# ASPERGER SYNDROME IN ADULTS

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**ABSTRACT**

The Asperger Syndrome is included in the autism disorders spectrum. Its main characteristics are: poor social interaction, low spectrum of interests and preoccupations and ritualic behaviors [1].

At the moment, there are no DSM specific diagnostic criteria for adult Asperger syndrome. The diagnosis is formulated based on a detailed history of the individual and his/her family, pointing out the behavioral characteristics of one's childhood and malfunctions in the social and professional life in the adult. The most used diagnostic scale is Adult Asperger Assessment which offers two quotients: AQ for autist spectrum features and EQ for empathy [5].

The prevalence is between 0.02- 0.03% in children, with dominance in boys versus girls (8:1) [1]. At the moment there are no clear studies about the prevalence of Asperger syndrome in adults, but it's probably similar to the one in children as the autist features persist to the adult age [1,2].

The etiology is unknown but it's considered to be multifactorial with genetic and neurobiological components (disturbances in the Theory of Mind, central coherence and executive function) and psychosocial disfunctions [6, 7]. The differential diagnosis in adults is made with the schizoid and schizotypal personality disorders, but also with OCD, schizophrenia, borderline personality disorder, etc [3].

There are no treatment protocols for Asperger syndrome. So treatment is based on psychotherapy (structured and direct interventions) and symptomatic pharmacotherapy for comorbidities (insomnia, depression, psychotic episodes, etc.) [7,8].

**Keywords:** Asperger, autism, theory of mind, differential diagnosis

## BACKGROUND

Asperger syndrome belongs to the autism spectrum disorders, it's main characteristics being disfunctions in social relationship, small spectrum of interests and preoccupations both associated with ritualistic behavior [1].

Its prevalence is 0.02- 0.03% in childhood, being more frequent in boys, compared to girls (8:1) [1]. There are no clear prevalence studies at the moment for Asperger in adults, but it's probably close to the one in children, as the autist spectrum features persist throughout adulthood [1, 2].

Patients with Asperger syndrome have a distinctive symptomatologic pattern. Their social interactions are considerably limited due to their extremely low ability to intuitively recognize the signals of nonverbal communication. The interest for other people and for the outside world is limited, and meanwhile they have their own restrictive interests and sometimes, a very rich inner world, hard to understand by the ones around them. The preoccupations of a person with Asperger seem unusual because of their particular topic and the extreme and exclusive focus the person directs on to them

(ex. A patient was spending more than 8h/day studying the types of penguins from the Antarctic and drawing their anatomy to the smallest detail).

These patients are extremely sensitive to change and they have a very high adherence to routine. Any modification in the environment brings decompensations and behavioral changes that are sometimes very difficult to treat and cope with. This is happening because change is not compatible with their coping mechanism (structure, organization, and pattern repeating) [1, 2, 3].

Subsequent to the symptom severity and the intensity of their autistic features, some of these adults can't adapt in society, their social behavior being inexistent or very difficult to cope with. On the other hand we have patients with lower symptom severity who can function well socially and professionally as they can find adaptative coping mechanisms.

## DIAGNOSIS CRITERIA

The diagnosis is made on a clinical basis, as there are no laboratory tests for confirmation. ICD-10 included the Asperger syndrome in the category of pervasive development disorders in 1993, under the code F84.5. DSM-IV described the syndrome in 1994, following ICD-10.

DSM-IV diagnosis criteria:

A. Marked disturbances of social interactions, represented by at least 2 out of:
   1. The incapacity to use nonverbal communication like visual contact, facial expression, body posture and gestures in the context of social interaction.
   2. Inability to develop social relationships according to one's age.
   3. Doesn't look for the company of others and doesn't want to share own's interests, joys and achievements with other people.
   4. Lack of empathy and/or emotional/social reciprocity.

B. Repetitive, restrictive and stereotypical behavioral patterns, interests and activities, indicated by the presence of least one of the following:
   1. Exaggerated and abnormally intense preoccupation for one or more restrictive and stereotypical areas of interest.
   2. Inflexible adherence to rituals or specific and non-functional routines
   3. Motor mannerisms that are stereotypical and repetitive.
   4. Persistent preoccupation for components of objects.

C. The symptoms from categories A and B lead to significant disturbance in social, occupational or in other important areas of functioning.

D. There is no significant clinical language disturbance (ex. Uses singular words by the age of 2 and can communicate in phrases by the age of 3).

E. There is no significant cognitive disturbance.

F. There are no criteria for other pervasive development disorder or for schizophrenia [4].

The initial symptoms of Asperger can be observed after the third year of life. This syndrome is often very difficult to differentiate from other pervasive development disorders in childhood, and, as the ages go by, from other psychiatric disorders like schizophrenia, obsessive-compulsive disorder and personality disorders (schizoid, schizotypal, avoidant and obsessional). In the differential diagnosis we can also include brief psychotic disorders, schizophreniform disorder, social anxiety and delusional disorder. All these afflictions include in their diagnostic criteria characteristics like social withdrawal and behavior alterations (the tendency to repetitiveness, stereotypical ideas and preoccupation for rules (ex. OCD) [1, 2, 3].

Persons with Aspergers live by very strict rules, same hours for waking up, going to bed and meals. They prefer certain mate-

rials and textures and they generally wear the same type of clothes and outfits planned ahead. They avoid some types of food and they don't like crowded and noisy places. These characteristics are present since childhood. Any modification of the schedule can make the interactions with their caregiver very difficult. There are numerous tantrum crisis to minor triggers like the changing the order of foods on one's plate.

## DIAGNOSIS SCALES

Adult Asperger Assessment (AAA) is an instrument specially developed for the diagnosis of Asperger syndrome in adults. It includes two screening methods: AQ (Autism Spectrum Quotient) and EQ (Empathy Quotient) plus DSM-IV extended criteria [4, 5]:

Ad A) Difficulties in understanding social situations and the feelings and/or thoughts of other people.

Ad B) The tendency to dichotomic thinking (black and white): lack of ability to include more cognitive perspectives in a flexible manner

Additionally: qualitative disturbance of verbal and nonverbal communication that associates at least three of the following:

1. The tendency to direct any conversation towards one's self and one's own domain of interest
2. The marked inability to initiate and maintain a conversation. One can't see the point of superficial social contacts, politeness and/ or of the idea of spending time with other people without a clear debate, a strict conversation topic or a precise activity.
3. Monotonous speech, with too many vocabulary details.
4. The incapacity to realize if the conversation partner is interested or bored.
5. The frequent tendency to say things without realizing the emotional impact they have on the listener.

Additionally: at least one of the following is affected in relation with imaginative thinking in childhood:

1. The inability to get involved in role-plays with other children and to understand their play scenarios corresponding to one's developmental level.
2. The inability to tell stories or write from their own imagination fictive stories, compositions and/or invent life scenarios without plagiarism.
3. The lack of interest for fiction (stories, cartoons, movies) corresponding to one's developmental level or, if they are interested in them, their interest is directed to basic elements like specific technical and/or historical facts.

AQ analyses in a 50 item questionnaire 5 main symptomatic characteristics of Asperger syndrome:

- Impaired social abilities
- Attention disturbances (flexibility, mobility, focus)
- Excessive attention to details
- Impaired communication abilities
- Poor imagination

EQ analyses the capacity to empathize (understand other person's emotions and thoughts) [5, 6, 7].

People with Asperger have a normal or over average IQ. The majority of patients have a higher verbal IQ score and a lower performance IQ score. Due to their high ability to compensate the social deficit verbally, the symptoms of Asperger syndrome become more prominent later in life, compared to classical autism [10].

## DIAGNOSIS DIFFICULTIES AND PARTICULARITIES

The diagnosis of Asperger in adults undiagnosed in childhood is very difficult. It's based on a thorough anamnesis. DSM V doesn't have any separate criteria for Asperger syndrome, proposing in the meantime a standard set of criteria for autism spectrum

disorders, all included in the chapter of neurodevelopmental disorders. People with Asperger are considered those with a normal or over average IQ and who associate the characteristics of autism spectrum disorders (difficult social interaction and stereotype, restrictive and repetitive behavior patterns). In adults without antecedents in childhood who present these characteristics, the anamnesis and AAA scale are the main diagnosis instruments. Hetero-anamnesis and school reports analysis are also of high importance. For example, teachers can describe such an individual as difficult, withdrawn, with integration difficulties and restricted interests to some topics, but these features are not enough to include the patient in this diagnosis category [2, 3].

The clinical examination on the other hand, offers us precious details, easily to observe. At first, the patients do not pay attention to doctor's instructions and can appear distracted and clumsy when they enter the room. They can be excessively preoccupied where they sit and where they put their stuff. Their facial expression and gestures are rigid and their speech lacks melody and is monotonous. Although their vocabulary can be sometimes extremely developed, they include useless details in their speech, with excessive focus to irrelevant aspects. Visual contact is generally avoided, patient's gaze being fixated often on other objects in the room. They answer punctually to the questions only if they are closed and specifically addressed. They can easily divagate from the speech topic because they can't separate the important elements from the unimportant ones (Ex. Doctor:"What time did you wake up today?" Patient: "I woke up at 8:03. I usually wake up at 8 sharp but my alarm didn't work, it needs certain batteries to work properly. I use the product X but I couldn't find it in the supermarket downtown which annoyed me very much as the supermarket in the corner where I always buy batteries from and which has them arranged on specific categories in the shelf no 3, on the left of cashiers no 4 was closed so I used the product Y with the characteristics Z which is way poorer than product X").

They do not reciprocate to affective reactions of the examiner (smile, funny remarks, reassurances).

The majority of patients with Asperger syndrome are withdrawn and have very few social contacts. Their friends are almost exclusively from social media and internet discussion forums. But in this way they can though have very interesting conversations and productive interactions as they meet people with similar cognitive structures who use a literal language, without the need to recognize the nonverbal characteristics of communication. Subsequently, their capacity to engage in sentimental relations is very difficult. These persons can appear cold, arrogant or selfish and they don't understand the necessity to empathize with their partner's feelings and interests. They often choose long distance relations with people with similar structure and interests, with whom they mostly talk online and have very rare social contacts. The majority of Asperger people have a very low need of physical closeness, more often they feel an aversion towards it. But their fundamental need for intimate relationships and sex is similar to the usual persons, but extremely hard to satisfy, because this implies mutual empathy with their partner; empathy which these persons don't understand. They mostly see intimate relationships like a physical, stereotypical act and with no other implications. In spite of all these facts, very many Asperger people can have families and build stable relationships if the severity and intensity of autism spectrum symptoms is low, and/or the capacity to build adaptative coping strategies in therapy is high [1,2,3].

In their professional life they can be very performant if they find a profession corre-

sponding to their own interests. They can be very good engineers and mathematicians because if they can find an activity they are interested in, they can spend the most of their time improving their abilities for hat specific domain. The most frequent jobs they choose are the ones in science and technology because they don't involve working in a social/team work environment. These patients often have very advanced cognitive abilities, but they can be fructified in a strict environment, adapted to their own rules and which doesn't imply changes. The need to socialize with colleagues or coworkers can develop conflicts and bring marked decline in performance, as other people can't adapt easily to the lack of flexibility of an Asperger person. So, in these cases, the environment must be adapted to the person, not the other way around.

## DIFFERENTIAL DIAGNOSIS

In childhood's autism described by Kanner, the inability to develop social relations and interact nonverbally is frequently accompanied by incomprehensive speech or lack of language. Affected children present extremely unusual patters of activity, with repetitive and stereotypical behavior (ex: their game involves arranging the toys in a certain order for hours on end, rotating a piece of paper or drawing the same shape. Ex: a 5 year-old patient was playing only by turning on and off the bathtub tap for several hundred times, being fascinated by the way the water is flowing). Clinical impairment in Kanner's autism in way more proniounced compared to Asperger. There are many discussions regarding the difference between Asperger syndrome and high functioning autism. Unlike patients with autism diagnosed early in childhood, high functioning autist persons have a higher intellectual capacity and better social communications abilities but globally, cognitive and language development are delayed. In Asperger patients, cognitive and language development are normal, but they have the communication difficulties specific to high functioning autism.

In adults, differential diagnosis between Asperger and schizoid and schizotypal personality disorders can be extremely difficult. In both autism and these personality disorders, affected individuals avoid social interaction and they are described as lonely and withdrawn. Schizoid personality disorder has a reduced emotional palette, with affective indifference and low capacity to feel enthusiasm and joy. Schizotypal personality disorder is characterized by a bizarre behavior pattern frequently associated with magic, mystic and paranoid ideation, with lack of trust for social interaction. But these personality disorders don't include extremely limited and restrictive interests (although those with schizoid personality disorder prefer a small number of predominant solitary activities) characteristic to Asperger, nor the tendency to stereotypical and repetitive behavior [5].

Schizophrenia can associate social withdrawal and lack of empathy. But it also has distinctive features such as disorganized behavior and thinking, delusions and hallucinations. Symptoms of Asperger syndrome can be noticed in early childhood, while schizophrenia breaks out most early in adolescence (hebephrenic forms). Autism doesn't include productive, psychotic symptoms, which differentiates it from psychotic disorders. Disease onset can also differentiate Asperger and simple schizophrenia (which doesn't have productive symptoms) [4, 5].

Obsessive- compulsive disorder, which includes a marked tolerance to uncertainty and pronounced adherence to rules and rituals, and also obsessional personality disorder are important elements of differential diagnosis. But these don't associate a restrictive pattern of interests and stereotypical behavior. Also, intolerance of uncertainty and change doesn't produce as devastating

effects to social functioning like it does in Asperger syndrome.

A particularity for differential diagnosis in females: borderline personality disorder which also includes lack of empathy and difficulties in recognizing nonverbal signals. But it also associates marked emotional instability with no pattern of restrictive interests and disorders and poor rational thinking [3, 4].

## COMORBIDITIES

Depression is the most frequent and the most important comorbidity and it appears mainly due to the difficulty to find people with the same interests and preoccupations. The incapacity to adapt socially and to have intimate relationships can also trigger depression. Depression is also an important differential diagnosis element because it can also associate social withdrawal and disturbances in nonverbal communication. Autism is often comorbid with disorders from the obsessive- compulsive spectrum and ADHD. Comorbidity of Asperger and ADHD is more rare though, as specific features of one or other dominate [3, 4].

Comorbidities in Asperger patients are different from those of classical autism. The first category have a higher risk for psychotic disorders, aggressive behavior, anxiety and mood disturbances. In spite of this, psychosis comorbidity in Asperger syndrome is very rare [11].

## ETIOLOGY

Asperger's syndrome etiology is not yet established, but most probably it's multifactorial. The genetic involvement of chromosomes 1, 3 and 13 [2] was proved, and the perinatal complications can contribute to the development of the syndrome. Familial studies show a higher incidence of Asperger syndrome in relatives of first degree [12]. Dopamine and serotonin pathways are also involved, with a lower functioning of right hemisphere in these patients. This fact is sustained by disturbances in facial recognition, emotional expression and the ability to draw complex figures [13]. The theoretic model of Remschmidt and Kamp- Becker includes three concepts of abilities which are in deficit in autism spectrum disorders and it seems to better explain the symptomatology:

- Theory of mind
- Central coherence
- Executive functioning [1, 2, 7].

### A. Theory of mind

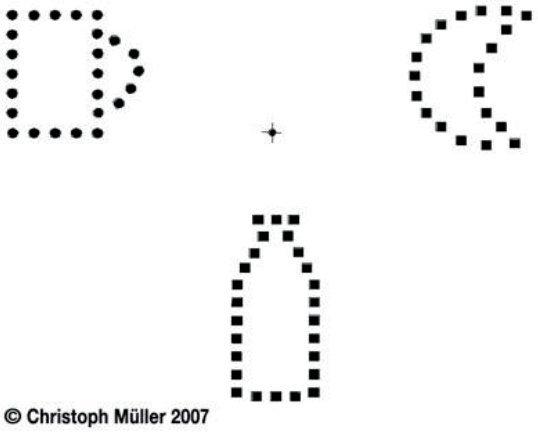
It's a conceptual model for the capacity of empathy. This involves the ability to imagine that people around us have their own ideas, thoughts and emotions and also our ability to empathize with all these. People with Asperger syndrome have a marked deficit in Theory of Mind (TOM).

Neurophysiologically, TOM is correlated with some regions of the brain such as medial prefrontal cortex. In adult patients with Asperger, functional MRI shows that execution of tasks involving TOM is associated with lower activity of left medial prefrontal cortex. Amygdala- an important structure of the limbic system which processes and regulates emotions, and also the area in the temporal lobe specialized in perception of human faces present lower activity in adult patients with Asperger [16].

Mirror neurons system is extremely important for the ability to empathize. This neural pathway becomes active in some tasks but it's also activated- unconsciously and involuntarily- when another person does the same task. This system is also affected in Asperger syndrome [2, 6, 8].

### B. Central coherence

Describes the ability to integrate individually perceived elements into a context: the ensemble image. For example, a patient with Asperger can say: "I see hundreds of individual trees, but I can't see the forest" [3, 7].




Those affected are extremely oriented to details, their perception is extremely selective and they have very high difficulties in constructing the ensemble image from separate elements. For central coherence testing, patients receive an image like the one above and they're asked to associate one of the two images from the upper side of the page, with the one below. People with Asperger and central coherence deficit will consider the upper- right image matching with the object below because they are both drawn using squares [2, 8, 9].

**C. Executive functioning**

Planning, monitoring one's actions, impulse inhibition, attention focusing and searching for problem solving strategies are characteristics of executive function affected in patients with Asperger. These individuals are inflexible to attention mobility and they can use newly learned behavior with very high difficulty. The activity of prefrontal cortex is directly corelated with executive function [8].

## TREATMENT

Not all cases of Asperger syndrome are considered as having a disease statute, so they might not require treatment. There are patients with autist spectrum features who can develop coping abilities by themselves and they are functional, so criterion C of DSM- IV diagnosis is not fulfilled. If the symptoms are pronounced, especially in patients with comorbid disorders, a multimodal approach is needed: symptom centered psychopharmacological treatment associated with psychotherapy. For example, in patients with high impulsivity, we can associate atypical antipsychotics and/or mood stabilizers. In patients with compulsive symptoms or depression, we associate selective serotonin reuptake inhibitors. The symptoms of attention deficit can be treated with stimulant medication and so on. There is no specific psychopharmacological treatment for Asperger syndrome, but repetitive and stereotypical behavior seems to respond well to SSRI and atypical antipsychotics. An important precaution is the higher risk of tardive dyskinesia in these patients [14, 15].

There are no empirically tested types of psychotherapy nor efficient scientifically proven psychotherapeutic concepts for Asperger syndrome in adults. But the same therapeutic concepts used in children with Asperger syndrome can be used in adults. TEACCH (Treatment and Education of Autistic and related Communication- handicapped Children) with behavioral approach and ABA (Applied Behavior Analysis) are very useful. These programs develop communication and social interaction abilities using clear instruction and steps, adapting the external environment to patient's difficulties and needs.

Therapeutic principles for patients with Asperger syndrome recommended by Klin and Volkmar [9]:

1. Discuss the way our patient perceives different social interaction, and put them in practice.
2. Structured training on problem solving and life abilities
3. Practice the behaviors learned in therapy in non-familiar situations.
4. Transfer of behavioral techniques learned in therapy to hypothetical situations that can appear in patient's life

5. Help the patient to discover a concrete sense of his/her own identity according to his/her daily behavior
6. Analyze the situations that generate frustration and the way in which patient's frustration affects the ones around
7. Ergotherapy and physiotherapy

In therapy one needs to put in practice different behaviors integrated in a directive intervention with clear and concrete examples. Cognitive behavioral therapy and behavioral therapy are the base in treating these patients, associated with assertivity and social abilities training.

## CONCLUSION

Asperger syndrome in adults is a special diagnosis entity. As very many adults with this syndrome are highly functioning, their addressability to the psychiatric hospital is very low. In school age children, the very good verbal abilities often mask their social disfunction, delaying the diagnosis. About 50% of these children reach the adult age without being evaluated or treated [17].

Brief psychotic disorders can appear in Asperger patients, most of them with persecutory and reference delusion, fact that aggravates social withdrawal. Their psychotic episodes are though brief, with delusions. Perceptive disorders and/or disorganized behavior like those of classic psychoses are very rare [18].

Another aspect is the transfer from children psychiatric service to adult psychiatry at the age of 18, where, as there are no diagnosis and treatment protocols for this syndrome, they will receive different diagnoses, the most frequent being the ones in personality or schizophreniform disorders category. So, we consider imperious the need of clear diagnosis criteria for Asperger syndrome in adult, in order to facilitate the inclusion of these patients in a precise diagnosis category.

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