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Psychophysiological aspects of autism spectrum disorder

Loay A. Alchalaby

College of Pharmacy, University of Mosul, Mosul, Iraq

Mohammed Saarti,

College of Pharmacy, University of Mosul, Mosul, Iraq

Mohammed D Mahmood

College of Pharmacy, University of Mosul, Mosul, Iraq

Abstract---Autism spectrum disorder is a neurodevelopmental illness marked by chronic difficulties with mutual social interaction and communication, as well as restricted or repetitive patterns of behavior, interests, or activities. ASD symptoms commonly appear in early childhood and can be identified by the age of 2 years. Early detection of ASD allows for better therapeutic interventions and management, which has been shown to lessen children's long-term intellectual, behavioral, and functional deficits while also improving family consequences. In the present review, we are focusing on important psychophysiological aspects of autism spectrum disorders.

Keywords---Autism, psychology, cognitive, physiology, learning.

Introduction

In young ages, between the ages of three and seven, Asperger's syndrome is a significant neurological disease (Vladimir Trajkovski, 2019). In addition to social difficulties, trouble expressing oneself vocally, and stereotypic behavior, these are also symptoms of this illness (Rogers et al., 2003, Nuske et al., 2013). "Asperger's syndrome" is a long-term disorder that affects the individual, their family, and society as a whole (Elder et al., 2017). Parents, caregivers, and doctors may be able to detect early signs of this condition in children as young as one-year-old. Parents frequently detect the signs and indications of a child's illness more readily when the child is two or three years old. When a child is just starting school, the mild functional impairment caused by autism becomes increasingly obvious (Zelazo & Lyons, 2012).

Symptoms of "autism spectrum disorder" may vary from moderate to severe, depending on the degree of the individual's ASD. One may divide the symptoms into "core" and "secondary" categories to better understand the complexity of this condition. In addition to intellectual disability, 70 percent of children with ASD have a broad variety of secondary symptoms, such as hostility toward others and self-injury, eating and sleeping problems, and seizures (Vladimir Trajkovski, 2020). Every human being's clinical features change as they age. In adolescence and early adulthood, a child's linguistic difficulties and hyperactivity may manifest themselves as relational challenges, mood instability, and hyperactivity. It may be difficult to diagnose ASD, but new diagnostic tests have been created that can be used for the rest of a person's life to detect the illness (Elder et al., 2017).

Because of widespread prejudice, children with "autism spectrum disorders" are more likely than other children to experience social stigma and rejection as a consequence of their disease than other children (Someki et al., 2018). Many countries suffer from an acute shortage of treatment facilities, specially trained child special educators and psychologists, as well as public awareness and government resources for children with autism spectrum disorder (Litton et al., 2017). People with "autism spectrum disorder" are unable to remain in their communities while obtaining the essential educational and social services from community-based organizations, such as schools. It is necessary to consider persons with impairments in order to determine whether or not they are socially vulnerable and capable of exercising their rights in the field of social care. This information must be collected and gathered in order to determine whether or not they are all socially vulnerable and capable of exercising their rights in the field of social care. There is a broad variety of programs and services available under the Social Protection Law, including those aimed at social prevention, deinstitutionalization of care, and social assistance (Ridderinkhof et al., 2020).

Children with "autism spectrum disorders" are more likely than the general population to have metabolic, immune, and gastrointestinal abnormalities, as well as underlying medical conditions that may be the root cause of the illness. There are also concerns about developmental, neurologic, and psychiatric issues in these children. Allergies, such as asthma, have been linked to significant gastrointestinal difficulties in addition to the symptoms of tiredness and seizures. Anxiety is the most prevalent co-occurring ailment in children, followed by melancholy and "attention deficit hyperactivity disorder (ADHD)". ADHD illness and the pathological processes that arise as a result of it may have an impact on people's social abilities, communication skills, cognitive capacities, and even their capacity to interpret sensory information. Accurate diagnosis and therapy may have a significant influence on a patient's ability to function while also alleviating their symptoms (V Trajkovski, 2018).

Difficulties to be considered in autism spectrum disorders

Autism Spectrum Disorder is characterized by a wide range of cognitive, emotional, and behavioral difficulties.

Cognitive processing

Cognitive psychologists use the word "attention" to describe how we actively process the information we receive from our environment. One may create a notion of focus and concentration, as well as the ability to change the activities in which one engages, by integrating these many components. Children with "autism spectrum disorder" are typically able to focus on a task for a long time. Children who have been diagnosed with ADHD show a distinct pattern of behavior than children who have not been diagnosed with ADHD. As a result of their autism spectrum disease, people with ASD sometimes "miss the forest for the trees", or pay attention to little details while losing sight of the big picture (Happé & Frith, 1996). The term "poor core coherence" is often used to describe this problem. Children with ASD, in contrast to those with ADHD, are more often diverted by internal events (e.g., aberrant interests) than ADHD children are. Adolescents with "autism spectrum disorder" often exhibit symptoms of ADHD, including excessive wandering and hyperactivity. Individuals with ASD exhibit attention issues, which have been shown via a variety of experimental methodologies and activities for some time now. The most widely accepted model of attention consists of the following three functions: It is when we say that attention has an alerting component that we are talking about the ability to develop and maintain high levels of attention in a specific setting. The orienting component of attention refers to the ability to disengage, adapt, and reengage attention to a modality or location. An attention component called conflict resolution is concerned with resolving conflicts between two or more separate reactions. Sensory processing problems and attention problems go hand in hand (Dykshoorn & Cormier, 2019).

Executive attention

People who have strong executive functions are better capable of planning, monitoring, and achieving their desired outcomes. This region of the brain has been linked to executive functions such as attention management and working memory, as well as problem-solving. ASD sufferers are more prone to suffer from executive dysfunction than the general population (Johnston et al., 2019). In addition to planning, inhibition, organization, self-monitoring, and mental representation of activities and objectives, the executive function domain includes cognitive flexibility and set changes. Executive attention has been proven to be reduced in ASD children and adolescents. When the arrows point away from the center target, adults and adolescents with ASD experience stronger flanker effects, which is characterized as delayed reaction time, but there are also some negative repercussions (Mutreja et al., 2016). Executive function is the capacity to exert control over one's thoughts, emotions, and behaviors when it comes to achieving volitional objectives. Over the last 30 years, there have been about 400 empirical investigations on executive function, many of which have been reported in extensively studied patients (Wallace et al., 2016). The study by Lai et al. (2017) shares that "autism spectrum disorders" have long been associated with difficulties in executive function. In research, it has been shown that executive function impairments may not cause ASD, but executive function skills may predict certain metalizing, repetitive behaviors, adaptive functions, academic preparedness, and problematic behaviors (Lai et al., 2017). Here, we'll look at the

three most important parts of executive functioning: transitioning from one stage to the next

Reading and learning activities

Assessing pupils' intellectual abilities for educational planning reasons is crucial, particularly with younger children, and should be done as early as possible (Minshew et al., 1994, O'Connor & Klein, 2004). In many cases, children with "autism spectrum disorder" are more advanced readers and writers than their normally developing classmates, even when they are the same age and functioning level (Nation et al., 2006, Minshew et al., 1994). For beginners, there are concerns regarding the capacity of children with autism to participate in traditional educational settings, which is understandable (O'Connor & Klein, 2004). They often struggle to complete a job from start to end because of their learning disabilities (Newman et al., 2007, Griswold et al., 2002). It is feasible to make up for a lack of reading and other academic talents by providing written schedules or recommendations in order to encourage compliance with rules and regulations. Because of their exceptional memory, children with Asperger's Syndrome may have an easier difficulty recalling spelling lists and multiplication tables than other children (Newman et al., 2007). The most prevalent area of weakness among pupils is their ability to comprehend what they are reading. In order to transmit routines, academic information, and social conventions, teachers must employ a variety of words (Griswold et al., 2002). This method is unsuccessful for a large number of autistic children. They are unable to comprehend convoluted spoken information. They are unable to comprehend concepts that are not solid (Newman et al., 2007).

A thorough examination of a child's academic strengths and weaknesses, as well as a knowledge of the learning patterns they reveal, is essential. Academic function exams are similar to intellectual tests in that they offer a performance profile. The academic talents of pupils with rote, mechanical, or procedural capabilities are very rare to stay undisturbed. These evaluations show that persons with autism retain or even improve their capacity to understand grapheme-phoneme connections. When compared to their counterparts, those with autism had poorer scores on two reading comprehension tests. It's the most severe kind of hyperlexia that we've seen. Those who are able to comprehend words at a level well beyond their intellectual or educational background are referred to as "word geniuses". Several studies have shown that people with autism are hyperlexiacs, according to research (Maenner, 2020). Cognitive and social communication characteristics are the foundation for providing structured education and creating visually appealing surroundings. In a classroom full of distractions, students with autism may struggle to focus.

Information processing

Memory refers to the processes of obtaining, storing, keeping, and retrieving information that is used to store and retrieve information. The processes of encoding, storing and retrieving information make up a person's memory (Nuske et al., 2013). Scientists have focused their examination into the underlying psychological elements that contribute to the development of "autism spectrum

disorder" on the memory of their subjects. Non-declarative memory is made up of perceptual (automatic and unconscious) and procedural memories, which are combined "(conditioning, habit memory, the learning of sensorimotor or cognitive skills)" (Elder et al., 2017). Definitive memory is the long-term storage of knowledge that has been selected purposefully. When exposed to non-social stimuli, individuals who do not have personal identification seem to preserve non-declarative memory, which is especially important. Having children repeatedly exposed to stimuli and then being assessed on how fast (or accurately) they react to following trials might help them learn subconsciously. It has been shown that intact performance can be achieved in both spatial context and implicit motor sequence learning (Wallace et al., 2016). People with "autism spectrum disorder" adapt more slowly, despite this, when the learning task is biased toward the local parts of a stimulus, according to preliminary evidence. People with ASD demonstrate normal performance on non-declarative tasks such as perceptual or conceptual priming for words, images, and music, as well as on other non-declarative tasks. When individuals are repeatedly exposed to a stimulus, and learning is shown by a quicker (and/or more correct) reaction on following trials, studies have revealed difficulties in persons with "autism spectrum disorder" (Vladimir Trajkovski, 2019).

Psychological viewpoint on ASD diagnosis

Diagnosing an autism spectrum disorder and finding programs that can provide early intervention and support may be challenging. In order to establish diagnostic requirements for ASD, a qualified professional needs to conduct an accurate evaluation of the children, and the availability of suitable ASD child services must be expanded, which may be logistically and financially difficult to handle (Lappé et al., 2018). If a diagnosis is made, pediatricians, neurologists, and psychologists are among those who may help. They must be well-versed in a broad variety of symptoms to be a diagnostician. For an ASD diagnosis, several aspects must be taken into consideration. These include interviews with the patient and their family members, teachers, and caretakers, as well as medical testing to rule out other disorders. Clinical diagnostic teams may be directed or engaged in by psychologists, as well as doctors, speech-language pathologists, and occupational therapists. When it comes to diagnosing mental illness, psychiatrists are the best in the business. After the assessment, they are responsible for providing treatment and case management, which includes making referrals to community organizations, setting up interventions in schools and homes, and administering different treatments to children and their families (Wong et al., 2017, Russell & Norwich, 2012, Lappé et al., 2018).

Conclusion

"Autism spectrum disorder" is by far the most perplexing and misunderstood of all the neurodevelopmental disorders that exist. In this article, the authors explore the psychological diagnosis and treatment of "autism spectrum disorder" in children. Even though great progress has been achieved in the sector, more special education programs and early and continuing psychological counseling for parents of children with ASD are required. Autism spectrum disease is becoming more obvious as children become older, and families must learn to change their

focus away from therapies and toward teaching life skills to their child with an autism spectrum disorder. Instead of being compelled to depend on internet sources of information that could or might not be accurate, they should have other options. Effective communication between care providers and families is critical to the development of supportive bonds that benefit not just the person with ASD but also their families for the rest of their lives. It is important to recognize that people with Asperger's syndrome have inherent qualities, unique skills, and untapped resources that should not be discounted or ignored. People with "autism spectrum disorders" and their families are capable of more than merely surviving, according to a professional discussion of these characteristics. Their contributions to society should be recognized, allowing them to enjoy full and meaningful lives in their later years. Having the capacity to live and work independently as an adult is attainable for some persons with autism spectrum disorder, especially for those who have advanced language and cognitive abilities. They should be assisted in obtaining employment in their local community. Despite the fact that treatment findings reported in laboratory settings may not always be replicated in a real-world situation, further research into the mechanisms behind psychological features associated with ASD is required in order to advance our understanding of the disorder. Despite the fact that autistic persons all have the same core deficiencies, there are significant variances in their skills throughout the spectrum of disorders. These distinctions are important in terms of adaptive behavior, intervention choices, and long-term results in later life.

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