

Diagnostic Techniques for Children with Autism Spectrum Disorder

تقنيات التشخيص عند الأطفال المصابين باضطراب طيف التوحد

Amel Ouali*¹ , prof. Leila Boubekri**²

¹Mouloud Mammeri University (Algeria), amel.ouali@ummto.dz

²Mouloud Mammeri University(Algeria), leila.boubekri@ummto.dz

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Abstract:

The process of diagnosing children with Autism Spectrum Disorder (ASD) is one of the most challenging and complex tasks. It requires a comprehensive team of specialists and medical professionals to ensure proper care and to provide necessary services in the educational, social health and psychological domains. This aims to foster the development of the self, linguistic, cognitive, social, and professional abilities in the sensitive group.

The current study seeks to identify the key techniques used in diagnosing children with Autism Spectrum Disorder, to explore the most significant tools and mechanisms employed for an accurate diagnosis of ASD.

Keywords: Diagnosis- Autism Spectrum Disorder (ASD)

ملخص:

تعتبر عملية تشخيص الأطفال المصابين باضطراب طيف التوحد من أكثر العمليات صعوبة وتعقيدا، تحتاج إلى فريق متكامل من الأخصائيين والأطباء من أجل التكفل وتوفير الرعاية اللازمة لهم وتقديم الخدمات التربوية الاجتماعية، الصحية، النفسية، وذلك لتنمية قدراتهم الذاتية، اللغوية، العقلية، الاجتماعية، المهنية، لهذه الفئة الحساسة .

تهدف هذه الدراسة الحالية إلى التعرف على أهم تقنيات تشخيص الأطفال المصابين باضطراب طيف التوحد، والتعرف على أهم الأدوات وآليات المستخدمة لتشخيص دقيق لاضطراب طيف التوحد.

كلمات مفتاحية: التشخيص- اضطراب طيف التوحد.

Corresponding author: ouali amel

1. Introduction

Autism Spectrum Disorder (ASD) is one of the pervasive developmental disorders that manifests within the first three years of a child's life. Individuals with ASD are characterized by deficits in social interaction and an inability to communicate both verbally and non-verbally. They also experience speech and language difficulties and engage in stereotypical behaviors that hinder their psychological, social, and educational development, limiting their integration into the social environment. Accurate diagnosis of this complex and challenging disorder is essential. This process requires a skilled and multidisciplinary team of medical

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professionals and specialists, with the goal of supporting and providing care for this sensitive group that demands attention and specialized care.

Study Problem

Autism Spectrum Disorder is among the most complex developmental disorders due to the diversity of individuals affected by it and the wide variation in their abilities and skills. Although there are fundamental traits shared among individuals with ASD, the symptoms and characteristics appear in numerous and overlapping patterns, ranging from mild to moderate to severe. ASD is a relatively recent discovery compared to other disabilities, and it impacts the social, linguistic, and behavioral dimensions of an individual (Interview, 2016, p. 13).

Children with ASD face various challenges and difficulties that hinder their lives and futures, as the diversity in the profiles of those affected and the disparity in their abilities and skills add to the complexity. Researchers and specialists such as Leo Kanner (1943) and Bernard Rimland (1964) have extensively studied the techniques and tools used to diagnose children with ASD. Researchers Jamal Al-Khatib and Mona Al-Hadidi (2004) highlighted that diagnosing children with ASD remains one of the greatest challenges for researchers and practitioners in the field of childhood issues.

This challenge stems from the fact that ASD affects an individual's social, communicative, and personal dimensions, making interaction with children with ASD more difficult. Furthermore, the disorder's characteristics often overlap with other conditions, such as developmental disorders. As a result, obtaining precise information is crucial for accurately diagnosing symptoms (Mazrou, 2020, p. 33).

Leo Kanner (1943) was the first researcher to identify Autism Spectrum Disorder (ASD) as a condition emerging during early childhood. He described specific behaviors under diagnostic terms (Ali Amara, 2005).

Currently, two primary diagnostic manuals serve as the main references for diagnosing ASD:

1. The Diagnostic and Statistical Manual of Mental Disorders (DSM), published by the American Psychiatric Association.
2. The International Classification of Diseases (ICD-10), issued by the World Health Organization (Mohammed, 2014).

In the DSM-IV, autism diagnosis was based on significant deficits in social interaction, inappropriate use of nonverbal behaviors for emotional expression, failure to develop peer relationships, communication impairments, and the presence of stereotyped behavior patterns (Suhail, 2015).

The DSM-5 refined the diagnostic criteria, focusing on persistent deficits in communication and social interaction, impairments in emotional reciprocity, challenges in nonverbal communicative behaviors, and difficulties in establishing and maintaining relationships (DSM-5, 28).

This study aims to explore the main techniques used for diagnosing children with ASD,

prompting the following research question:

- What are the techniques employed to diagnose children with Autism Spectrum Disorder?

Significance of the Study

The study is significant in providing theoretical knowledge about ASD diagnostic techniques and identifying the essential tools used for accurate diagnosis.

Study Objectives

- To identify the techniques for diagnosing children with Autism Spectrum Disorder.
- To explore the primary tools and mechanisms used for precise diagnosis of ASD.

2. Key Concepts

2.1. Diagnosis:

- **Linguistically:** According to the Al-Maany Comprehensive Dictionary, diagnosis refers to identifying and determining the symptoms of a condition. For example, a doctor diagnosing a disease (source: almanny.com).

- **Terminologically:** Nouri Qomesh (2011) defines diagnosis as the most critical phase in determining a child's condition, involving a complex process that synthesizes extensive examination results. Diagnosis heavily relies on behaviors, as there are no physical markers directly indicating ASD (Othmani Hafsa, 2018).

- **Operationally:** Diagnosis refers to identifying the type and severity of the issues faced by a child with Autism Spectrum Disorder.

2.2. Autism Spectrum Disorder (ASD):

- **Linguistically:** The term "autism" derives from "being alone," referring to someone who finds joy in solitude and isolates themselves from others (Maamoun Hamri, 2000).

- **Terminologically:** According to the DSM-5, ASD is characterized by deficits in two developmental domains: social interaction and communication, along with restricted, repetitive patterns of behavior, interests, and activities. These symptoms must manifest before the age of two (Al-Hayari, 2018).

- **Operationally:** Autism is a neurobiological disorder affecting children in early childhood (before age three). It impairs their ability to interact with others, as seen through a lack of participation in play, delayed language and speech development, and difficulties with self-care skills such as eating, dressing, undressing, and personal hygiene

3. Autism Spectrum Disorder Diagnosis

The American Psychiatric Association (APA) highlights that children with Autism Spectrum Disorder (ASD) typically show symptoms within the first 30 months of life. The primary goal of diagnosis is to determine the types of services needed by the diagnosed individual. According to the DSM-5 (2013), ASD diagnosis involves multiple levels and is based on the following three main criteria:

4. Diagnostic Criteria for Autism Spectrum Disorder

The DSM-5 (2013) categorizes the criteria for diagnosing mental disorders into three

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main types:

4.1. Diagnostic Criteria:

These specify the nature of symptoms, the types of challenges, and the inclusion/exclusion explanations.

4.2. Specifying Criteria:

These involve conditions for identifying other associated disorders.

4.3. Criteria for Severity Levels:

These criteria define the severity of the disorder based on the range of behavioral symptoms across two domains:

- Social communication.
- Repetitive and stereotyped behaviors (Ben Aissi, 2020).

5. ASD Diagnostic Team

Accurate diagnosis requires a multidisciplinary team of specialists to evaluate the condition comprehensively. This team typically includes:

- Pediatricians.
- Neurologists.
- Audiologists.
- Psychologists.
- Social workers.
- Speech and language therapists.
- Special education specialists.
- Developmental specialists.

Other specialists may also be involved as needed. The role of parents is crucial to the success of the diagnostic process (Cherif, 2019, p. 202).

6. Core Diagnostic Criteria for ASD

6.1 Diagnostic Criteria Based on the International Classification of Diseases (ICD-10):

Outlined by the World Health Organization (WHO), the core criteria include:

1- Qualitative Impairment in Social Interaction:

- Limited social and emotional communication.
- Lack of response to others' emotions.
- Minimal use of social cues and difficulties in social integration.

2- Clear Impairment in Communication:

- Limited language skills in social contexts.
- Inability to engage in conversations or discussions with others.

3- Restricted Interests and Repetitive Activities:

- Intense focus on specific activities.
- Unusual attachment to certain objects.

4- Other Non-Specific Issues:

- Phobias.

- Sleep and eating disorders.
- Self-harming behaviors (Interview, 2016, p. 108).

7.2. Diagnostic Criteria According to the Diagnostic and Statistical Manual of Mental Disorders (Fourth Edition):

Published in 1994 by the American Psychiatric Association, it includes the following:

First: A total of six or more elements from items (1), (2), and (3) must be present, with at least two elements from (1), and at least one from both (2) and (3), resulting in a final set of at least six elements.

1- Qualitative impairment in social interaction (at least two must be present):

A. Marked impairment in the use of multiple nonverbal behaviors such as eye contact, facial expressions, gestures, or body language to guide social interaction.

B. Failure to develop relationships appropriate to the developmental level of peers.

C. Lack of spontaneous seeking to share enjoyment, interests, or achievements with others (e.g., failure to show, bring, or point to things of interest).

2- Qualitative impairment in communication (at least one must be present):

A. Delay or total lack of spoken language, without any attempt to compensate through other means of communication, such as gestures or imitation.

B. Marked impairment in the ability to initiate or sustain conversations with others.

C. Stereotyped and repetitive use of language or primitive speech.

D. Lack of spontaneous or initiated pretend play or social play.

3- Restricted, repetitive, and stereotyped patterns of behavior, interests, and activities (at least one must be present):

A. Preoccupation with one or more stereotyped and restricted patterns of interest that are abnormal in intensity or focus.

B. Inflexibility (rigidity), adherence to routines, or repetitive nonfunctional behaviors.

C. Repetitive movements (e.g., hand-flapping, spinning, or other complex body movements).

D. Strong preoccupation with parts of objects.

Second: Delayed or abnormal functioning in at least one of the following areas, with symptoms present before the age of three:

1- Social interaction.

2- Language as used for social communication.

3- Symbolic or imaginative play (theoretical play). (Almalghouf, 2006).

7.3 Diagnostic Criteria According to the Diagnostic and Statistical Manual of Mental Disorders (Fifth Edition):

- Persistent deficits in communication and social interaction.
- Inability to engage in reciprocal emotional interactions, ranging from socially inappropriate behavior, such as failure to take turns in conversation, to reduced participation

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in shared interests, emotions, or expressions, extending to failure to initiate or respond to social interactions.

- Deficits in nonverbal communication behaviors used for social interaction, ranging from poor integration of verbal and nonverbal communication, to abnormalities in eye contact, body language, or difficulty understanding and using gestures, to a complete lack of facial expressions and nonverbal communication.
- Deficits in developing, maintaining, and understanding relationships, ranging from difficulties in adjusting behavior to fit different social contexts, to difficulties in engaging in imaginative play or making friends, to a complete lack of interest in peers. (DSM-5, 28).

8. Methods for Diagnosing Autism Spectrum Disorder (ASD):

Clinical specialists often rely on various methods to collect diverse data about the child to establish a precise diagnosis of autism. These methods include:

8.1. Developmental History

One of the main components in diagnosing a child with autism is obtaining a history of the child's development up to the present. This includes tracking the child's growth and any changes that occurred during different developmental stages, noting if they have taken specific medications, experienced accidents, or contracted illnesses, and at what age these occurred, among other factors (Nasr, 2002, p. 22).

8.2. Genetic History

Gathering the developmental history also involves obtaining the genetic history of the parents' families. This includes checking if any family members have disorders or abnormalities related to the case. Research indicates that 30-50% of autism cases may have genetic origins. Some studies suggest that families of children with autism might struggle with social interaction, experience high levels of frustration, or face significant stress, all of which can affect the child. Specialists and treating physicians also need to know more about the mother's pregnancy, as she may have been exposed to risks, accidents, or chromosomal abnormalities in the fetus (Khattab, 2007).

8.3. Behavioral Assessment

Behavioral assessment is a crucial part of evaluating a child with autism, but it requires significant expertise from clinical specialists. There are two main methods for collecting behavioral information:

- 1- Unstructured observation
- 2- Structured observation

Both methods should be used concurrently for accurate assessment (Zuhair, 2016, p. 132).

9. Tools for Diagnosing Autism Spectrum Disorder:

Several tools and methods are used to diagnose ASD, including:

9.1. The Modified Autism Diagnostic Interview (ADI-R)

Developed by Look and Rutter in 1999, this semi-structured interview involves inquiries

directed at children with autism. The interview spans several hours and helps determine whether the child meets the diagnostic criteria for autism as outlined in the DSM-IV (1993). Specialists regard the ADI-R, conducted with the parents, as beneficial since it offers the opportunity to observe the child at home. It can also be conducted in a clinic setting and takes approximately 90 minutes if performed by a trained specialist (Suhail, 2015).

9.2. Autism Behavior Checklist (ABC)

This checklist evaluates sensory responses, understanding of body language, language skills, self-help skills, and social abilities. It consists of 57 items answered through structured interviews with parents or caregivers. While less consistent than tools like the Childhood Autism Rating Scale (CARS) or the ADI-R, it helps differentiate between intellectual disabilities and autism, especially for children with low performance. Although it is not used as a diagnostic tool, it is useful for tracking the child's progress and their response to treatment and educational plans (El-Sharkawy, 2016).

9.3. Autism Diagnostic Observation Schedule (ADOS)

Developed by Lord and colleagues (1989), this developmental test involves interaction between the examiner and the child for 20–30 minutes. During this time, eight tasks are carried out to evaluate specific behaviors in areas such as social interaction, imagination, play skills, and the ability to express emotions. The diagnostic algorithm is used, and professional training is required for implementation (Imam & Al-Jawaldeh, 2011, p. 135).

9.4. Checklist for Autism in Toddlers (CHAT)

Derived from the original version of Oli's Early Childhood Autism Checklist (2001), CHAT consists of 23 items. Families are asked about specific aspects of the child's social, communicative, behavioral, and play-related abilities, with answers given as "yes" or "no." It is designed to identify autism in children as young as 18 months by measuring pretend play, declarative gestures, and gaze control through parental reports, healthcare practitioners' observations, and direct testing (Suhail, 2015).

9.5. Pervasive Developmental Disorders Screening Test (PDDST)

This tool includes various psychological tests that assess cognitive and linguistic abilities, such as:

- The Merrill-Palmer Scale of Mental Tests
- The Leiter International Performance Scale
- The Illinois Test of Psycholinguistic Abilities

Applicable to children aged 2–9 years, these tests break down language into multiple skill sets that can be individually assessed. Skills include understanding words or images, linking images with words, and expressing ideas through words or gestures. Tubbs applied these tests in 1966 to children with autism, comparing them to neurotypical and intellectually disabled children. The findings indicated that children with autism showed weaknesses in verbal expression and gestures (Metwally, 2015).

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9.6. Behavioral Rating Instrument for Autistic and Other Atypical Children (BRIAAC):

Developed by Rothenberg, Weiner, and Wolf, this instrument consists of a list divided into eight dimensions. It uses a 10-point scale to record the child's responses. Observers assess the child's behavior directly within the family setting at home, scoring each item on the list. This score helps determine whether the child exhibits behaviors indicative of autism (Suhail, 2015).

10. Some Scales for Diagnosing Autism Spectrum Disorder (ASD):

10.1. Childhood Autism Rating Scale (CARS):

This scale, developed by Schopler et al. (1989), consists of 15 items, each scored on a 4-point scale (1–4). It includes descriptions of behaviors considered when assigning scores to the child (Mustafa & Al-Sharbini, 2011, p. 151).

10.2. Vineland Adaptive Behavior Scale:

Developed by Sparrow, Bella, and Cicchetti (1984), this scale comes in three forms with varying levels of detail. It can be used by parents, teachers, or caregivers and applies to individuals from birth to 19 years of age. The scale evaluates:

- Communication skills
- Daily living skills
- Socialization
- Motor skills
- Maladaptive behavior (Majid, 2010, p. 83).

12.3. Gilliam Autism Rating Scale (GARS):

Designed by Gilliam & Jimes (1997), this tool is used by teachers, professionals, and families to identify and diagnose autism across different age groups. Items on the scale are based on the diagnostic criteria of the World Health Organization and are grouped into four domains:

- Speech behavior
- Communication
- Social interaction
- Developmental disorders

The scale includes three scores to describe and measure behavior. A fourth domain assesses developmental disorders and contains information about the child's growth and development during the first three years of life (Al-Jalabi, 2015, p. 61).

11. Conclusion:

It can be said that diagnosing children with Autism Spectrum Disorder (ASD) is one of the most difficult and complex processes, as it requires a multidisciplinary team of doctors, psychologists, and social workers. Therefore, the diagnosis must be made in an objective and accurate manner.

In this study, we have covered the most important criteria for diagnosing Autism Spectrum Disorder and explored some techniques, tools, and scales used to diagnose children

with ASD.

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