Introduction

Autism Spectrum Disorder (ASD) is the diagnostic term currently used to denote how autism is a part of the biological makeup of a person (Cashin, 2021). The Centers for Disease Control and Prevention or the CDC (2023) revealed that 1 in 36 children are identified to be on the spectrum as of 2020 and the disorder affects boys four times more than the opposite gender. That number is an 18.18% increase from the same statistic two years prior. The disorder itself is diagnosed through tests that aim to identify patterns of behaviours found in autistic people to see if characteristics of autism are present. According to Cashin (2021), currently, there are no biological tests that can identify autism such as blood tests and scans as of the writing of his book. Autistic people or people with ASD live in a different way from other people. The CDC (2022) has noted that not everyone with ASD has the same symptoms. In fact, in their signs and symptoms list, is separated into three sections which are Social Communication and Interaction Skills, Restricted or Repetitive Behaviours or Interests, and other characteristics. These symptoms are caused by the differences in the makeup of the parts of the brain. People with ASD may have problems with interacting with other people, having repetitive behaviours and learning to walk or read in a different way than most people do.

Per Evans (2013), the term autism was first used in 1911 by a German psychiatrist by the name of Eugene Blueler when describing some of the most affected cases of schizophrenia, which he also conjured. At this time, Blueler described autistic thinking as adolescent thinking to prevent future unfulfilling realities from having fantasies and mirages instead. Across the English Channel, the Brits used the same term as its meaning from the 1920s up until the 1950s (Piaget, 1923), however, a switch happened in the 1960s where British psychologists questioned

whether or not having infantile thoughts, as Blueler thought, is accurate or not. To challenge that train of thought, they developed new methods to validate child psychology. Since then, autism referred to a complete lack of an unconscious symbolic life (Evans, 2013) as opposed to hallucinations and delusions to feed adolescent-like thinking. Autism also was thought to be mental retardation or insanity (Carew, 2009). Leo Kanner made a discovery in 1943 that a set of children did not fit the pattern of being emotionally disturbed but instead just being slow learners. Hans Asperger also made similar observations as to Kanner though never actually working together about this matter. Asperger's findings would later be known as Asperger's Syndrome which is used to describe individuals who struggle to assimilate with others in social situations, have repetitive behaviours, and a small number of interests.

As mentioned previously, no simple medical test such as a blood test or genetics can be used to diagnose someone with ASD. According to Hyman et al. (2020), diagnosing a patient as early as possible is detrimental in order to get the patient their desired support and needs to achieve their full potential. ASD can be detected as early as 18 months of age or younger and a diagnosis at age 2 can be considered definitive (Lord, 2006). There are three steps involved in diagnosing ASD which are Developmental Monitoring, Developmental Screening and Developmental Diagnosis (CDC, 2022).

Developmental monitoring is an ongoing process that involves monitoring a child's behaviour as they grow and develop. Parents and providers are encouraged to develop a child's skills while observing whether or not the child has reached a quintessential developmental milestone or skills that a typical child might have in their respective age in things such as playing, learning, communicating, and behaving. During this phase, a doctor or nurse might ask

about the child's family history to see whether or not a family member is linked to any other learning disorders such as ASD or Attention Deficit Hyperactivity Disorder (ADHD).

Developmental screening is more formal than developmental monitoring (CDC, 2022). Screening consists of questionnaires or checklists that are based on previous research to compare other children that are around the same age to cross-check their developmental milestones. This screening can be done by a doctor or experts in healthcare or school settings. Additional screenings may be needed if the child is at high risk of ASD such as if they have family members also affected by ASD or other learning disorders mentioned previously or if behaviours according to ASD are present.

Of course, a screening test or questionnaire is not sufficient enough to diagnose a patient. Those tests however are indicative to prove whether or not a child is reaching their predicted developmental milestones. With that said, a specialist can look at the test and figure out whether or not the child is on the right track or if they should take a closer look at them. According to the CCDC (2022), a number of specialists including developmental paediatricians, child psychologists, speech-language pathologists or occupational therapists can do a more in-depth look at a child's development to further understand the child. The specialist may observe the child, give additional tests, talk to family members about family history and the results of their findings, evaluate the child's strengths and weaknesses and also provide information on the child's developmental diagnosis.

The Empathising-Systemising Theory

One of the first main theories that were discussed in the debate was the Empathising-Systemizing theory (E-S theory). The main crux of this theory is that autism and Asperger's syndrome explanations can be well informed not just by empathising but also systemising (Baron-Cohen, 2009). As mentioned in the debate and in this essay, males are diagnosed with ASD more often than females. As brought up in the debate, this could be due to differences in how individuals behave according to their gender. While it is very obvious for boys when they express emotion, girls on the other hand have a harder time expressing their emotions due to the societal norms put in place to make them be like other girls. Understanding this theory is to understand the concept of systemising (Baron-Cohen, 2009). Systemising involves the will to organise and put systems into place. Tests such as the Systemizing Quotient (SQ) could be done to test how strong your drive to systemise is, the higher the score, the higher the drive (Baron-Cohen, 2009). High-functioning individuals with autism and Asperger's syndrome tend to score higher than other individuals. Males tend to have higher scores in systemising tests. Alternatively, females tend to score higher in empathy by the Empathy Quotient (EQ). A study by Auyeung et al (2009) proved just that. The researchers gave out both the EQ and SQ that are adapted for children to parents with children who are developing as expected and the girls scored significantly higher EQ results compared to boys. On the contrary, boys scored higher in SQ compared to girls at a significant rate. They then tested a further sample of children with Autism Spectrum Conditions (ASC) who scored a noteworthy lower score on EQ but an SQ score that peaks over the typically-developed boy scores. As a result, we tend to view children with ASC as hyper-masculinity in profile which leads to incorrect

conclusions since it does not have any irrespective of sex. In the debate, this statement was mentioned, “what we do as a society is that we don't view girls with autism as girls with autism, we just group them by their gender and just view them as girls”. Through this specific theory, it could theoretically help us bring awareness to diagnosing more women in this space and stop generalising women as just being women but instead properly diagnosing them with ASD.

Theory of mind is another theory used to help explain ASD and its symptoms. This theory was the base for the E-S theory. The theory of mind according to Astington and Dack (2008) underlines that children’s theory of mind could make us understand human behaviour in their abilities. It is an important theory for us to understand the importance of social understanding and social cognition. The term theory of mind first came to the forefront when David Premack and Guy Woodruff created an article titled ‘Does the chimpanzee have a theory of mind?’. Though the initial research was done on primates, the term has since been used in ASD research. The concept of the theory of mind is detrimental for social communication and interaction and to understand one's behaviour and emotions. The theory of mind refers to the ability to ascribe beliefs, intents, desires, and emotions to an individual and others, and understanding that those mental states can be different from one another. Both the theory of mind and E-S theory are related in the aim to seek understanding and explain the social and cognitive behaviours in ASD, however, the theory of mind focuses more on understanding the mental states of others rather than an individual's specific cognitive style preference that E-S theory explores.

The extreme male brain theory was also mentioned in the debate. As Baron-Cohen (2010) put it, this theory is extended from the E-S theory since there is an abundance of clear differences

in empathising and systemising between the two sexes. Both theories use the two dimensions, empathy and systemising, to understand individual differences in the population. According to Baron-Cohen (2010), there are five different "brain types" which are Type E, Type S, Type B, Extreme Type E, and Extreme Type S. Type E comes as a result of people who have higher empathy than systemising. Type S however is the opposite. Type S comes from individuals who have higher systemising compared to their empathy. The 'B' in Type B stands for balance. It is meant to be used to mean that both the empathy and systemising in an individual are equal. For the extreme types, it is used to describe those with a gifted trait in one of the two dimensions, but seriously lacking in the opposing one. For example, an individual with extreme type E would have a high level of empathy that tops typically developed children but might lack in systemising compared to others. The opposite goes for extreme type S.

There are however a number of inconsistencies or criticisms of the E-S theory. One of which is the use of the two instruments that are majorly used in the theory which are the Empathy Quotient (EQ) and Systemising Quotient (SQ). Baron-Cohen heavily relied on the use of both those instruments to prove his theory that males are better at systemising, females are better at empathy and individuals with ASC are better at systemising. That being the basis, he developed the E-S theory. However, both instruments used have not been strongly validated. Analysis by Muncer and Ling (2006), proved that a number of frailties were recognised in the 40-item EQ scale in terms of psychometric properties. These results were also validated in earlier research to prove that EQ was not unifactorial. Another study by Wakabayashi et al. (2006) also validated this finding, stating that both the EQ and SQ are not unifactorial. Furthermore, the relationship between empathy and systemising has been put into question. By proposing that

males have a more systemising brain and females have a more empathic brain, One would expect that the two are opposites of each other, a negative correlation, however, generally, research has shown that the two variables have only a weak negative correlation. Another thing worth mentioning is that other measures besides the two quotients used to measure empathy and systemising have no significant correlation between them (Lawson et al., 2004). This goes to show that the connection between empathy and systemising is questionable at worst.

Conclusion

There are lots of different theories and research done to understand autism spectrum disorder further. While those theories have their ups and downs, all of those theories will eventually lead us to further understand the world of autism and how we can better equip those with autism in society for a more inclusive community. The E-S theory, though with its flaws, helps us better understand the minds of those with autism and the difference gender makes in potentially diagnosing. As mentioned in the debate, males are more diagnosed than females which could be due to how male-biased or the "high variability of diagnosing boys with autism as an individual and girls with autism as the group identity of their gender". Another mention of the roles this could potentially play is through cultures. Some cultures in countries like Saudi Arabia and India are known to have strict traditional gender roles in society with men holding significant power in public and private settings. In these cultures, women tend to be more reserved as they are not required to do anything of note most of the time. This exact question was brought up in the debate where potentially, some women are putting their anxiety through a mask to prevent their symptoms from showing. This could be another reason why males are more

likely to be diagnosed with ASD than females since they are not bound to as much societal pressure as females. Other cultures also are not as exposed to as much ASD research as those in Western countries. Mentioned in the debate was the lack of other ethnicities in ASD research. Quote "When it comes to culture, other ethnicities or their races, there was not much research on it". Mainly white subjects are used in these research studies with the occasional study on black children. Another criticism that was mentioned in the debate was that the E-S theory accommodates more to people with high-functioning autism. "It does not really explain or it does not really accommodate people with low functioning autism". This could be because the two quotients used mainly in the E-S theory, the empathy quotient (EQ) and the systemising quotient (SQ), are judged based on the results one might get. Accordingly, a low-functioning autistic person might not score a higher or comparable result to those with high-functioning autism, thus they are more likely to be neglected.

It is clear even after all these years that theories related to ASD are flawed or imprecise at best. Nothing is precise as of now but hopefully, in the future, more precise information will exist and there will be a world where autistic people are more welcomed and more inclusive. In my opinion, the empathising-systemising theory does a good job of recognising where autism diagnosis is lacking and what needs to be improved. With that being said, it is crucial that further research has to be developed into creating a more precise theory or development with this theory as a starting point with the goal of understanding ASD.