Interdisciplinary Teams and Autism Spectrum Disorder

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A Brief History of ASD

In 1911, Eugen Bleuler first used the term "autism" to describe an individual's self-absorbed retreat into an idiosyncratic mental state of fantasy which was a component of the presentation of schizophrenia. Leo Kanner began to use the term in 1943 to describe a group of individuals who engaged in severe "autistic aloneness" which was believed to be an early onset of schizophrenic symptoms. Kanner and other researchers later began to differentiate the two disorders noting significant differences in outcomes and early developmental trajectories. As researchers began to understand "autism" as a unique condition that included a deviation from typical neurodevelopment, rather than a symptom of schizophrenia, they were able to begin to make clear distinctions between the two disorders (Goldstein & Ozonoff, 2009). Even from his initial observations, Kanner began to outline the disorder and described core symptoms that remain in the diagnostic criteria today.

During the time of Kanner's research, Hans Asperger, a German researcher, was also investigating behaviors associated with autism. Unfortunately, because his work was written in German, Asperger's research went unnoticed for almost three decades until it was translated into English. The diagnostic criteria of autism were first noted in the third edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM) which included Asperger's disorder (DSM-III; APA, 1980). While there were several changes in the autism classifications between editions, in the current DSM (DSM-5; APA, 2013), the disorder is conceptualized and classified as a spectrum of symptom severity that encompassed both Asperger's disorder and autism as autism spectrum disorder or ASD.

With the changes in the DSM-5, clinicians now provide a severity rating that can describe the level of support needed. The DSM-5 brought along many other changes as well including a change in diagnostic criteria. Diagnostic criteria now emphasize deficits in social communication and restricted/repetitive behaviors/interests (DSM-5; American Psychiatric Association, 2013). Individuals must exhibit impairments in a total of three areas involving social communication which include social and emotional reciprocity, nonverbal social communication, and deficits in developing and maintaining social relationships. Individuals also must exhibit impairments in at least two restricted/repetitive behaviors or interests such as stereotyped/repetitive motor behaviors, over-adherence to rituals or routines, and restricted interest in objects or subject matter, as well as sensory abnormalities such as over- or

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under-reactivity to different sensory input. Additionally, individuals must also experience significant impairments in areas of adaptive functioning (DSM-5; American Psychiatric Association, 2013).

Along with changes to diagnostic criteria, the DSM-5 also includes a series of specifiers to describe impairments that frequently develop alongside autism. Some of these impairments include intellectual disability, language impairments, or other neurodevelopmental, mental, or behavioral disorders as well as catatonia. The current edition also eliminated the age limitation allowing more individuals to meet diagnostic criteria as long as impairments can be tied to the developmental period. To determine if an individual meets diagnostic criteria for an ASD diagnosis, a variety of measures and assessments are often completed by the individual, family members, caretakers, and clinicians. A few of the measures that are often used include observational measures, caregiver or clinician measure of observed behaviors, cognitive measures of intellectual functioning, and adaptive behavior measures.

In the treatment of ASD, there are often diverse and extensive options which include evidence-based treatments. Evidence-based treatments have been shown to improve deficits in various areas including adaptive, cognitive, and social functioning. These treatments gain information and evidence regarding their effectiveness through their testability and are designed for a specific population or disorder. For example, intensive behavioral interventions such as applied behavior analysis have been shown to improve performance on measures of intellectual abilities, language skills, and adaptive functioning with individuals diagnosed with ASD (Howard, Sparkman, Cohen, Green, & Stanislaw, 2005). These interventions break down complex behaviors into simple tasks for repeated trials. During each trial, the client is encouraged to complete the task through the use of positive reinforcement (Lovaas, 1987). These treatments can often require significant time commitment (e.g., 30–40 h per week) but bear beneficial outcomes for individuals with ASD.

While beneficial outcomes can occur across a range of ages, an individual can derive the greatest benefit from treatment when they are diagnosed early. Early diagnosis allows for early treatment, granting improved outcomes later in life. Evidence-based treatments for ASD are often geared toward infants and young children, giving these populations more opportunities to improve functioning. There are few treatments that are centered on adolescents and adults, putting these individuals at a disadvantage compared to younger populations (Bishop-Fitzpatrick, Minshew, & Eack, 2013). Early diagnosis and treatment can allow for greater improvements across the life span by targeting those periods of sensitive and critical development.

There are often many different disciplines that are involved in early diagnosis and treatment of ASD. While psychologists play an important role, there are other types of clinicians that can also have an influence on the diagnosis of an individual with ASD. The best clinical practice recommends a multi-method, multi-informant approach to assessment which means administering assessments involving cognitive abilities, language skills, and adaptive behaviors. Informant report is included in the multi-informant approach and can oftentimes consist of reports from caregivers, teachers, speech-language pathologists, occupational therapists, and many other disciplines. While all of the disciplines represented in this book are not required to make a diagnosis of ASD, their various roles in the treatment of ASD are crucial, and information gathered during the evaluation process can help in the development and individualization of the treatment plan. The growth of interdisciplinary teams in the assessment and treatment of ASD has greatly improved the overall outcomes of individuals on the spectrum and their families. This focus on cross-discipline teamwork with the child and family at the center of the team is at the heart of this handbook.

What Is an Interdisciplinary Team?

Some professionals that work with individuals on the spectrum do so within their own practice and do not interact with other professionals outside of their field of work; this is referred to as

single-disciplinary, mono-disciplinary, or intra-disciplinary work (Iordache, 2010; Jensenius, 2012; Nicolescu, 2005). On many occasions, intradisciplinary work can be the best form of treatment, such as treating a medical condition or providing psychotherapy for a psychological disorder. However, because the treatment of ASD often includes the individual receiving services from professionals such as psychologists, occupational therapists (OT), physical therapists (PT), speech/language pathologists (SLP), special education teachers, and physicians, there tends to be some level of overlap among the professions.

The disciplines are separated based on the extent and type of interaction disciplines have with one another. The first level of interaction cited in the literature is referred to as multidisciplinary. Although there is no exact consensus as to the true definition, multidisciplinarity occurs when there are two or more professionals that provide their own service and do not interact with one another, such as a PT focusing on helping the child learn how to write letters appropriately and a special education teacher providing extra assignments for working on writing (Choi & Pak, 2006). It is important to note that the different professions may be focusing on the same area of concern, but the primary defining factor is that these professionals are only providing interventions within their area of training and do not interact with one another. In our experience in working with families, this tends to be the most common level of services that families are receiving. Each discipline is working within their own independent disciplines with little-to-no communication between disciplines.

Cross-disciplinary is a type of team that is less cited in the literature. That being said, cross-disciplinarity is considered to be when one discipline takes the viewpoint of another discipline or profession (Jensenius, 2012). In the previous example with the PT and special education teacher, this would be similar to a teacher giving extra assignments to work on while also using PT principles or training to help the child improve their writing abilities. Again, no interaction exists between various disciplines.

The last two team types cited within the literature are interdisciplinary and transdisciplinary. Interdisciplinary refers to teams consisting of two or more professions that work with one another for a common goal and provide their own expertise but maintain their own perspective relevant to their training (Jensenius, 2012). Again, using the previous example, the PT and special education teacher would identify a joint goal and help one another to reach these goals by having the teacher assist the child with their pencil grip, and the PT may include similar practice writing exercises. Transdisciplinary is similar to interdisciplinary with the exception of conceptualization (Choi & Pak, 2006). More specifically, the different disciplines aim to conceptualize the client and the problems from the same viewpoint and will create their interventions based on that singular perspective. Figure 1 details the different types of disciplinary teams (Jensenius, 2012).

Interdisciplinarity first gained popularity shortly after World War II when fields of study such as biochemistry and psycholinguistics came about (Stember, 1991). Interdisciplinarity was most prominent in academic settings such as universities in which those receiving higher education were encouraged to work within other fields and share their knowledge. It wasn't until the past few decades that interdisciplinary teams gained popularity in treating patients. These teams can be effective for any disorder, medical or otherwise, in which multiple professions will need to be used in order to create a common goal (Blackmore & Persaud, 2012). For example, individuals with an intellectual disability, cerebral palsy, or ASD can all benefit from being part of an integrated team.

Interdisciplinary teams are one of the most effective types of teams in the treatment of ASD, with multiple publications explaining why (Cascio, Woynaroski, Baranek, & Wallace, 2016). By integrating disciplines and having them work toward a common goal, the individual will often see an overall improvement above and beyond what they would see were they not being treated on an interdisciplinary team and improvements are significantly more beneficial than multidisciplinary teams (Gerdts et al., 2018). Within

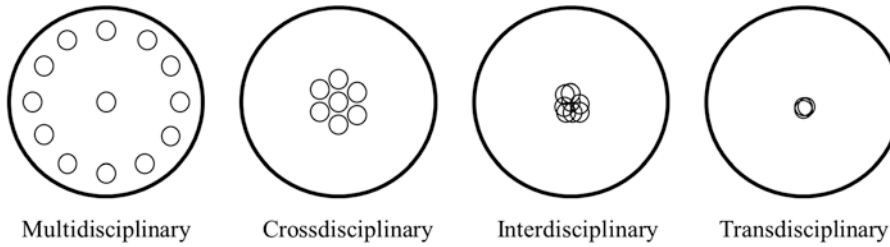

Fig. 1 Visual depiction of the different types of disciplines from Jensenius (2012)

these teams, the treatment of individuals with ASD often works with disciplines including psychology, occupational therapy, physical therapy, speech therapy, applied behavior analysts, feeding specialists, nursing, general physicians, and special education to name a few. The purpose of the current handbook is to discuss those and other common disciplines that are often part of the interdisciplinary team, the unique role that they bring to the team, and how these teams can effectively work together in the treatment of ASD.

Interdisciplinary Teams in Action

The ability for interdisciplinary teams to be effective often depends on the willingness of various disciplines to learn from one another and to focus on the family as being the primary "expert" on their individual child's behavior and recognizing that caregivers are the agents of change. It is through them that the various disciplines work to promote learning and improvement in their child. Various models have been developed across the globe that have shown the effectiveness of these interdisciplinary teams and improved outcomes. As an example, Chapter "Legal Considerations in Interdisciplinary Treatments" of this handbook focuses on the importance of interdisciplinary work and communication in the assessment of ASD and the unique components that various disciplines bring to the table to aid in the development of an appropriate treatment plan. This interdisciplinary process should be the standard of care in the assessment of ASD; however, the lack of such teams (especially in rural areas) has led to evaluations missing important components necessary to develop appropriate treatment plans or the complete lack of a valid evaluation. In the latter case, these individuals are often diagnosed by primary care physicians and bypass the comprehensive evaluation which leaves families to test various interventions through trial-and-error. The importance of a comprehensive interdisciplinary diagnostic evaluation cannot be understated. The goal of the evaluation should not be to make a diagnosis, but rather to develop an individualized treatment plan that takes into account the strengths and weaknesses, the available supports, and other pertinent factors of the individual and family in the context of the availability of resources.

The effectiveness of interdisciplinary teams does not end with the diagnostic evaluation. The various disciplines that are represented on an interdisciplinary team might differ between evaluation and treatment depending on the individual needs of the family. It is also not uncommon for the team members to fluctuate throughout the treatment process to meet the changing needs of the individual and family. The importance of interdisciplinary teamwork is crucial to the effective treatment of ASD symptoms as highlighted in Chapters "Interdisciplinary Diagnostic Evaluations, Applied Behavior Analysis and Related Treatments, and Interdisciplinary Treatment for Pediatric Feeding Disorders" of this handbook. The differing roles and expertise of team members across disciplines vary depending on the needs of the client; however, the importance of effective interdisciplinary communication is paramount to ensure that the goals of one discipline do not compete or interfere with the goals of another discipline (which often is the case in other models of treatment). It is also important to recognize that the expertise

of various disciplines may be the focus of treatment at some points and other disciplines at other points. For example, in feeding therapy (see Chapter "Applied Behavior Analysis and Related Treatments"), the "primary" discipline may change over time due to the needs of the client; the initial focus of therapy may be on developing the muscles involved in eating or overcoming oral sensory sensitivities related to eating, and treatment focus may vary between occupational therapists and speech-language pathologists. As therapy progresses and the needs of the individual change, the focus over time may shift toward behavioral methods provided by the psychologist. The ability of the interdisciplinary team to communicate these changes over time and adapt to the needs of the client greatly improve treatment efficacy and overall outcomes.

Struggles and Benefits of Interdisciplinary Teams

ASD can first be effectively diagnosed as young as 12 months of age. With early identification and implementation of services, it is argued that many of the symptoms associated with the disorder can be prevented and those that are present can be effectively treated to reduce negative impact on functioning (Costanzo et al., 2015; Zwaigenbaum, Bryson, & Garon, 2013). However, more often than not, there is a significant lag between the initial suspicion of symptoms to diagnosis and treatment; current estimates suggest an average of 3–5 years between the two (Gordon-Lipkin, Foster, & Peacock, 2016). This lag is often greater for ethnic minorities or families with lower socioeconomic status (Yingling, Hock, & Bell, 2018). Many barriers to diagnosis and treatment include caregivers denying symptoms, physicians not identifying or screening appropriately, and difficulty receiving a diagnosis due to limited availability of psychologists or cost of testing, and once the child receives a diagnosis, many families struggle with choosing appropriate treatments.

One of the primary issues with seeking treatment for a child with symptoms of ASD is that caregivers are often unsure or unaware of what steps they should be taking. Caregivers may have had their pediatrician complete an ASD screener at their 24-month checkup and identified a possible concern for autism symptoms. This physician may or may not refer them to a qualified psychologist for further testing, but there is an average wait period of 13 months for a diagnosis, with even longer wait periods in rural areas (Daniels, Schwartz, Albert, Du, & Wall, 2017). When receiving these results, the majority of families will receive a written report, but less than half of families receive further assistance from the psychologist as to what the next steps should be to assist their child (Crane, Chester, Goddard, Henry, & Hill, 2016). Most families are unaware of what services are available to help their child and are even less aware of how to go about receiving these services. Many caregivers will choose to identify resources through online at websites; however, several websites that are intended to provide health-related information for the treatment of ASD do not provide evidence-based supported information or do not include research support for their claims. This can cause caregivers to feel confused or attempt to have their child engage in non-evidence-based treatment (Grant, Rodger, & Hoffmann, 2015) many of which are not helpful and some of which could be potentially harmful.

Perception of the diagnosis also can have a direct effect on parent's decision-making toward treatment, and those who deem it as a "serious" diagnosis are more likely to actively seek treatment. Following a diagnosis, caregivers will typically go through a series of stages in which they first begin to take all the advice from experts due to a lack of confidence or knowledge in the area. They then start making decisions on the type of treatment to provide their child with and start to discover what is available for their child based on their geographic location. In the final stage, many caregivers become the "expert" in what treatments are beneficial to their children and are more knowledgeable about the treatments available (Edwards, Brebner, McCormack, & MacDougall, 2018). It is often in this final stage that interdisci-

plinary teams are created to treat a child with ASD.

Unfortunately, as the burden for determining appropriate care is often placed solely on the caregiver, it is most common for caregivers to never actually make it to the final "expert" stage. Families often continue to struggle to receive services simply due to a lack of knowledge in the area of disability services, even more so regarding the existence of interdisciplinary teams. The process of forming an interdisciplinary team for the treatment of their child can be a difficult process that can be limited by geographic region (e.g., urban vs. rural) and access to resources. Furthermore, one of the greatest struggles families will experience when they begin attending these interdisciplinary teams is understanding all of the jargon among the various disciplines. Although this is something that caregivers struggle with most, other professionals will often experience difficulty with understanding the terminology of different professions as well. It has also been shown that most commonly, the professional who holds the highest degree on the interdisciplinary team is the one who holds the most power and authority. This leads to families feeling that their voice is not heard or that they are not provided the opportunity to meaningfully contribute (Graybill et al., 2016). Although there are some significant difficulties families experience in implementing interdisciplinary teams, they are greatly outweighed by the benefits.

Within an interdisciplinary perspective of integrative care, the focus is on the client and therefore provides the child with a joint effort in assessing, evaluating, and planning client care, meaning that by completing assessments within an integrated team, the family is provided a synthesized description of their child's functioning from several perspectives with many different forms of assessment (Xyrichis & Ream, 2008). By having a well-rounded evaluation which often includes several recommendations, the family has a greater understanding of what difficulties their child may be experiencing, but they are also provided with piece of mind in knowing that they have the most comprehensive assessment possible. Additionally, by having the interdisciplinary team work together, the results are synthesized such that the providers are able to determine what may be primary symptoms and what things are likely to be more secondary as a result of the primary symptoms, which may not have been identified otherwise.

Within interdisciplinary teams, when the team successfully involves the family, it is mutually beneficial. By understanding and viewing the caregiver as the "expert" in their child, the interdisciplinary team benefits by learning more about the child's behaviors, functioning, and symptoms in the home and in the community that they may not have otherwise known, which can become exceptionally helpful when considering barriers to treatment. The caregivers benefit by being able to actively participate in the treatment process and are better able to provide input about what they perceive to be the most problematic areas that should be targeted. Additionally, by exposing caregivers to the team, they are better equipped to learn the terminology and the process of treatment. Lastly, when caregivers are engaged in all phases of treatment, they have a better understanding of treatment goals and how to implement treatment and are more engaged in the process overall which leads to better outcomes for the child (Graybill et al., 2016).

Using This Handbook

The development of an interdisciplinary team can be a challenging task. Unfortunately, the burden of development of these teams often falls on the caregiver (especially in rural areas) as the availability of active interdisciplinary teams often are centered in large metropolitan areas or universities. This handbook is meant to serve as a guide for both caregivers and clinicians alike in the development on interdisciplinary teams (see Chapters "Legal Considerations in Interdisciplinary Treatments and Interdisciplinary Treatment for Pediatric Elimination Disorders") and the unique roles that each discipline plays in the interdisciplinary team. This includes the

importance of family inclusion (see Chapter "Family Therapy") as well as the inclusion of disciplines that are often neglected but can serve as crucial components for the interdisciplinary team. This handbook is also meant to be used as a guide by various disciplines to not only understand the crucial role that they play in an interdisciplinary team, but to also understand the roles of other disciplines. This better understanding of other disciplines often leads to enhancement of our treatments and interventions as disciplines learn to work alongside each other toward a shared goal. We hope that this handbook can be a tool that will be utilized to enhance the assessment and treatment of individuals with ASD and increase access to effective interdisciplinary teams across the globe.

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