Module 3 : Causes and Diagnoses of Autism

- What the main causes of autism are
- Which former theories of autism have now been discredited
- How autism is diagnosed in adults
- How autism is diagnosed in children

In this module, we will explore the roots of autism spectrum disorders.

- What the main causes of autism are
- Which former theories of autism have now been discredited
- How autism is diagnosed in adults
- How autism is diagnosed in children
- The differences between how males and females experience autism and how they are diagnosed with the condition

3.1 Main Causes of Autism

When we refer to the main causes of autism, they must come with an important caveat: at this point, the exact cause of this highly complex condition is unknown. It is generally accepted amongst medical professionals and researchers that autism results from abnormalities in the brain's structure or function.

When comparing the brain scans of autistic children to those without the condition, there is a noticeable difference in the shape and structure of the brain. What causes those abnormalities in the first place is still being investigated.

Most researchers believe that inheriting a certain gene makes infants more vulnerable to autism spectrum disorders and that they can run in families. However, at present, there is no one gene that has been determined as the root cause of autism.

It is also posited that besides genetic predisposition, autism may occur as a result of environmental, medical, or other, unknown factors. Some researchers are even investigating whether a cluster of unstable genes may interfere with brain development in certain conditions and consequently cause autism.

ASD is typically the presenting factor in several rarer genetic conditions such as Fragile X Syndrome and Williams Syndrome, which we discussed in previous modules. Autism may also be a factor in Angelman Syndrome, which affects the nervous system and causes epilepsy as well as severe intellectual and physical disability.

3.2 Debunking Autism Myths

In the past, there has been much speculation about what else might cause autism, with some theories now thoroughly dismissed by doctors and researchers.

These include exposure to environmental pollution and maternal infections.

Extensive research has also been conducted around the measles, mumps and rubella vaccine and thiomersal, which is used as a preserving agent in some vaccines. The research paper by Dr. Andrew Wakefield (Wakefield, 1998), which suggested a link between the MMR vaccine and autism has now been retracted, and the doctor has lost his medical licence. However, due to some celebrity endorsements, there has been mass hysteria about vaccinating children and a movement of "anti-vaxxers" has emerged despite there being no evidence that vaccinations can or have caused autism spectrum disorders. This has led to an upsurge in measles cases in recent years.

Some people have suggested that a child's upbringing can cause them to become autistic. In the 1950s, this was referred to as the "Refrigerator Mother Hypothesis" (Laidler, MD, 2004), and was used to describe children who didn't benefit from enough maternal warmth. This has also been long

since disproved. Autism is a condition that is present in early life and is not related to how a child is raised; you can't acquire autism through detached or unemotional parenting.

In line with the celebrity endorsement of the "anti-vaxxer" movement, there was also a backlash against eating dairy and wheat products for fear that they could contribute to autism.

This has also been disproved. A 2015 study by the University of Rochester found that a gluten and casein-free diet had no benefit for autistic children and no effect on their behaviour.

In fact, gluten and dairy-free diets can potentially deny children beneficial vitamins and nutrients. They can also be extremely challenging for parents to enforce and children to endure, as many autistic children are highly "picky" eaters.

There is no evidence to support some claims that fungal infection or overgrowth of Candida yeast can give children autism.

Another myth that must be debunked is that through the use of alternative therapies, such as ones to treat "leaky gut," heavy metals, fungi, and Candida yeast, children can potentially be cured of autism. Most researchers will state that not only is this untrue, but it also has the potential to be dangerous.

At this time, there is no known cure for autism. Remember, in the first module, we addressed how autism spectrum disorders should not be treated as illnesses or diseases. However, while there is no cure, there are many highly effective support systems in place to improve the lives of autistic people.

Autism is seen as a difference and not a disadvantage.

Specialised behavioural and educational therapy, support systems during school and extracurricular activities, motor skill therapy, and treatment of other related conditions, such as epilepsy or anxiety, can have a significant effect on autistic people and help them to live richer and fuller lives.

3.3 Diagnosing Autism in Adults

Diagnosing autism in an adult can be a complicated process.

However, it does happen, and there are cases of people who have gone through life and not received a diagnosis until they were older.

Some adults can wonder for years if there is something "different" about them, based on their life experiences. These may include trouble relating to others, difficulty fitting in at school, or an inability to form relationships.

There have even been cases where adults watching a documentary about autism have recognised symptoms in themselves and realised it may be the answer for why they have felt a certain way all their lives.

While some adults who have this realisation later in life may choose to pursue a formal diagnosis, others will not. Simply knowing that is what they might be dealing with is enough for them, and a bit of research will enable them to cope better with their condition going forward.

It can be difficult to obtain an autism spectrum diagnosis as an adult, particularly in people who have difficulty expressing themselves. Some adults may find it an uncomfortable topic of conversation or worry that others will not take them seriously.

However, adults who would like to pursue formal recognition of the condition may find it worthwhile to talk about autism with their GP. Such people should prepare in advance to present their case, including evidence and examples to support why they feel the way they do. They shouldn't hesitate to ask for a referral to explore the possibility further. An autism diagnosis can't be made by a GP, but the GP will have to complete the referral to a clinical psychologist, a multidisciplinary team or a psychiatrist.

For adults who believe that they may be autistic, there are many online tools for selfassessment, but please be aware that they may not be accurate.

If an adult does opt to take a test, they can present the results to their GP as a guide towards making their case and obtaining a referral.

It is worth noting that many adults, especially women, have become adept at hiding the symptoms of autism throughout the years, so they may be far more challenging to diagnose. Another obstacle to adult diagnosis is that most of the behavioural assessment checklists compiled to measure whether someone is on the autism spectrum are designed for children and don't address their adult needs.

Finally, given all these factors, it can be considerably challenging to find a health professional who feels qualified to evaluate adult autism. Despite these obstacles, if you feel strongly that you are on the autism spectrum and would benefit from a diagnosis, it is worthwhile pursuing it for the support and understanding that you may find open to you. There is very useful advice about the system for diagnosis on the <u>National Autistic Society (NAS) website</u>.

3.4 Diagnosing Autism in Children

As ASDs are more commonly diagnosed in children, obtaining an assessment can be somewhat easier; that doesn't mean it will happen overnight, though.

Receiving an autism diagnosis can be a positive experience for many parents of children on the spectrum. Putting a name to their child's behaviour can provide an explanation for the difficulties they've experienced and offer access to support and services designed to help autistic children and their families. However, not all parents feel that way and some would rather that their child didn't have a diagnosis to "label" them or "define their abilities" throughout their life.

Parents who have reason to believe their child may be autistic should, however, keep in mind that it's by no means an instant diagnosis. No one, simple procedure is going to give an answer.

There is also no exact age when a child will be diagnosed. While health professionals typically agree that the onset of autistic symptoms should be present from age three, some children are diagnosed as young as two and others not until they start primary school.

The most common early signs that can lead to an autism spectrum diagnosis are:

• Not drawing the attention of parents or other children.

- Carrying out activities in a rigid and repetitive manner.
- Extreme resistance to change and difficulty adjusting to a different schedule.
- Emerging difficulties with social interaction.
- Delayed speech or inability to communicate with others.
- Apparent lack of imagination.
- Inappropriate behaviour such as biting, kicking, pinching, hitting, and self-harm.
- Pica, the condition in which people put inedible things in their mouths.

3.5 The Differences Between Males and Females on the Autism Spectrum

When researching autism spectrum disorders, there are noticeable differences between how they affect males and females.

FACT

According to a study conducted in 2017, researchers found that the male-to-female ratio of autism diagnoses was around 3:1. (*autism.org.uk*)

There is still much debate about whether the results indicate that autistic disorders are more common in males than females, or whether males are simply more likely to receive a diagnosis. It is now commonly perceived that girls are more adept at masking the behavioural traits associated with autism. Females show less restricted and repetitive behaviours (Wijngaarden-Cremers et al., 2014, Frazier et al., 2014).

In order to fit in with their peers, females may mimic what they do until such a point as they are seen to fit in, for the most part. This can however be very tiring for the girls and women as they are constantly trying to be like their peers, rather than just being themselves.

It is suspected by experts that many women are never even diagnosed with autism because their symptoms present differently. As a result, they are missing from important statistics on the condition even though they would benefit from as much diagnosis and support as males.

3.6 Females on the Autism Spectrum

As previously mentioned, it is thought that females can better mask

the symptoms of ASD because they are more likely to observe other children and copy them, making their behaviour seem more typical.

Females also tend to be more aware of social and communication conventions, and feel the need to interact socially more than males, even if they are not entirely certain how to do so. As a result, they are often led by their peers and mimic what other girls do, so it looks like they fit in by mimicking socially appropriate behaviour (Altman., et al 2016). Girls are also expected to be more sociable in society than boys, but when girls are on the spectrum, they don't engage in the "small talk" or idle "chit chat" which can facilitate more holistic communication, which creates a greater capacity for traditional friendships than male counterparts (Bargiela et al., 2016).

Autistic females may struggle with the notion of a social hierarchy and how to communicate appropriately with people of status, such as teachers or employers. This can be problematic. Without a diagnosis, neither the female nor the people she is interacting with will be aware of what to expect from her behaviour, and it may unintentionally come across as impertinent or inappropriate due to an inability to read social cues.

Girls on the autism spectrum are also highly likely to engage in rich fantasy worlds, particularly with mythical beings like witches, elves and fairies. They might spend a lot of time on "pretend" play and exhibit fewer symptoms of lacking imagination than autistic boys.

While they may have many of the same interests as other girls their age, such as reading, watching certain television shows, or expressing a love for horses, their level of interest will have a tendency to become more intense. While girls are less likely to have intense special interests when compared to boys, they still occur for females on the spectrum. For example, while other girls might enjoy a certain TV show or musician, a girl on the spectrum may be devastated to miss an episode or album and may memorise a significant amount of detail about the programme or band and their stars.

Another difference suggested is that the genes for autism may be located in the X chromosome, which girls inherit from both their parents. Boys, on the other hand, only inherit the X chromosome from their mothers.

3.7 Males on the Autism Spectrum

on the spectrum in the first place, or at least more likely to receive a diagnosis than females.

Some researchers have estimated that males are up to five times more likely to develop symptoms of autism.

A study conducted in 2015, in a partnership between Cambridge University and Channel 4, also found that men in male-dominated STEM professions (science, technology, engineering, and maths) also have a far higher autism quotient than females. Could a correlation potentially be made between the higher number of autistic males and these male-dominated professions? (Data from the Office for National Statistics Labour Force indicates that, in 2019, just 24% of employees in STEM professions were women).

The Director of the Autism Research Centre, Dr Simon Baron-Cohen, who co-led the Cambridge and Channel 4 study, has also touched on research about how testosterone can affect brain development.

If it does have an effect prenatally, that could potentially be an indicator of why males are more likely to be on the autism spectrum than females (Baron-Cohen, 2012). Furthermore, data has shown that children of both genders who are autistic have more testosterone than typically developing children, even prenatally.

While this information is interesting, even Dr Baron-Cohen has pointed out that it's only one piece of the larger autism spectrum puzzle. He has given credence to the fact that some girls may simply be missing out on a diagnosis due to the skills mentioned earlier, or perhaps because the methods used to determine autism aren't suited to them.

Autistic boys also differed to girls in their behaviour. While everyone on the autism spectrum is unique - as it falls within a wide spectrum of conditions - there are, of course, some similarities.

For example, boys are more likely to display repetitive, rigid and restricted behaviour than girls, which may be explained by differences in the brain's grey matter.

In fact, research has revealed that the brain structure of autistic males is actually different to that of females. As a result, boys will more commonly engage in behaviours associated with autism such as hand flapping and having intense, narrow interests. They are also less likely to comprehend how to use imagination.

Take a Quick Recap Test

[viralQuizid=91]

3.8 What We've Learned

In Module 3, we investigated the main causes of autism and what current research indicates about how people come to have the condition.

These may include genetic factors, hereditary predisposition, medical issues, or environmental factors.

We also looked at some myths surrounding what causes ASD that have now been disproven by leading medical professionals. Examples of disproved theories include contracting the condition through childhood vaccinations, eating gluten or dairy products, or being subjected to "Refrigerator Parenting".

Next, we covered how autism is diagnosed in adults and the challenges they may experience when pursuing a late diagnosis. We compared that to diagnosing autism spectrum disorders in children and discussed how girls may be missed when it comes to making a diagnosis.

Finally, we looked at the traits of autistic girls and boys, including what makes them unique and what symptoms they share. We learned that boys are more likely to receive a diagnosis and that the brain structures of males and females on the spectrum are different.

Summary

After completing this module, you should have a good understanding of the roots of autism and how people may or may not become autistic. You should also be aware of which myths and hypotheses have been disproven as not causing or "curing" autism.

You should now grasp the basics of how autism is diagnosed in children and the challenges associated with making an autism diagnosis in adults. In conclusion, you should also be aware of the differences between autism in males and females.

In the next module, we'll take a closer look at the language and communication skills of autistic people.

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