

The Impact of Biological Psychological Factors on the Difference between Asperger's Disorder and Social Anxiety Disorder

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Abstract

Asperger's disorder, also known as Asperger's syndrome, is a pervasive developmental disorder that involves impairment in some basic aspects of communication and relationships. Although Asperger's was originally a stand-alone diagnosis, the DSM-5 retired it and now uses the autism spectrum diagnosis. Although people with ASD and social anxiety disorder (SAD) have difficulty in social situations, these disorders are quite different. The exact causes of ASD and social anxiety disorder are not fully understood, but researchers believe that several factors are involved. There is no single cause of autism spectrum disorder. Studies show that autism is hereditary. Research has also shown that people who are described as having Asperger's, sometimes called "high-functioning autism," are more likely to have family members with autistic behavioral traits.

Keywords: Asperger's Disorder; Anxiety; Social Anxiety Disorder; Biopsychology

Abbreviations: ASD: Autism Spectrum Disorder; SAD: Social Anxiety Disorder; CBT: Cognitive Behavioral Therapy.

Introduction

Asperger's disorder, also known as Asperger's syndrome, is a pervasive developmental disorder that involves impairment in some basic aspects of communication and relationships. Although Asperger's was originally a stand-alone diagnosis, the DSM-5 retired it and now uses the autism spectrum diagnosis. Although people with ASD and social anxiety disorder (SAD) have difficulty in social situations, these disorders are quite different. The diagnostic criteria and symptoms of the disorders vary widely. People with SAD are able to form relationships but are impaired by anxiety. On the other hand, people with ASD have trouble with the nuts and bolts of communication that make relationships possible [1] (Figure 1).

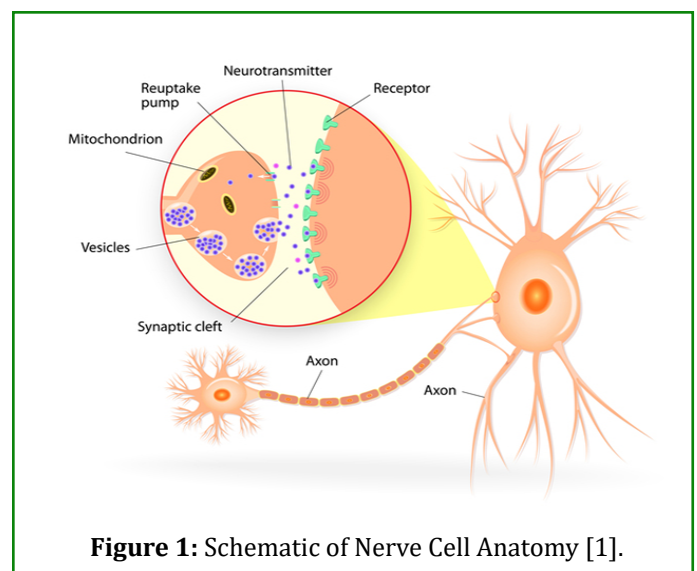


Figure 1: Schematic of Nerve Cell Anatomy [1].

Signs

Social anxiety disorder is characterized by fear and anxiety about social interactions or performance situations. Your ability to function is limited by your anxiety in that situation. Asperger's disorder, which is known today as autism spectrum disorder, does not require anxiety (Figure 2). Instead, behavior in social situations is impaired by difficulty reading and understanding social and emotional cues:

- Misunderstanding social signals
- You have trouble taking cues or understanding humor
- You have difficulty interpreting non-verbal signals
- Difficulty understanding and expressing emotions
- Difficulty adjusting to routine changes
- Difficulty understanding and understanding other people's points of view
- social anxiety
- Anxiety in social situations
- Physical signs of fear such as flushing, sweating, shaking
- High levels of self-awareness
- Fear of being judged
- Avoiding social situations
- Always expect the worst in social situations [1,2]

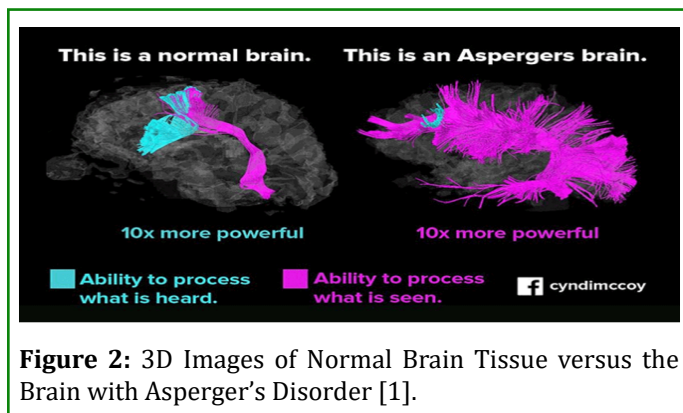


Figure 2: 3D Images of Normal Brain Tissue versus the Brain with Asperger's Disorder [1].

Etiology

The exact causes of ASD and social anxiety disorder are not fully understood, but researchers believe that several factors are involved. There is no single cause of autism spectrum disorder. Studies show that autism is hereditary. Research has also shown that people, who are described as having Asperger's, sometimes called "high-functioning autism", are more likely to have family members with autistic behavioral traits. Environmental variables, such as medical conditions, prenatal exposure to certain chemicals, and preterm birth are also associated with Asperger's and autism. Social anxiety disorder is influenced by many factors including genetics, brain structure and environment. Factors that may increase the risk of developing this condition include: a family history of anxiety, negative experiences with rejection or bullying,

having a shy or withdrawn temperament, and stressful life events [1,3].

Research on Brain Function

Neuroimaging research may shed light on the differences in the brains of people with SAD and ASD. Studies of brain function show that for most people, the amygdala, the emotional center of the brain, is activated when perceiving facial expressions. For people with ASD, the prefrontal cortex, the judgment and planning center, is activated when processing facial images. This means that people with ASD try to rationally figure out the meaning of a facial expression rather than experiencing an automatic emotional reaction. Studies have also shown increased sensitivity of the amygdala in people with SAD; this shows that these two disorders are very different [1,3].

Diagnosis

In order to diagnose ASD or social anxiety disorder, your doctor will evaluate the symptoms and behaviors that you or your child is experiencing. They may ask questions or use screening assessments. They may also perform a physical exam and run lab tests to rule out other conditions.

ASD is usually diagnosed in Childhood. If your Child is Diagnosed with this Disorder, they may:

- Engaging in restricted and repetitive behavior patterns, such as excessive preoccupation with interests, routines and rituals, parts of objects, or repetitive motor behaviors such as hand-wringing.
- Experience significant disruptions in social interactions such as problems with eye contact, facial expressions, and body posture.
- You have difficulty forming friendships, sharing interests, and understanding the social and emotional perspectives of others.
- Due to changes in the way this disease is classified, people who were previously diagnosed with Asperger's are now diagnosed with Autism Spectrum Disorder.

Social Anxiety Disorder is often diagnosed in Childhood, but it can affect People of any Age. To Diagnose this Condition, a Person must:

- Severe fear and anxiety towards social situations
- Experience a feeling of fear that is out of proportion to the threat

These symptoms must cause discomfort or disruption in the person's life and cannot be caused by other conditions [1,4].

Autism disorder easily affects brain function. Therefore, the brain scan method can be considered the easiest way to diagnose autism. In this way, it is easy to find out whether the child has symptoms of autism or not. Undoubtedly, the earlier the diagnosis of autism is made in people, the more appropriate educational behavior can be taken in front of them [1,4].

In the diagnosis of autism using brain tape, electrodes are actually attached to the person's scalp, and in this way, the frequency of his brain activity can be recorded and checked [1,4].

With the help of the EEG method, it is possible to check the difference in the child's brain connections and compare it with the brain connections of a healthy child. Overall, there is much weaker connectivity between brain regions in children with autism. These differences will often show up in areas controlling language [1,4].

Therefore, it can be said that the use of EEG is the easiest way to diagnose autism in children.

What is an EEG test?

Communication between brain cells is done through electrical waves, and the EEG test method records these connections well. By examining this relationship, various diseases and disorders, including autism, can be identified. Therefore, potential problems in the brain can be detected in EEG [1,4].

In this method, electrodes are often connected to the head with a silver coating and the signals from the head are sent to a computer and this information will be recorded there. Normally, brain waves follow a certain sinusoidal pattern. Therefore, irregular patterns can well indicate a brain disorder or disease in a person [1,4].

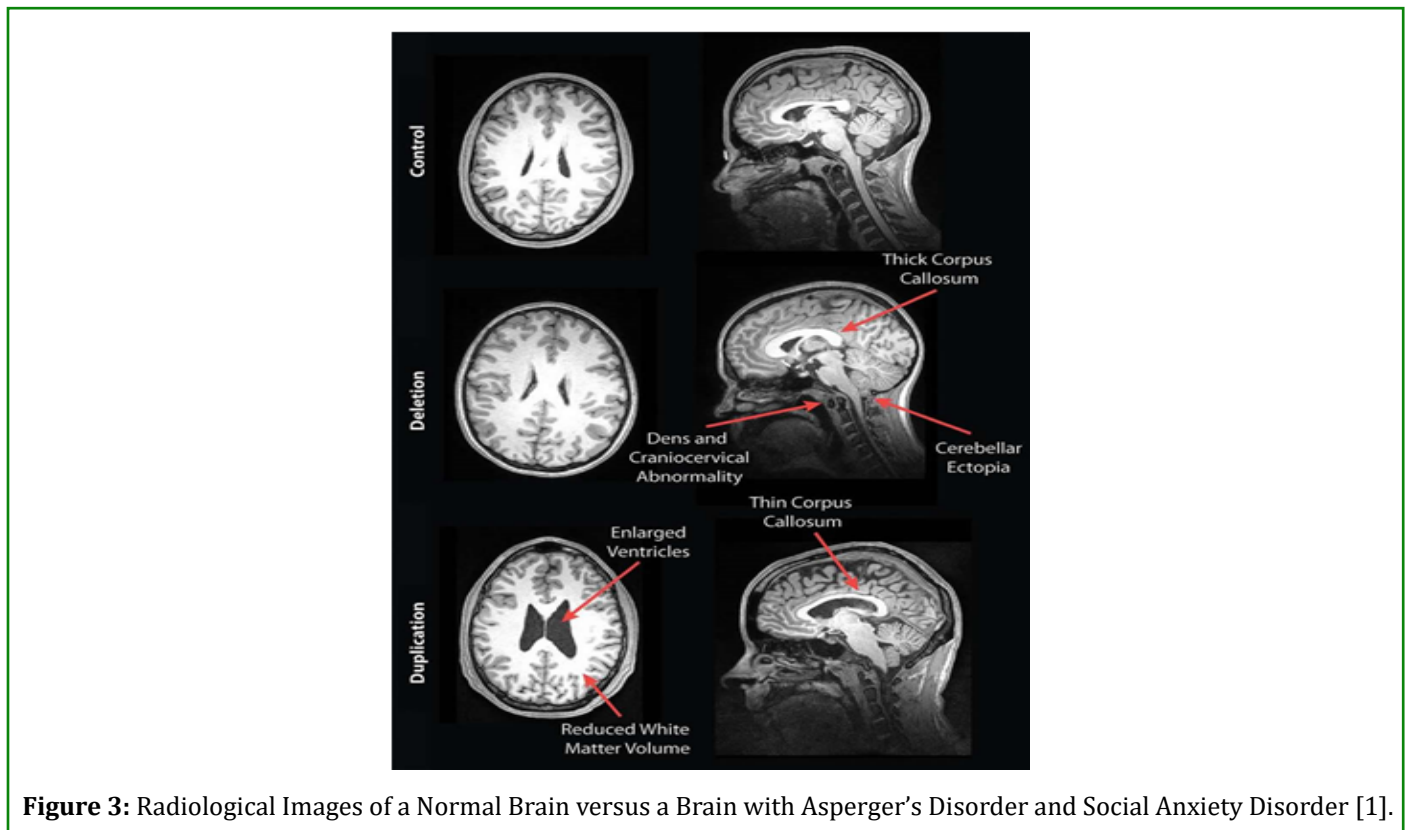


Figure 3: Radiological Images of a Normal Brain versus a Brain with Asperger's Disorder and Social Anxiety Disorder [1].

Paths of Treatment

While Asperger's disorder and social anxiety disorder are similar, the treatment of autism and social anxiety disorder is different. Asperger's or autism is a type of neurological divergence. When a person is neurodivergent, it means that their brain learns and processes differently than people who are considered neurotypical. Interventions typically focus

on helping people manage behaviors and develop skills that help them function more effectively in a variety of settings. There is no one-size-fits-all approach, so what works best often depends on individual characteristics and needs. The goal is to help people build skills and develop strengths [1,5].

Treatment for social anxiety, however, focuses on helping

people change the thoughts and behaviors that contribute to feelings of fear. Cognitive behavioral therapy (CBT) can be very effective, especially when it incorporates specific strategies such as desensitization and exposure therapy [1,5].

Research has shown that it is common for children and adults with ASD to also experience social anxiety. Whether or not a child has one disorder or both, social skills training is one treatment that may hold promise for both SAD and ASD. Although the cause of social impairment is different in ASD and SAD, many of the same symptoms are present in both disorders. If you have ASD or SAD, you likely have a host of social skills deficits, such as:

- Body postures
- Eye contact
- Speech quality, such as tone, volume, and speed

Social skills training has been shown to be effective in treating social anxiety symptoms and may also hold promise for individuals with ASD in terms of developing basic skills for social interaction. Because the exact causes of Asperger's disorder are not known, there is no way to prevent it. Similarly, there is no surefire way to prevent social anxiety, but people can take steps to address the condition when symptoms first appear. Early treatment of social anxiety can prevent symptoms from worsening and causing significant disruption in life [1,6].

Final word

SAD and ASD are separate disorders that show some overlap and may share some treatments. Once you identify your specific issues, therapy can be devised to help you overcome your difficulties in social situations. Whether you have a child who is showing signs of anxiety or difficulty in social situations, or you are struggling yourself, it is important to consult a doctor to understand what your particular set of symptoms mean [1,7].

Discussion

Asperger's disorder, also known as Asperger's syndrome, is a pervasive developmental disorder that involves impairment in some basic aspects of communication and relationships. Although Asperger's was originally a stand-alone diagnosis, the DSM-5 retired it and now uses the autism spectrum diagnosis. Although people with ASD and social anxiety disorder (SAD) have difficulty in social situations, these disorders are quite different [1,8]. The diagnostic criteria and symptoms of the disorders vary widely. People with SAD are able to form relationships but are impaired by anxiety. On the other hand, people with ASD have trouble with the nuts and bolts of communication that make relationships possible. Neuroimaging research may shed light on the

differences in the brains of people with SAD and ASD. Studies of brain function show that for most people, the amygdala, the emotional center of the brain, is activated when perceiving facial expressions. For people with ASD, the prefrontal cortex, the judgment and planning center, is activated when processing facial images. This means that people with ASD try to rationally figure out the meaning of a facial expression rather than experiencing an automatic emotional reaction. Treatment for social anxiety, however, focuses on helping people change the thoughts and behaviors that contribute to feelings of fear. Cognitive behavioral therapy (CBT) can be very effective, especially when it incorporates specific strategies such as desensitization and exposure therapy [1,9].

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References

1. Asadi S (2023) Human Pathopsychology. Amidi, Iran.
2. Faras H, Ateeqi NA, Tidmarsh L (2010) Autism spectrum disorders. *Ann Saudi Med* 30(4): 295-300.
3. Faridi F, Khosrowabadi R (2017) Behavioral, Cognitive and Neural Markers of Asperger Syndrome. *Basic Clin Neurosci* 8(5): 349-359.
4. Xie S, Karlsson H, Dalman C, Widman L, Rai D, et al. The Familial Risk of Autism Spectrum Disorder with and without Intellectual Disability. *Autism Res* 13(12): 2242-2250.
5. Masini E, Loi E, Benedetti AFV, Carta M, Doneddu G, et al. (2020) An overview of the main genetic, epigenetic and environmental factors involved in autism spectrum disorder focusing on synaptic activity. *Int J Mol Sci* 21(21): 8290.
6. Todorov A (2012) The role of the amygdala in face perception and evaluation. *Motiv Emot* 36(1): 16-26.
7. Hoogendam JMB, Steenbergen HV, Wee NJAVD, Westenberg PM (2020) Amygdala hyper reactivity to faces conditioned with a social-evaluative meaning- a multiplex, multigenerational fMRI study on social anxiety endophenotypes. *Neuroimage Clin* 26: 102247.
8. APA (2022) Diagnostic and Statistical Manual of Mental Disorders. 5th (Edn.), Washington, DC.

9. Maddox BB, White SW (2015) Comorbid Social Anxiety Disorder in Adults with Autism Spectrum Disorder. *J Autism Developm Disord* 45(12): 3949-3960.
10. Langdon PE, Murphy GH, Wilson E, Shepstone L, Fowleret D, et al. (2013) Asperger syndrome and anxiety disorders (PAsSA) treatment trial: a study protocol of a pilot, multi centre, single-blind, randomized crossover trial of group cognitive behavioral therapy. *BMJ Open* 3(7): e003449.