler, getting down on the floor, playing with the child. You know, just observing some things.

Diagnostic assessments based on observation, engagement, and interaction with the child appeared to increase the participants’ understanding of how the toddler engages with others. Participants emphasized that there is value in using ASD diagnostic instruments that provide them an opportunity to not only observe but also ask the parent questions so they can gain an understanding of the toddlers’ strengths and challenges. For example, Participant 10 explained that they can “get a lot of information through the play-based assessment.” She is then “able to gather additional information from parents and caregivers.” In addition to observing the toddler while administering an ASD diagnostic instrument, participants shared other opportunities for observing a toddler during an assessment. For example, Participant 7 shared that he observes the toddler,

> for a minimum of an hour, often for 2 hr. During the 2 hr, which includes the time the parents spend in my office, I have the opportunity to watch the children as they come in and explore, and then, you know, interact or not interact as the case may be. So, I can see the kind of patterns of characteristics of the autism spectrum

> … if you just understand the patterns of characteristics of the autism spectrum, then I think that you'll more easily be able to make the diagnosis.

Observations can be done through a structured or unstructured manner, such as a when using an ASD diagnostic instrument, while talking with the parent, or watching the parent toddler interaction. Clinical specialist benefit from spending time observing toddlers in various settings during the assessment. Through observations clinical specialist acquire valuable information to inform their clinical judgement.

The parent interview is another part of the structured diagnostic process that participants noted was a critical component of the assessment. When I inquired why the parent interview was important, participants explained that it provides critical information, such as the toddlers' history, developmental milestones, medical history, strengths and weaknesses, behaviors, environmental factors, and how the toddler interacts with others. Participant 1 expressed that "sometimes the diagnosis is dependent on history. So, I feel that having a complete and reliable history from a caregiver is extremely important." Having an understanding of the toddler's developmental and medical history may aid a clinical specialist in identifying if the toddler meets the diagnostic criteria for ASD.

When I asked if there was a specific protocol for conducting a parent interview, participants explained that you can ask questions for clarification, but valuable insight into the toddlers' history is gained by allowing the parent to share without interruption. For example, Participant 11 stated that his approach to parent interviews is to

> not say very many things and let the family talk. They can tell you everything pretty quickly as long as you don't interrupt them with a bunch of yes or no questions. They can usually give you a full *DSM-5* sort of checklist diagnosis for autism in 5–10 min.

Regardless of the approach used to interview the parent, having parents share information about the toddlers' developmental and medical history increases confidence in clinical specialists.

In addition to the parent interview, participants also noted that they used a checklist to help guide the diagnostic process and identify markers for *DSM-5* criteria. Participants consistently mentioned that they used the *DSM-5* checklist as a part of the intake process or another version that they created that aligns. Participant 4 explained that when he takes the toddler's history, he uses a "checklist based on the current *DSM*" because it gives him "a sense of where they're going." Additionally, participants shared that based on their experience diagnosing ASD in toddlers, they created checklists that are used in conjunction with the *DSM-5* checklist. For example, Participant 9 developed a checklist, which "looks at a variety of behaviors" and "helps to pull out behaviors that they may not even be aware that their child's exhibiting until it's actually asked of them." Clinical specialists benefit from using the *DSM-5* checklist or another one that is based on the *DSM-5* criteria. Using checklists ensures that they are assessing all areas of the *DSM-5* criteria and exploring other areas of concern that may further inform a clinical specialists' judgement about ASD in a toddler.

Collection of Additional Information From External Sources

Participants conveyed that they use information from external sources, such as peers and colleagues, clinical reports, and people who engage with the toddler on a regular basis when determining if a diagnosis of ASD is appropriate. When I asked participants to elaborate on why they use information from external sources, overwhelmingly the response was that in times of uncertainty they explore other data sources to better inform their decision and/or to get other professional feedback on the data that they have gathered as part of the diagnosis process.

Participants explained that often their uncertainty related to a potential diagnosis was based on not having enough information to support their clinical judgement of ASD in a toddler. When participants did not have enough information to make a decision, they requested feedback from peers or colleagues, clinical reports from other disciplines (e.g., psychiatrists, neurologists, etc.), or allied health professionals (e.g., speech-language pathologists) who may be able to provide a different perspective based on their experience and area of expertise. Participant 4 shared that he gets other perspectives because, “you know that expression, which side of the elephant are you looking at to make sure, make sure that I haven't missed anything.” Getting feedback and input from other sources aids clinical specialists in expanding their thoughts and considerations for possible conditions other than ASD.

Participants who practice developmental-behavioral pediatrics shared that because of the structure of their practice and time constraints, they may collect additional information by referring the toddler to a psychologist for a diagnostic assessment using formal assessment tools. For example, Participant 5 explained, "I'm probably gonna refer that child out, or I'm going to do the evaluation with a psychologist at the same time, so that they might administer those tools." Clinical specialist whose practice structure limits their abilities to administer an ASD diagnostic instrument to assess a toddler, benefit from having colleagues from other disciplines that they can refer patients to for assessments.

Participants also shared that they find it very helpful to collect information (e.g., conversations, questionnaires, assessments) from people who engage and interact with the toddler on a regular basis. Participant 2 explained, "it's really helpful like, if there is pre-K [prekindergarten], or some kind of daycare setting to talk to those kinds of providers, those kinds of teachers and things like that." Clinical specialists who diagnose ASD in toddlers may have the skill set to do an assessment, but the strength in their assessment comes from knowing when they need to include other sources of information to increase their confidence in diagnosing ASD in a toddler.

Theme 3: Factors Contributing to Diagnostic Uncertainty

Differential Diagnosis and Comorbid and/or Co-occurring Conditions

Participants explained that even though they are confident in their abilities to diagnose ASD in toddlers, differentiating ASD from other conditions, including comorbid and/or co-occurring conditions can be challenging and may contribute to diagnostic uncertainty and possible misdiagnosis. When I asked participants why differentiating ASD from other conditions was difficult, they explained that several conditions have the same symptoms, so they have to distinguish which condition could account for the challenges the toddler is experiencing (Stavropoulos et al., 2018). I asked participants if there are specific conditions that are challenging to differentiate from ASD and overwhelmingly, they expressed that global developmental delay, and genetic conditions can be difficult. Global developmental delay is defined as a toddler having significant delays in at least two or more developmental domains (Bélanger & Caron, 2018). Participants explained that a toddler may present with delays in areas that have features of ASD, global developmental delay, and genetic conditions (e.g., speech-language and social interaction) and they have to figure out if the toddler has ASD, one of the other conditions, or both. Participant 3 stated,

> So global developmental delays rather it be from like more genetic conditions or not it that that tends to be a hard distinction. Like what is part of the genetic disorder and what is autism. I don't think there's any great research out there helping us really distinguish, you know, what's kind of part and parcel of the genetic disorder, should we be making a dual diagnosis, even if it is like thinking about fragile X syndrome, where do those lines, where are those lines drawn, so that's hard.

Clinical specialists who suspect a toddler has ASD would benefit from ruling out other conditions that have similar symptoms before making a final diagnosis. Having a good understanding of potential comorbid or co-occurring conditions including the similarities and differences in presentation to ASD may support clinical specialist confidence.

Differentiating language and communication delays from ASD in toddlers was also noted by participants as being challenging. When I asked participants to explain the challenges associated with language and communication delays, they expressed that sometimes a toddler may have a language and communication delay that is not associated with ASD. Participants expressed that they refer the toddler to a speech-language pathologist for additional testing to inform their clinical judgement. Participants explained that language and communication can also be associated with a toddler experiencing trauma, which can make their condition even more difficult to differentiate from ASD. For example, Participant 2 stated,

> If the toddler is experiencing a lot of language stuff, you have to ask how much is trauma factoring in? That can be something that can sort of again, muddy the waters and be something that can just get confusing really quickly.

Clinical specialists would benefit from understanding the correlation between communication and language delays and trauma. Understanding the potential impacts and how a child presents who has experienced trauma may support the clinical specialists' confidence in differentiating conditions. Participant 10 explained that in her experience toddlers who have had trauma and have

> been in the foster care system, or they're adopted now, and they've got a history of exposure to neglect or abuse and other forms of that type of thing may look like they may be on the autism spectrum because of being nonverbal, you know, not wanting to interact with others.

Obtaining as much information as possible from the parent or caregiver about the toddlers' history, including environmental and traumatic experiences may support the clinical specialist in assessing if the child is nonverbal, or verbally delayed because of trauma or if a diagnosis of ASD may be appropriate.

Despite their best efforts, there are times when clinical specialists are uncertain if a toddler has ASD because symptoms associated may be due to other conditions. When I asked participants how they handle cases in which they are uncertain the toddler has ASD, they shared that they may give the toddler a provisional ASD diagnosis and reevaluate the child at a later date after the child is further along developmentally. Participants also explained that they are honest and transparent with parents about being uncertain if their toddler has ASD. Participant 8 explained, “I very much believe in being transparent in my thought process with parents.” Participants explained that they spend time with parents reviewing findings, providing support, and discussing next steps. Parents benefit from clinical specialist being open and honest about being uncertain about an ASD diagnosis in the toddler and providing clear information about how to address the delays they may be experiencing. This can be seen in Participant 12’s response:

> I feel like, whenever I'm uncertain, I usually tell parents like you know, like, there's a lot of diversity and like presentations and sometimes a lot of kids just don't fit into one box. But, like all our goal as parents is to get them all the tools they might need to be as successful as they wanna be. At this point the biggest vulnerabilities that I'm most concerned about are X, Y, and Z.

Potential for Misdiagnosis

Because there are a number of conditions that share symptomology with ASD in toddlers, clinical specialists shared that they are nervous about mistakenly giving a toddler a diagnosis that they do not really have. However, a clinical specialist may "err on the side of caution" and "over diagnose" instead of risking missing an ASD diagnosis which would mean the toddler would not get necessary interventions and services. On the other hand, if a diagnosis of ASD is given incorrectly, this could also result in a child not having the correct diagnosis and appropriate intervention and supports for that diagnosis. Clinical specialists who are uncertain of if a toddler definitely has ASD, and not another condition, may offer a provisional diagnosis as a short-term solution to ensure that the child can access early intervention services. When I asked participants to share their thoughts about giving a toddler a provisional diagnosis, their perspectives differed. Some indicated that if they are still uncertain if a diagnosis of ASD is appropriate, after getting additional information, and the toddler is exhibiting symptoms that align with ASD criteria, they may give the toddler a provisional ASD diagnosis and reevaluate after a period of time. Participant 10 explained that she tries her best

> to get as much as I can to be able to give the diagnosis, but there's just sometimes where I just, I just don't have enough to do it … whether its parents are not reporting, teachers are not reporting enough, I'm not seeing a lot of things. But at the same time this child is displaying some functional impairments that clearly need to be addressed. So that's when based on the type of services that you feel the child could benefit from, you go down the path of a provisional diagnosis, down the path of I guess you know those things that would help address those areas.

Clinical specialists sometime give a provisional diagnosis because they recognize the toddler has ASD characteristics that may not have fully emerged, but need to be addressed as early as possible, so it would be detrimental to the child to wait until a diagnosis is certain. Participant 3 explained that a provisional diagnosis is a “kind of marker for allowing us to do a reeval and we do it within a year to 18 months.”

Clinical specialists recognize the benefits and challenges associated with giving a toddler a provisional diagnosis. The intent is not to be careless in giving the diagnosis, but to support the toddler and family in addressing the immediate developmental concerns to improve their outcomes. Participants also noted that in some cases they will work on getting the toddler services and reevaluate but will not give a provisional ASD diagnosis. Participant 10 stated,

> If I am unsure, I don't give the diagnosis, and I will tell the parent. I feel like once you put a diagnosis like autism out into the atmosphere, it can be hard to take it back. So, if I'm unsure then I like to, you know, tread lightly with that and say, okay, this is gonna be our game plan. Based on what challenges your child has right now, in this moment it's not about diagnosis.

Participants all shared the same sentiment as Participant 5 that, “the ultimate goal is to try to find help for the children and families.”

Summary

The research question that underpinned this study was, What are clinical specialists’ perceptions about their abilities to make an early diagnosis of ASD in toddlers? The three themes that answered this question were (a) a variety of training and experiences better prepares clinical specialists to be able to make an early diagnosis of ASD in toddlers; (b) the ability to acquire information from multiple sources increases clinical specialists' confidence in making an early diagnosis; and (c) differential diagnosis, comorbid and co-occurring conditions, and the potential for misdiagnoses reduce clinical specialists' confidence in their abilities to make an early diagnosis of ASD in toddlers. In Chapter 5, I discuss the interpretation of the findings in relation to the theoretical foundation and literature review for all three of the themes, limitations of the study, recommendations, and implications of the study.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The purpose of this study was to understand clinical specialists' perceptions of their ability to make an early diagnosis of ASD in toddlers. The research question that guided the study was, What are clinical specialists' perceptions about their abilities to make an early diagnosis of ASD in toddlers? I conducted a generic qualitative research methodology, using semistructured interviews, to collect data for this study. My three primary themes that answer this research question are1) a variety of training and experiences better prepared clinical specialists to be able to make an early diagnosis of ASD in toddlers; 2) the ability to acquire information from multiple sources increases clinical specialists' confidence in making an early diagnosis; and 3) differential diagnosis, comorbid and co-occurring conditions, and the potential for misdiagnoses reduce clinical specialists' confidence in their abilities to make an early diagnosis of ASD in toddlers. I begin this chapter by interpreting the findings in relation to the theoretical foundation and the literature review. I also discuss the limitations of the study, offer recommendations, consider the implications of the study for practice and positive social change, and provide a conclusion for the study.

Interpretation of the Findings

Interpretation of Findings in Relation to the Theoretical Foundation

Theme 1: Varied Training and Experiences as a Confidence Builder

Preparation and Skill Development Through Training. Bandura (1997) identified four sources of self-efficacy: (a) enactive mastery (performance outcomes/feedback), (b) vicarious experience, (c) verbal or social persuasion, and (d) physiological. Each source contributes to a person's judgment of their abilities to perform a relevant task (Bandura, 1997). A persons' competency is based on skills and belief in their ability to complete a task (Bandura, 1988). Participants responses to questions I asked throughout the interviews, demonstrated that they felt confident in their skills and abilities to diagnose ASD in toddlers because of various trainings and experiences they received throughout their career. For example, Participant 11 explained,

> So, there's a lot of, the let's say nuance and make kind of the art of medicine in that, and that's probably all training and experience … the experience, working with kids, with autism and working with families of autism that has given me a lot of certainty.

By participating in a variety of trainings, the clinical specialists in my study gained knowledge and understanding of the types of diagnostic instruments/tools that can be used in assessing ASD in toddlers. Trainings and experience in administering different diagnostic instruments/tools also supported the participants' understanding of the pros and cons of each instrument, which increased their confidence in making a diagnosis.

A Strong Foundation in Child Development. Bandura (1977) stated that some circumstances require greater skills. This was evident in participant responses when they explained to me that one of the greatest skills needed in identifying developmental delays is having a good understanding of child development. For example, participant 10 stated that training on childhood development helped her understand "developmental differences in general, but also autism specific." Having knowledge about typical child development, as well as what the reasons behind a child's development may deviate from the norm, is a skill that develops over time and with more education and experience which both can affect self-efficacy in diagnostic situations.

Participants conveyed that receiving training in child development increased their understanding of typical development and strengthened their skills in identifying developmental delays in toddlers. Training in child development also aided participants in understanding the nuances of assessing typical development, such as knowing when skills should emerge and the frequency in which they should happen. For example, Participant P6 explained, "In typical development you have to really know what … how robust skills are very, very, early on … you have to understand that it's in frequency as much as it is in deficit and delay, that's a red flag for autism." Bandura identified mastery experiences as the most powerful source of self-efficacy (1977), which aligns with the clinical specialists in my study who successfully used their training in child development to identify typical and developmental delays in toddlers, which helped the participants feel more confident (self-efficacy) in their ability to do so.

Hands-On Experience and Expert Feedback. Vicarious experiences are one of the primary sources of influence on a person's beliefs about their ability to complete a task through providing opportunities to observe others performing a challenging task without experiencing adverse consequences (Bandura, 1977). Through vicarious experiences, the observer retains the steps and information based on their memory and cognitive review of what the expert modeled (Bandura, 1986). Participant responses indicated that vicarious experiences in their graduate and residency programs, such as their hands-on learning and opportunities to model what they learned from experts in the field, receive feedback, and make corrections, were critical in preparing them to diagnose ASD in toddlers and in their development of confidence in doing so. Participants expressed to me that receiving feedback and guidance in settings which allowed them to learn and grow from mistakes, reduced feelings of ineptitude and fear about their ability to make an early diagnosis of ASD. For example, Participant 10 shared,

> My clinical experience from my internship was probably the most rewarding and most helpful part of my clinical journey … it was the most rewarding and the most beneficial to my clinical career, I couldn't have better supervisors that hands-on experience that we got because I am a hands-on learner. The hands-on experience and the learning by doing with knowing you had the support in the scaffold of your supervisors really, really helps me to be comfortable and just diving into all thing’s autism and development and early development, and to be able to just learn and be open to accepting the constructive feedback, to make me even better when it came.

Clinicals specialist benefit from graduate and residency programs that provide vicarious experiences, such as hands-on learning with experts in the field, demonstrating and providing guidance on diagnosing ASD, and offering opportunities to achieve proficiency in learned skills. Participants often talked about how receiving feedback and encouragement from experts in the field about their skills and abilities to diagnose ASD increased their confidence, which aligns with the self-efficacy theory (Bandura, 1988).

The trainings and experiences also positively impacted physiological arousal participants experienced, such as stress and anxiety related to diagnosing ASD.

A Good Understanding of Various Diagnostic Instruments and Tools. Bandura (1971, 1976, 1977) stated that individuals develop behavior patterns that are refined through self-correction based on performance feedback. This aligns with the responses participants provided when I inquired about trainings they received on using diagnostic instruments/tools as a part of their assessment for ASD. Participants expressed that the diagnostic instruments/tools that were normed for toddlers were easy to use and consistently provided information needed to inform their clinical judgment in their responses. For example, Participant P9 stated, "I think it's important to use all of those tools, just because I want to see consistency." Clinical specialists' confidence in assessing ASD increases when they use diagnostic instruments/tools that reliably provides the information needed to support their clinical judgement.

When I asked participants about their confidence in diagnostic instruments/tools designed for toddlers, they explained that their confidence in using certain instruments/tools depended on the types of symptoms it can help you identify. For example, Participant 3 stated she feels more confident in assessing ASD when she uses the ADOS – Toddler Module because "it really does a pretty good job at trying to tease apart symptomatology." Participants noted that when they used diagnostic instruments/tools designed to identify different ASD symptoms or characteristics they experience increased confidence in their abilities to make an early diagnosis. This aligns with Bandura’s (1997) beliefs that successful experiences increase self-efficacy, and unsuccessful experiences have the opposite effect.

Participants also expressed that their confidence in using the instruments/tools was increased if the training included observation, modeling, and feedback. For example, Participant 2 expressed, “I feel like I've gotten the most experience just from like watching a lot of ADOS’s, doing a lot of ADOS’s, getting a lot of feedback on them.” The ADOS - Toddler Module allows parents/caregivers to be in the room during the assessment. Participant P3 shared that having the parent/caregiver in the room is helpful because “we can get a hand on all the behaviors that we're seeing or not seeing and start to get a better sense of are these symptoms” which increases confidence in making an ASD diagnosis.

Participants also indicated their confidence in using the diagnostic instruments/tools was increased by participating in trainings with experts and peers who diagnose ASD and receiving feedback and encouragement about their ability. For example, Participant 6 shared that receiving training on using various diagnostic instruments and feedback from experts in the autism field “really made me confident in conducting evaluations.” This aligns with Bandura’s (1977) belief that a strong source of verbal persuasion is when a person receives feedback and encouragement from someone, they feel is competent, credible, and experienced in judging the accomplishments of others.

Varied Experiences. Participants noted the value of a multi- or interdisciplinary team approach and clinical experience in increasing their confidence in diagnosing autism in toddlers.

Multi- or Interdisciplinary Team Approach. Through enactive mastery (performance outcomes/feedback), individuals develop behavior patterns by observing others, and these behaviors are refined through self-correction based on performance feedback (Bandura, 1971, 1976, 1977). Participants in my study indicated that enactive mastery was experienced through experiential trainings, such as case consultation, case conferences, and multidisciplinary team evaluations. These experiences allowed clinical specialists to receive feedback, hear other perspectives, and observe how colleagues from other disciplines assessed ASD in toddlers. Participants P1, P2, P3, P5, P6, P7, P8, P9 and P11 all noted that training and experiences that included collaborating with colleagues from other disciplines and hearing their perspectives strengthened their knowledge, understanding, and skills in assessing ASD in toddlers. For example, Participant 8 offered,

> watching and observing other people, and then having them do that back to me, right? So, lots and lots and lots of you know, I go in and do the evaluation on my side of things, and then the psychologist goes in and does their evaluation, and then we talk team and figure out like, here's what I saw, would you see? Oh, I saw this … this is what I thought. So, tons and tons of iterative collaboration is really where I got really good.

Through case consultation, case conferences, and multidisciplinary team evaluations clinical specialists had enactive mastery experiences (performance outcomes/feedback), that strengthened their skills and increased their confidence in diagnosing ASD in toddlers.

Clinical Experience. The more a person repeats a behavior, the more the behavior becomes automatic, which becomes mastery, and contributes to self-efficacy (Bandura, 1994). Participants explained that multiple years of experience diagnosing ASD in toddlers led to increased confidence in their abilities to make an early diagnosis. Participants expressed that their confidence has increased because throughout the years their skills and understanding of ASD have improved through repetition and seeing variations of symptoms in toddlers. For example, Participant 10 noted that she has "learned more and more over the years and have gotten better with diagnosing and using the assessment measures to help support my conclusions." The participants knowledge, skills, and abilities to diagnose ASD improved over time due to successful repetition of the behavior, which ultimately increased their confidence in making an early diagnosis.

Years of experience diagnosing ASD in toddlers increased the participants' confidence in using a diagnostic processes and instruments/tools that consistently provided information needed to support their clinical judgment. For example, Participant 6 explained that she uses a "standard battery" of test for an infant/toddler because she feels they provide the information needed to make a clinical decision. These examples illustrate that confidence can increase if a clinician has the opportunity to engage in the activities, and with the tools, necessary to diagnose ASD in toddlers repetitively over time**.**

Theme 2: Multiple Sources of Information as a Confidence Builder

Multifaceted Diagnostic Process. Performance-based procedures are activities that enables a person to believe in their ability to execute behaviors necessary to attain specific outcomes (Bandura, 1977). Bandura (1977) noted that performance-based procedures have the most powerful effect on psychological change in a person. There is a relationship between previous performance outcomes and a person's ability, goal setting, and strategy for completing a similar task in the future (Locke et al., 1984). Throughout my interviews, it was evident that participants' strategy for assessing ASD in toddlers was based on ensuring that they consistently used the same diagnostic process each time they conducted an assessment. For example, Participant 9 explained that process is

> doing our own observations in, you know, interacting with the child, asking the child questions, depending on the age of the child. If it's the toddler, getting down on the floor, playing with the child. You know, just observing some things. And then reviewing records.

The participant's diagnostic process was structured so that each assessment included the collection information about the toddler through four primary sources: (a) observations of the toddler, (b) administration of an ASD diagnostic instrument; (c) interviews with the parent about the toddler's developmental history; and (d) use of a checklist that includes *DSM-5* criteria.

Collection of Additional Information From External Sources. Participants expressed that there were times when the data collected through multiple sources did not yield enough information for them to be confident in providing an ASD diagnosis. For example, Participant 8, shared that “10% of the time I feel like I'm not confident in what I'm thinking, and I need to go back and get more information.” When I asked what happens if they do not have enough information to make a diagnosis, participants explained that their process would be to collect additional information from external sources (e.g., childcare providers, family members, peers, and clinical specialists from other disciplines) to inform their clinical judgement. Participant 5 expressed that when she

> wasn't certain that they had autism or wanted more information before making that diagnosis. Then I would refer them to a psychologist probably to get an idea of cognitive IQ testing, you know, cognitive level as well as you know, administering an ADOS or something similar.

This adjustment in participants knowing that collecting additional information is necessary aligns with Bandura’s (1977) premise on enactive mastery. Enactive mastery indicates if a person perceives a discrepancy between their standard and performance they will be dissatisfied and motivated to make a correction (Bandura, 1977) so that they are confident in their performance on a task.

Theme 3: Factors Contributing to Diagnostic Uncertainty

Differential Diagnosis and Comorbid and/or Co-occurring Conditions. Bandura (1977) described physiological arousal as having anxiety and vulnerability to stress related to completing a task. He further stated that a person could have feelings of ineptitude when challenged, which could create fear about their ability to complete a task and diminish self-efficacy. I saw evidence of this in statements when participants discussed challenges they experience when they are faced with differentiating diagnosis from ASD. For example, Participant 12 shared,

> The biggest thing, I think whenever you're thinking about autism in toddlers really is like and the trickiest part is like when we have a significant like, also medical disorder or genetic impact or it's like a genetic question, right? I think whenever kid is really young, and they also have a possibility for a genetic disorder that we know has like some things that are different. Like some genetic disorders are associated with a restricted range of affects. So, you're kind of like kind of like, is this autism … and so, like genetic disorders can be rare so it's harder to understand the phenotype, but even then, I think this is kind of like putting all the pieces together … Is this phenotype matching with what we know about autism, like that sort of thing. So, genetic overlap really makes it a little bit challenging I feel like for younger kids.

Differentiating diagnosis can be challenging (physiological arousal) for the participants if the child presents with symptoms that share characteristics of ASD, such as a genetic condition. Co-morbid or co-occurring conditions can also create uncertainty (physiological arousal) for the clinical specialists in my study. For example, Participant 10 explained,

> I also have a trauma background, so I also have people who refer to me because a child has had, you know, they've been in the foster care system, or they're adopted now, and they've got a history of exposure to neglect or abuse, and other forms of that type of thing. And so, we have situations with kids who they may look like they may be on the autism spectrum because of being nonverbal, being you know, not wanting to interact with others. But then you gotta think about their history in the environment that they came from, where there was neglect. They were, you know, left in a home by themselves for days or hours at a time with no food, no one around and so developmentally they hadn't been stimulated to be able to start developing the way they should be.

Clinical specialists who are aware a toddler has comorbid or co-occurring conditions (e.g., trauma, health, genetics etc.) may find that they are less confident in diagnosing ASD in toddlers when symptoms that the child is exhibiting may be related to ASD and/or the other condition. Clinical specialists' knowledge, skills, and experience can increase their ability to make a clinical judgement about an ASD diagnosis when another condition is present if they have had more opportunities to diagnose ASD in toddlers when they have comorbid/co-occurring conditions if they have been successful in the ASD diagnostic process in the past despite these confounding factors.

Potential for Misdiagnosis. Anxiety that one may make an incorrect decision, or action has the potential to result in someone feeling less confident in their actions. This aligns with physiological arousal, in which a person's judgment about their ability to perform a task may be rooted in fear of making a mistake or failure (Bandura, 1977). For example, Participant 8 shared,

> I don't wanna make the wrong diagnosis and I think that's an example of appropriate confidence, right? So, it's not like I'm gonna just, my goal in life is to try to have enough humility that I'm not missing things in either direction. So even though I feel very good about my skills. I'm basing that off of that I feel like I have a good amount of respect for the additional information I may or may not have.

Participants expressed that they feel confident in their abilities to diagnose ASD, and they never want to misdiagnose a toddler, but the reality is that it can happen and so they are cognizant of that possibility.

Self-efficacy theory indicates a person who believes in their competence is more likely to respond correctly to different conditions, be proactive, and be persistent (Lisbona et al., 2018). When they have had opportunities to correctly act in these types of situations it can result in an increase in their confidence that they will respond correctly in the future (Bandura, 1977). However, despite feeling confident in their abilities to make an early diagnosis of ASD, there are times when a clinical specialists may not have all the information needed to confidently make the diagnosis. Since there is no formal test to diagnose ASD, clinical specialists must rely on their knowledge, skills, experience, diagnostic instruments/tools, and external sources to support their clinical judgement (McCarty & Frye, 2020).

Interpretation of Findings in Relation to the Literature Review

Theme 1: Varied Training and Experiences as a Confidence Builder

Preparation and Skill Development Through Training. According to participants, a strong foundation in child development, hands-on experience and feedback and experts, and a good understanding of various diagnostic instruments and tools boosted participants' confidence in their ability to correctly diagnosis autism in toddlers.

A Strong Foundation ***in Child Development.*** Previous researchers have indicated that children who screen positive for ASD should be referred to an experienced clinical specialist for a comprehensive ASD assessment and conclusive diagnosis as they have both the training and experience related to understand child development (Hodges et al., 2020; Jennings Dunlap, 2019; Sanchack & Thomas, 2016). Training in child development increases clinicians' understanding of what a child should be doing at their age and to identify if a toddler was experiencing delay in those developmental milestones (Scharf et. Al., 2016). This was seen in the information shared by participants in my study who expressed that that their training in child development was an important foundation of the education that they received in their field and something that they continue to engage in. For example, Participant 3 explained how training in child development has helped her:

> And then when we are looking for, you know that, that deviation from their developmental level with regard to social skills, you know when they're two and maybe their developmental like mental age kind of stuff is more like an 18-

month-old that gap is much smaller that we're trying to discern more than school age.

Participants expressed that receiving training in child development gave them the tools needed to identify if a child is meeting developmental milestones or if skills are absent or delayed. This supports what I found in the literature where researchers found that clinical specialists who are trained in child development are better equipped than those with limited understanding of developmental milestones to perform a comprehensive assessment and identify areas of delay (American Academy of Pediatrics, 2022; Weitzman, 2022).

***Hands-On Experience and Feedback From Experts*.** Receiving feedback from others while doing the job has been found by previous researchers as a positive learning experience for clinical specialists (Cinci, 2017; Kinskey, 2018; Kinskey & Callahan, 2022). This is in alignment with what I found from my participants who received training that included experiential learning with feedback. They indicated that the experience made them feel more confident in their ability to diagnose ASD. My participants shared that the training in their graduate and residency programs was "heavy in hands-on experience." For example, Participant 12 expressed, "So I had a lot of like hands-on experience … So, I feel like that kind of like, like real world supervision of me actually doing it."

My participants explained that a key aspect of their experience was that the graduate and residency programs were structured so students could perform a high number of ASD assessments each week to gain valuable experience. As an example, Participant 6 shared that “the most helpful thing in my experience has been just like doing a bunch of evaluations and getting a sense of like different differential diagnosis.” Participants also indicated that doing a high number of ASD evaluation and receiving feedback from the instructor in “real-time” allowed them to learn and adjust their methods based on the information received. Participant 5 explained how she benefited from performing ASD assessments during her fellowship:

> I think it was my fellowship, you know, and just having practice and seeing a lot of children that presented in different ways. And you know I had 3 years of working with experts in the field. So, I could learn from them and then applied the skills.

My findings supported the literature that indicated that clinical specialists are better prepared and more confident in their abilities to make an early diagnosis of ASD if they have attended graduate and residency programs that include regular hands-on training and experience performing ASD assessments, receiving feedback, guidance, and support (Cinci, 2017; Kinskey, 2018; Kinskey & Callahan, 2022).

A Good Understanding of Various Diagnostic Instruments and Tools. Participants in my study discussed the importance of receiving training on various ASD diagnostic instruments so they could understand the pros and cons of using them during an assessment. This aligned with findings from researchers who denoted that conducting an ASD assessment and feeling certain about a diagnosis are complex processes for a clinical specialist that involves using various diagnostic tools to support decision-making (McDonnell et al., 2019). Participants in my study indicated that training on various diagnostic instruments/tools helped them understand the ways they could be used to identify delays and become more confident. For example, Participant 11 shared that the diagnostic instruments /tools gave him "clever ideas" to help with the assessment. Participants also shared understanding the strengths and weaknesses of the diagnostic instruments/tools increases their confidence in assessing if a toddler is experiencing a delay in an area or not. Participant 9 explained that she uses ADOS because

> It is very specific to certain symptoms and behaviors that we're looking for, and so the actual toys that are chosen are all chosen for a reason. And so, when it pulls out sensory processing issues, it pulls out repetitive behaviors. It looks at how they engage with the examiner. It looks at their joint attention, their shared enjoyment looks at how they transition between different activities. It looks at, I think already, said censoring repetitive behaviors. It looks at eye contact. It looks at whether or not they respond to their name. Whether or not we see any toe walking. So, it looks at a lot of behaviors and some of those things I don't necessarily see it intake. And so, I think it's just helpful, helpful information.

Diagnostic instruments/tools can be valuable resources for clinical specialists if they are knowledgeable about how to use them and the type of symptoms and behaviors, they can assist in assessing. Due to the complexity of ASD, clinical specialists may benefit from receiving training on various diagnostic instruments/tools to support their knowledge and skill set (Brian et al., 2019; Kamp-Becker et al., 2018).

Varied Experiences. A multi- or interdisciplinary team approach and clinical experience were helpful in increasing participants' confidence in their ability to correctly diagnose autism in toddlers, data analysis showed.

Multi- or Interdisciplinary Team Approach. Researchers indicated that best practices for substantiating, or ruling out, ASD should be an MDT approach (Brian et al., 2019; Hayes et al., 2018; Penner et al., 2018). Multi- or interdisciplinary evaluations are beneficial for evaluating and diagnosing ASD because it provides clinical specialist the opportunity to hear the perspectives of their peers and consider conditions other than ASD that may be the cause of or contributing to the developmental delay and/or behaviors (Brian et al., 2019). It is recommended that the team should include a clinical specialist (clinical child psychologist, developmental-behavioral pediatrician, child and adolescent psychiatrist, and child neurologist) trained to diagnose ASD (Brian et al., 2019; Hayes et al., 2018; Penner et al., 2018), as well as allied health professionals, such as speech-language pathologists and occupational therapists (Hansen et al., 2016; Yates & Le Couteur, 2016).

Participants in the current study stated they were trained to use a team approach and established that it was ideal for assessing and diagnosing ASD in toddlers. For example, Participant 5 shared, "Experience and being with people of different professions and making that diagnosis together is probably the ideal way to do that because it brings in different perspectives." Participant 8 also noted that they "did a lot of interdisciplinary diagnostic evaluations with psychology, speech therapy, and would spend lots of time with the other disciplines, watching and learning what they do and how they do it."

Clinical specialists benefit from engaging, collaborating, and learning from peers or clinicians from other disciplines in conducting assessments because it helps to ensure they are considering other conditions that share characteristics with ASD before making a final diagnosis (Brian et al., 2019; Hayes et al., 2018; Penner et al., 2018).

Clinical Experience. The views shared by the participants in my study, supported researcher premises that that experienced clinicians may be more confident in providing a diagnosis with limited information (Rutherford et al., 2018). For example, Participant 11 shared how experience has helped him in conducting assessments:

> The experience probably factors the most into understanding both the semistructured history, of what is autism. Like, what are the ways that parents talk about that? How do families describe their child? Maybe they do or they don't know that the kid has autism, and they're seeing me, but they certainly know their child quite well, and they can tell me what's going on. And then how do I, how do I use what they're telling me to lead them along to, what do we need to do next? And so, there's a lot of, the let's say nuance and make kind of the art of medicine in that, and that's probably all training and experience.

Experienced clinical specialists can filter and use the information shared by parents to assess if it aligns with the characteristics and meets the *DSM-5* criteria for ASD.

Children who screen positive for ASD should be referred to an experienced clinical specialist for a comprehensive ASD assessment and conclusive diagnosis (Hodges et al., 2020; Hyman et al., 2020; Jennings Dunlap, 2019; Sanchack & Thomas, 2016). As noted by researchers, a clinical specialist who has experience and clinical judgment could diagnose ASD in a child accurately using the *DSM-5* criteria and diagnostic instruments appropriately (Brian et al., 2019; Kaufman, 2020). Participants in my study provided information aligned with previous findings that experienced clinical specialist can assess and diagnose ASD in young children. For example, Participant 9 stated,

> I think my experience and my exposure to the ASD population … I've been doing it a long time, and I think you know, if you compare, when I started to where I am now, in terms of my understanding and the symptoms and what it looks like and how it changes over time, I would say I'm, I'm much more skilled, and I think that just has to do with experience.

Participant 10 also noted that experience diagnosing ASD has helped her:

> I feel like, the more I've done this work over the years, the more that I've learned just from working with kids and just seeing their behaviors. … That is where I have learned more and more over the years and have gotten better with diagnosing and using the assessment measures to help support my conclusions.

Participants in my study stated that their confidence in diagnosing autism comes from having many years of experience. For example, when I asked Participant 4 to describe his overall confidence in diagnosing ASD in toddlers, he stated, “I mean, if you asked me this question 30 years ago, I would say I had very little confidence. But now I feel like, what’s that expression? “I have been around the block a few times. It is much better than it was.” The participants were clear that compared to early in their careers, their confidence in diagnosing ASD in toddlers has increased, because they have had years of experience assessing and diagnosing ASD in young children. The more experience a clinical specialist has engaging, assessing, and diagnosing ASD, the more confident they become in their abilities (Gibbs et al., 2019; Rutherford et al., 2018).

Theme 2: Multiple Sources of Information as a Confidence Builder

Multifaceted Diagnostic Process. Throughout my interviews, participants explained that their diagnostic process is designed to allow them to collect as much information as possible from a variety of sources to inform their clinical decision about a possible ASD diagnosis. When I asked participants about the types of information used in their diagnostic process, they shared that toddler observations, ASD diagnostic instruments/tools, parent interviews, and checklists inform their clinical decision. The information from my participants aligned with previous study findings that emphasized the importance of clinicians using the *DSM-5* criteria in conjunction with interviewing the parent for a complete developmental history, observing the child for ASD symptoms, interacting with the child, and conducting an evaluation using various ASD diagnostic instruments/tools (APA, 2013; Juárez et al., 2018; Sanchack & Thomas, 2016). Researchers also noted that after collecting and analyzing data, the clinical specialist should use the *DSM-5* checklist to ascertain if the toddler presented with symptoms that meet ASD criteria (APA, 2013; Wiggins et al., 2019), which aligned with my results. Participant 8 explained that her diagnostic process includes

> getting a good history of the child's development from the parent - help parent in not over or under reporting, gain understanding through observations of the child - ask questions for clarification between what is being reported and observed

> (e.g., questions about eye contact) … but the skill is in really trying to make sure that I'm getting the history in a as unbiased away as I can so that I can clearly delineate whether this kiddo has characteristics of autism that meet *DSM-5* criteria or not.

The ASD diagnostic process involves collecting and making sense of the data to determine if a toddler has ASD or another condition (Turowetz & Maynard, 2018; Wiggins et al., 2019). Participant 4 described the diagnostic process as follows:

> You're weaving a tapestry. It's not just you have this lane of the child that's language, and this lane of a child that's social, and this lane that's communication, and this lane that is anxiety. They are woven together and if they make the tapestry in that way, that child has a diagnosis of autism.

Utilizing information from various sources can provide different aspects of a toddler's development. Information collected during the diagnostic process and is key to helping the clinical specialist understand the developmental history, existing challenges or concerns, and determining if the toddlers' symptoms or characteristics meet the established criteria for ASD as outlined on the *DSM-5* checklist (APA, 2013; Wiggins et al., 2019).

Collection of Additional Information From External Sources. Researchers determined that even clinical specialists with expertise in ASD may experience diagnostic uncertainty (McDonnell et al., 2019), which findings from my study support. The participants in my study explained that when the data collected does not provide enough information, they seek additional information from other external sources. When

I asked participants to elaborate on the types of external sources they utilized, they shared that they may request an assessment by a professional from a peer, another clinical specialist, or allied health professional (e.g., speech language pathologists). For example, Participant 5 explained,

> If I, I was seeing a child under the age of 3, and I wasn't certain that they had autism or wanted more information before making that diagnosis. Then I would refer them to a psychologist, probably to get an idea of cognitive IQ testing, you know, cognitive level as well as you know, administering an ADOS or something similar.

The participants in my study indicated that they found value in getting the perspective of peers and clinicians from other disciplines as described in a multi- or interdisciplinary team approach. Participants also noted that they request reports from allied health workers (e.g., speech language pathologists), early interventionist, and interview family members and childcare providers who may be able to provide additional information about the child. Participant 9 shared, that she

> gives the teacher rating scale to get information from teachers on how the toddler engages and behaves in the daycare/classroom setting - another piece of information - believes more psychologists should utilize input from daycare provider/teacher.

The participants in my study provided information that indicated that they do not take making an ASD diagnosis lightly and want to ensure they have enough relevant information to assess if the toddler does or does not have autism. Clinical specialists can be more confident in making an ASD diagnosis in a toddler if they have taken extra steps to collect information from various sources to inform their clinical decisions (Juárez et al., 2018; McDonnell et al., 2019; Sanchack & Thomas, 2016).

Theme 3: Factors Contributing to Diagnostic Uncertainty

Differential Diagnosis and Comorbid and/or Co-occurring Conditions. Previous researchers posited that the complexity of the ASD diagnostic process requires a clinical specialist to know and understand differentiating disorders that may have similar symptomology (Turowetz & Maynard, 2018; Wiggins et al., 2019). Comorbid or co-occurring conditions, which are commonly associated with ASD increases the need for a clinical specialist to be aware of, evaluate, and differentiate ASD from other conditions (Alam et al., 2017; Hodges et al., 2020; Thurm et al., 2019; Supekar et al., 2017; Young et al., 2018). Clinical specialists may experience challenges attributing symptoms to one specific diagnosis when there is an overlap between two conditions (Stavropoulos et al., 2018). Researchers indicated that when a clinical specialist diagnoses a child with developmental disabilities that has a more obvious condition, such as a learning disorder, due to overlapping symptoms for some disorders, it is considered diagnostic overshadowing (Duvall et al., 2021).

Participants in this study discussed concerns and challenges they encountered differentiating ASD from another diagnosis. The participants did not specifically use the term ‘diagnostic overshadowing’, but they did indicate if there are co-morbid or co-occurring conditions, their assessment involves determining which condition is contributing to the challenges the toddler may be experiencing. For example, Participant

10 explained the difficulty she encountered in diagnosing a toddler who had experienced trauma and is nonverbal:

> They've been in the foster care system, or they're adopted now, and they've got a history of exposure to neglect or abuse, and other forms of that type of thing. And so, we have situations with kids who they may look like they may be on the autism spectrum because of being nonverbal, being you know, not wanting to interact with others. But then you gotta think about their history in the environment that they came from, where there was neglect. They were, you know, left in a home by themselves for days or hours at a time with no food, no one around and so developmentally they hadn't been stimulated to be able to start developing the way they should be.

Clinical specialists must be able to differentiate diagnoses and determine if another condition is more dominate, which can be difficult when the toddler presents with symptoms and characteristics that are similar to other conditions (Wang et al., 2018). Another area that participants noted may be challenging is when a toddler has co-morbid or co-occurring conditions, such as a genetic condition. Participant 3 explained,

> Like, what is part of the genetic disorder and what is autism? I don't think there's any great research out there helping us really distinguish, you know, what's kind of part and parcel of the genetic disorder, should we be making a dual diagnosis, even if it is like thinking about fragile X syndrome, where do those lines, where are those lines drawn, so that's hard.

Differentiating diagnosis and determining which condition is the most prevalent and creating the most challenges for the toddler adds another area of complexity to the ASD diagnostic process and clinical specialists must consider various factors and have a good understanding of the types of conditions that share symptoms or characteristics as ASD (Hodges et al., 2020; Thurm et al., 2019; Supekar et al., 2017; Young et al., 2018). A clinical specialists' knowledge, understanding, and experience diagnosing ASD are also factored into their clinical judgment.

Potential for Misdiagnosis. Comorbid and/or co-occurring conditions and milder symptoms contribute to a high rate of children receiving a late or misdiagnosis (Gibbs et al., 2019; Kentrou et al., 2019). The participants in my study provided information that aligns with previous researchers that comorbid or co-occurring conditions, and milder symptoms have played a role in them misdiagnosing ASD but noted that there are other causes of misdiagnosis. This suggests causes of misdiagnosis include, but are not limited to, low scores on ASD diagnostic instruments, challenges in differentiating diagnosis, and changes in diagnostic criteria (Fusar-Poli et al., 2020; Gibbs et al., 2019; Jayanath & Ozonoff, 2020; Jure et al., 2016; Kamp-Becker et al., 2018; Ward et al., 2016). The participants in my study did not indicate that changes in diagnostic criteria contributed to them misdiagnosing the ASD. However, participants did stress that they rely on the data collected during the assessment to inform their clinical judgment. Sometimes the scores may not adequately reflect the toddlers' level of functioning, leading to a misdiagnosis. For example, Participant 9 explained,

> We go with what the data suggests, we collect a lot of information and if the data is all suggesting that there's a high likelihood that it's ASD, then that's what I'm going to go with. I'm going to go with what the data telling me. I will tell parents, is it possible that for me to get it wrong? Absolutely, I would never, never tell you that I'm always right.

With the absence of a validated blood test to confirm an ASD diagnosis, clinical specialist must utilize the data collected through their diagnostic process to inform their clinical judgement (McCarty & Frye, 2020). Participants in my study were confident in their abilities to diagnose ASD in toddlers but acknowledged that they have misdiagnosed the condition despite their best efforts. For example, Participant 7 expressed,

> I don't want you to think I don't make mistakes. I do continue to make mistakes, and they are all mistakes of omission than commission, but I'm willing to learn. I'm willing to recognize mistakes … We have to kind of say, all right. So, I made a mistake. So, I did this wrong. Now, what can I do to not do it again.

Diagnosing ASD in toddlers is not an exact science, and mistakes can happen (Wiggins et. al., 2019). The participants in my study demonstrated that they do their best to get the diagnosis right the first time. Even though a clinical specialist has the knowledge, understanding, and experience diagnosing ASD in toddlers, there is always potential for error.

Limitations of the Study

This study had limitations that could affect generalizability of the results. The first limitation was that the sample of participants was homogeneous. While I used convenience sampling to target clinical specialists (e.g., clinical child psychologists, developmental-behavioral pediatricians, child and adolescent psychiatrists, or child neurologists) who have experience diagnosing ASD in toddlers, the 12 participants were equally split between two types of clinical specialists (clinical child psychologists and developmental-behavioral pediatricians). None of the participants were child and adolescent psychiatrists or child neurologists, which are the other types of clinical specialists included in the population of interest (Hyman et al., 2020). This could limit the generalizability of the study results as the two sets of participants (clinical specialists and developmental-behavioral pediatricians) may have been more like each other than different. As a result, the themes could be specific to the experiences of the two types of clinical specialists rather than the experiences and perceptions of the broader heterogeneous population of clinical specialists (Vasileiou et al., 2018) who diagnose ASD in toddlers.

Second, the sample size was small, which is typical in qualitative research studies. Although the sample size was small, it was within the anticipated range to reach saturation in a homogeneous population (Hennink & Kaiser, 2022). To increase the generalizability of the results, I ensured that I reached saturation before ending my data collection. The third potential limitation was related to the truthfulness and amount of information participants provided during interviews. The amount and accuracy, of information participants provided in response to interview questions may have impacted my understanding the phenomenon (Patton, 1990, 2014). To reduce the effects of the limitation, I used prompts in an effort to allow participants to clarify or expound on their responses based on qualitative research suggestions that authors have suggested (Frankfort-Nachmias & Nachmais, 2008).

The final limitation comes from my personal and professional experiences, beliefs, and perspective as a parent of two adults with ASD. This could have created unconscious biases and influenced data analysis, which is a limitation in qualitative research that has been pointed out by authors (Goodell et al., 2016; Råheim et al., 2016; Simon & Goes, 2013). To address this potential bias, I used strategies such as reflexivity, which involved engaging in self-reflection of my biases, beliefs, and values (Råheim et al., 2016; Urban & van Eden-Moorefield, 2018).

Recommendations

Due to the limitation of having a homogenous sample, I recommend future researchers conduct similar studies with a larger, heterogeneous sample that includes other clinical specialists (e.g., child and adolescent psychiatrists or child neurologists). It is hoped that all types of clinical specialists who diagnose ASD in toddlers can be included to determine if the themes that were found in this study are shared or only represent the types of clinician specialists that participated in my study.

I also recommend future researchers to further delve into the topic of what clinical specialists do, their confidence in their diagnosis, and what they recommend be done as follow-up with children when they are uncertain an ASD diagnosis should be assigned to a toddler after completing their diagnostic process. Participants in my study shared that sometimes they are uncertain ASD is the appropriate diagnosis, yet they understand that failure to receive a timely diagnosis might result in the toddler not receiving a clinical referral for appropriate early intervention services for symptoms associated with the condition based on literature in the field (Becerra-Culqui et al., 2018; Juárez et al., 2018; Kentrou et al., 2019; Myers et al., 2019; Zhang & Han, 2020). Future researchers could provide valuable information about factors that may contribute to an increase in accurate autism diagnoses.

Implications

Implications for Practice

Findings from my study may provide insight into the types of experiences that may support clinical specialists in diagnosing ASD in toddlers. Best practices indicate that early diagnosis of ASD may help toddlers receive appropriate early intervention services and supports that meet their needs (Hyman et al., 2020). I hope that the results of my study could inform the need for, and content of, specialized training and experiences for clinical specialists to support their efforts and confidence in diagnosing ASD in toddlers, such as child development to help strengthen clinical specialists' skills in identifying developmental delays. I hope this study highlights the importance of graduate and residency programs providing frequent opportunities for clinical specialists to gain hands-on experience with feedback from experts in the field, to strengthen their skills, knowledge, and understanding of assessing ASD.

Another, I hope that the study illustrates the importance of opportunities to use a multi- or interdisciplinary approach in assessing ASD so that clinicians can learn from peers and clinicians from other disciplines. Furthermore, the study might underline the importance of clinical specialists having a diagnostic process that includes observations, ASD diagnostic instruments/tools, parent interviews, *DSM-5* checklist, and strategies for collecting additional information from other sources if they need more information to inform their clinical decision. My hope also is that the findings better inform leaders of state, community, federal, and public health agencies about the types of investments that are needed in graduate and residency programs to strengthen the workforce and increase capacity of clinical specialists who are confident in their abilities to make an early diagnosis of ASD.

Implications for Positive Social Change

The findings from this study have the potential to positively impact social change because it may help to inform training programs for clinical specialists. This includes information about the about the experiences that should be included to build the capacity and strengthen the workforce of clinical specialist who are confident in their abilities to render an early diagnosis of ASD. Financial investments in graduate and residency programs to support the clinical specialist workforce is an investment in getting children diagnosed and referred to services before 4.6 years which is when children are often diagnosed (Baio et al., 2018; Bent et al., 2020; Christensen et al., 2019; Maenner et al., 2020). By investing in graduate and residency programs, the profession, educational institutions, and the government could help to ensure that clinical specialist receive trainings and experiences that support their skills, knowledge, and confidence in diagnosing ASD upon completion of their program.

Toddlers with ASD who do not receive timely and proper early interventions may experience long-term challenges in academics and social situations and they may develop behavioral challenges, such as self-injury and aggression, as coping mechanisms (Kasilingam et al., 2021). Conversely, toddlers who receive an early diagnosis of autism by a clinical specialist are more likely to receive the appropriate early intervention services and supports that meet their needs (Hyman et al., 2020). By having more specified and in-depth training and experiences with diagnosing ASD in toddlers, clinical specialists who have the skills, training, and confidence to make an early diagnosis of ASD could support children in receiving referrals to an early intervention program, to address their needs.

Human and social service professionals could also use the information to advocate for changes in laws, licensing, and practice to support the workforce of clinical specialists who diagnose ASD in toddlers. Study results could also be shared by professionals who work with families to provide them a better understanding of the types of trainings, experiences, and skill sets that contribute to clinical specialists' confidence in diagnosing ASD in a toddler. While this study is limited in its potential outreach to families, it is reasonable to expect that some parents may understand that a clinical specialists' perceptions about their abilities to make an early diagnosis of ASD might factor into their decision-making and clinical judgment.

Conclusion

Clinical specialists are qualified to make an early diagnosis of ASD, research shows (Bent et al., 2020; Hayes et al., 2021; Richard et al., 2019), yet these providers can struggle with feelings of uncertainty about their final clinical decision of an ASD diagnosis in toddlers (Gibbs et al., 2019; Hedley et al., 2016; Ward et al., 2016). The purpose of my study was to understand clinical specialists' perceptions of their ability to make an early diagnosis of ASD in toddlers. The three themes that answered the research question were that (a) a variety of training and experiences better prepares clinical specialists to be able to make an early diagnosis of ASD in toddlers; (b) the ability to acquire information from multiple sources increases clinical specialists' confidence in making an early diagnosis; and (c) differential diagnosis, comorbid and co-occurring conditions, and the potential for misdiagnoses reduce clinical specialists' confidence in their abilities to make an early diagnosis of ASD in toddlers. The types of trainings and experiences clinical specialists received in graduate and residency programs were foundational in helping them to learn, grow, make mistakes, receive needed feedback, and support from experts in the field.

I recommend that graduate and residency programs should include frequent hands-on experience performing ASD assessments with children of a variety of ages. The programs should also include multi- or interdisciplinary team approach experiences to help develop clinical specialists' skills so they can learn and hear the perspectives of other disciplines and expand their knowledge and understanding of comorbid or co-occurring conditions that may contribute to a delay. A clinical specialist should have a good understanding of the pros and cons of the various ASD diagnostic instruments/tools that are available for toddlers to ensure they are using the most appropriate tool for assessing areas of potential delay.

Having a plethora of clinical experience assessing and diagnosing ASD in toddlers contributes significantly to a clinical specialists' confidence in diagnosing toddlers. Through their clinical experience, clinical specialists develop a greater understanding of the various presentations of ASD in toddlers. They also develop diagnostic processes that have been vetted and include information from various sources (e.g., observations, interviewing parents, administering ASD diagnostic instruments/tools, and collecting information from external sources) to support their clinical judgement. Clinical specialists develop a recognition that the diagnostic process is complex, and despite their best efforts, there is always the potential for them to misdiagnose ASD in a young child. Even in a misdiagnosis, the clinical specialists' ultimate goal is to address the developmental concerns the child is experiencing by getting them enrolled in early intervention services to improve their outcomes.

Therefore, it is important that a clinical specialist be able to work with multidisciplinary teams, and a variety of tools and data, to ensure that their diagnosis is as accurate as possible. It is also important for clinical specialists to understand that their diagnosis may not be completely accurate due to comorbid and co-occurring conditions. The clinical specialists should be willing to gather more information and consult with others to help with the accuracy of their diagnosis so that a child gets the support and services that they need as soon as they can to prevent the development of other negative behaviors and issues that would need to be addressed later.

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Appendix A: Interview Protocol

Date of Interview: ____

Time AM/PM: ____

Medium: (*Zoom, Microsoft TEAMS, Google Meet, or Phone*): ____________________

Participant Code #: ____

Interview Steps and Script

Steps	Script and Interview Questions
Greeting & Information	Hi (*Participant Name*). Thank you for agreeing to participate in the study. I recognize that you are really busy and appreciate your willingness to participate. Before we move into the interview, I want to share some information. *Role, Purpose & Time*: As I shared in the email, I sent you; I am a doctoral student at Walden University. I am conducting research on clinical specialists' who diagnose autism in toddlers. For the purpose of this study, clinical specialists are defined as clinical child psychologists, developmental-behavioral pediatricians, child and adolescent psychiatrists, or child neurologists trained and experienced in providing a comprehensive assessment and diagnosis of autism spectrum disorder. A toddler is defined as a child age three (3) or younger. The purpose of today's interview is to gain insight into your perceptions of your abilities to diagnose autism in toddlers. The interview is expected to last one hour. I will be using a timer to assist in gauging our time. *Voluntary*: Your participation in this study is strictly voluntary. You may discontinue your participation in the interview or study at any time. If you would like to discontinue the interview, just let me know and we will stop. If you would like to discontinue your participation in the study, you will need to send me an email stating that you no longer want to be included in the study. You may also decline to answer any question during this interview. *Confidentiality*: Please know that your participation in this study will be kept confidential. Any information you share will be coded so that it cannot be used to identify or connect you to this study. You will

	remain anonymous in any presentations, publications, or conversations that may result from this research. *Notes & Recording*: I will be taking notes throughout and recording only the audio portion of the interview. This will help to ensure that I accurately capture your responses and don't miss anything. If at any time during the interview you would prefer that I stop the recording, I will do so immediately. Please know that I will be the person transcribing the audio recording and notes, and they will only be accessible to me and the members of my committee.
Participants Questions	Before we begin the interview, do you have any questions? • *If yes:* o *Answer question(s), then proceed to steps to next step*

	Now that we have covered all the information pertaining to the study:
	• Are you ready to begin?
	• Do I have your permission to begin recording our discussion?
	    • *If the response is no, let the participant no that the audio portion of all interviews must be recorded. If they don't want to record the interview, we cannot proceed. Thank the participant for their interest in participating in the study.*
	    • *If the response is yes, start the recording and move to the next step in the protocol.*

Demographic Items		
Item	Question	Response Choices
1	What is your gender?	Male, Female, Other, prefer not to answer
2	What is your age range?	Age or prefer not to answer
3	What is your race?	White, Black or African American, American Indian or Alaska Native, Asian, Native Hawaiian or Other Pacific Islander, two or more races, prefer not to answer
4	What is your highest degree earned?	Associates, Bachelors, Masters, Doctorate, Medical, prefer not to answer
5	How many years of experience do you have diagnosing ASD?	Number of years, prefer not to answer

6	How many years of experience do you have diagnosing ASD in toddlers?	Number of years, prefer not to answer
7	When diagnosing autism, which of your board certifications is related to having the ability to provide this service to clients?	List of board certifications related to being allowed to make this diagnosis
8	Do you have any personal connections with individuals with autism such as having a child, close relative, or friend with autism?	Yes, no, not sure, prefer not to answer
Interview Questions		
Item	Question	Prompts
1	Please describe the overall type(s) of ASD diagnostic training you have received.	*Tell me more about X…*
2	To what extent do you feel the training(s) prepared you to diagnose ASD in older children and adults?	*Why do you feel X prepared you?* *Why do you feel Y did not prepare you?*
3	Please describe the type(s) of ASD diagnostic training you have received to diagnose ASD in toddlers.	*Tell me more about X…* *Do you use X…Why or why not?*
5	To what extent do you feel your training(s) and experience has prepared you to diagnose ASD in toddlers and why?	*Tell me more about X…*
6	Describe how confident you feel in your ability to diagnose ASD in toddlers in comparison to diagnosing ASD in older children or adults and why.	*Tell me more about X…*
7	What are the main differences you see in the manifestation of ASD in toddlers compared to older clients and why?	*Tell me more about X…*
8	How do these differences make diagnosis of ASD in toddlers easier or more difficult than in older children and adults and why?	*Tell me more about X…*
9	Describe your overall confidence level in diagnosing ASD in toddlers and why.	*Tell me more about X…*
10	Of the trainings you received, which do you feel had the greatest impact on your confidence in diagnosing ASD in toddlers and why?	*Why do you feel that that X had the greatest impact on your confidence?*

11	How confident are you in the tools developed to help with the diagnosing ASD in toddlers and why?	*Why do you feel that way about X?*
12	What issues, if any, do you have differentiating ASD from other conditions in toddlers and why?	*Tell me more about X…*
13	What do you do if you are uncertain if an ASD diagnosis should be assigned to a toddler and why?	*Why do you do X in this situation?*
14	How do you believe that the diagnostic process for identifying ASD in toddlers should be changed and why (tools, DSM-IV-TR criteria, etc.)?	*Why do you feel that way about X?*
15	Do you think it is beneficial or detrimental for a toddler to be diagnosed with ASD before the age of 3 and why?	*Why do you feel that way about X?*

Appendix B: Recruitment Flyer

Do You Diagnose Autism in Toddlers?

Participants for this study will be required to meet the following criteria:

- At least 18 years of age or older.
- A clinical specialist (clinical child psychologist, developmental-behavioral pediatrician, child and adolescent psychiatrist, or child neurologist) in the United States
- Have at least one year of experience diagnosing autism spectrum disorder (ASD) in toddlers between the ages of one and three-years-old.
- Speak, read, and understand English

The purpose of this generic qualitative study is to understand clinical specialists' perceptions of their abilities to diagnose ASD in toddlers. The information you provide may be helpful in understanding what contributes to self-efficacy in clinical specialist diagnosing ASD in toddlers.

The interview will take approximately 30-60 minutes and will be conducted virtually via Zoom (phone option is available).

The information you provide in this study will be only used for this study and strictly confidential. This research project is part of a dissertation study being conducted by Donna Morgan Johnson, a Walden University doctoral student at Walden University.

If you are interested in participating in this study, or know someone who may qualify and may want to participate, please forward it to them and contact

XXXXX XXXXXXX XX XXXXX XXX-XXXX or

email at XXXXX.XXXXXX@XXXXXXXXXXX

for more information.

Appendix C: Human Subjects Training Certificate

CITI PROGRAM

Completion Date 01-Apr-2023
Expiration Date N/A
Record ID 55213034

This is to certify that:

Donna Johnson

Not valid for renewal of certification through CME.

Has completed the following CITI Program course:

Student's
(Curriculum Group)
Doctoral Student Researchers
(Course Learner Group)
1 - Basic Course
(Stage)

Under requirements set by:

Walden University

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Collaborative Institutional Training Initiative

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Fort Lauderdale, FL 33301 US
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