

The Relationship Between the Biopsychosocial Model and Autism Spectrum Disorder

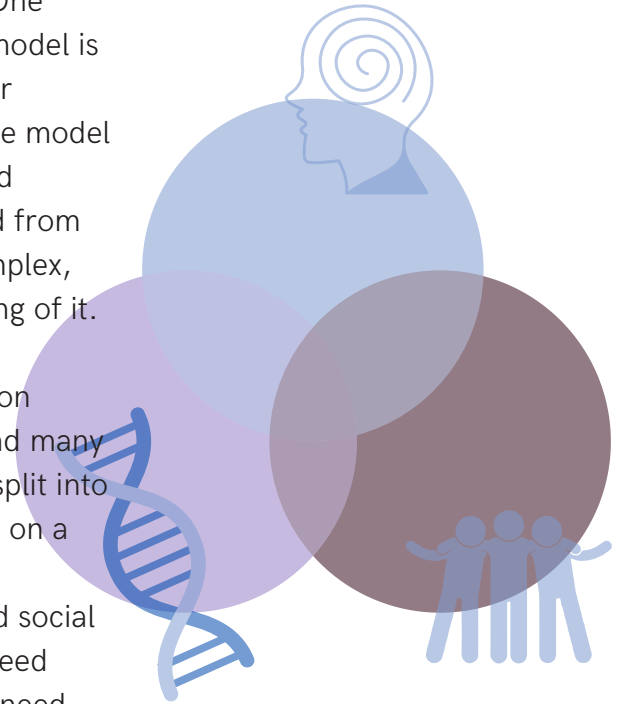
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As more disorders and diseases are studied, researchers use different models and methods to enhance their knowledge of the subject. One model that is used frequently is the biopsychosocial model. This model is known to be best used to look at the characteristics of a disease or disorder. For this paper, we looked at the relationship between the model and the disorder and compared the differences between childhood autism and adulthood autism and the characteristics that emerged from using this model. Although autism spectrum disorder (ASD) is complex, using the biopsychosocial model helped give a better understanding of it.

Autism spectrum disorder is a neurological developmental condition characterized by restricted interests, speech/behavioral issues, and many social challenges ("What Is Autism Spectrum Disorder?"). ASD is split into levels: ASD level 1, 2, and 3. The severity of the disorder is based on a spectrum that has a rating scale. From there, we can use the biopsychosocial model to look at the biological, psychological, and social aspects the person carries. Mild to moderate autistic individuals need little to no help with daily life, whereas people with severe autism need extensive help with daily life.

The biopsychosocial model works by looking at three factors: biological, psychological, and social. Looking at the three factors, we then look at the interactions between them to be able to understand the patient's disease/disorder from broad to detailed level. With that, healthcare professionals can create an accurate and helpful plan for the patient. The biological factors studied are the genetic makeup and how genetics and biochemical factors influence the disorder or disease. The psychological factor examines how mood, personality, and behavior are impacted by the disease/disorder. Lastly, social factors are inspected to see how culture, socioeconomics, and work affect the management of the disease/disorder.

In 2013, healthcare professionals defined four subtypes of autism: ASD, Asperger's syndrome, childhood disintegrative disorder, and pervasive developmental disorder-not otherwise specified. However, after 2013, the American Psychiatric Association decided that all these categories would be combined under one name, which is autism spectrum disorder. The reason for this was because there were subtle differences between each subtype, which ended up causing confusion and left room for open interpretations. Therefore, categorization by severity was to be utilized to differentiate and provide proper treatment or adjustment for people with ASD.



Some early signs of ASD include avoiding eye contact, having a slow response or failing to respond when being called, getting upset over slight changes in routine, having a high or low sensory sensitivity, and having difficulty communicating (“Screening and Diagnosis”). As an individual gets older other symptoms that they may develop consist of social anxiety, difficulty in detecting sarcasm, superior abilities in a particular field, and involuntary noise like throat clearing (Leonard and Sharon). The exact cause of ASD is unknown; however, researchers suggest that it results from a disruption in normal brain growth early in the development stage, and this disruption happens because of defects in the genes that control brain development and regulate how the brain cells communicate with each other. In addition, environmental factors may also play a role in the gene function. Because of these results, ASD is a complex mental illness.

Most people are diagnosed as children, the earliest at 18 months old, although researchers and doctors note that diagnoses are more reliable at age 2 (“Screening and Diagnosis”). Since the condition is developmental, people may not even know they have ASD until later in their adult years or they may never know they have the condition. Another downside of having this developmental disorder is that as an individual gets older, diagnosing ASD is harder, because by the time they get to adulthood the symptoms of ASD can overlap with symptoms of other mental illnesses such as anxiety or ADHD.

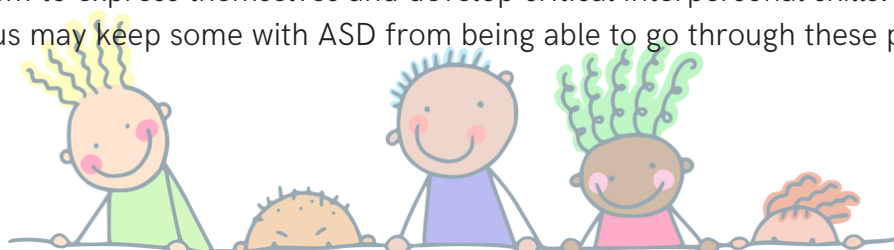
Since most ASD diagnoses are made between the ages of 2 and 13, a commonly used test is CARS-2 (“Childhood Autism Rating Scale”). The test pertains to children under 6, or over if the individual is shown to have an estimated IQ of 79 or lower or have a notable communication impairment. If an individual gets assessed as an adult, one of the required tests is the Autism Diagnostic Observation Schedule, Second Edition, or ADOS-2, Module 4 assessment (Lord and Rutter). Other options include referrals to doctors who specialize in providing behavioral, psychological, educational, or skill-building preventive therapies.

As previously stated, there is not a known cause for ASD, there are only suggestions. From ASD studies within the last 50 years, researchers have found that ASD is one of the most heritable disorders and that it is multifactorial in origin, meaning that there are a lot of factors that play into the genetics of ASD. Those factors include common and rare genetic variants. Common genetic variants display a strong positive correlation with IQ and educational attainment, while rare genetic variants involve the deletion or duplication of DNA that contains thousands of base pair variants. A rare variant can be inherited from a parent, appearing in the parent’s germline, making its contribute to autism a hereditary risk (Thapar and Rutter).

Looking at psychological factors of ASD, children with ASD tend to exhibit oppositional behaviors such as being aggressive, throwing tantrums, and having irritable moods. Seventy percent of children with ASD also exhibit atypical eating behaviors like pocketing food without swallowing, having hypersensitivity to food texture or temperatures, and severely limited food preferences (Mayes and Zickgraf). Other behaviors include having at least one anxiety disorder, a specific phobia, obsessive-compulsive disorder (OCD), and difficulty sleeping. As children with ASD get older, their psychological behaviors heighten. One reason could be the environment they are in. A study was done in 2016 by Happé et al. that tested autism quotient (AQ), empathy quotient (EQ), and systemizing quotient (SQ). They found that "The association between age and AQ scores in the ASD group may suggest that autism traits increase with age, the association between SQ (the tendency to analyze and extract rules) and age could be due to either a general age-related change that also occurs in typical developing individuals, or a worsening of ASD traits occurring when aging with ASD" (Happé et al.). With EQ included, they found it to be lower. With that, adults with ASD have high rates of mental health problems like depression and anxiety.

The study also found that adults with ASD perform better in neuropsychological tests for processing speed and visuospatial ability (Happé et al.). This means that adults with ASD have a better hold on being able to process a situation that is happening, allowing them to have better control of their emotions compared with children with ASD, who usually exhibit elevated levels of aggression and throwing tantrums.

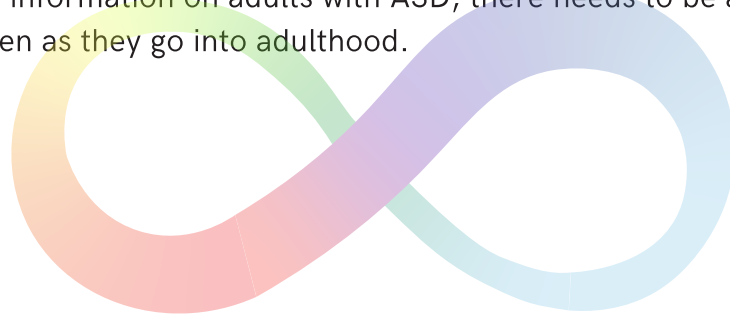
Lastly, the model addresses social factors. It is known that social interaction is what helps an individual overcome/deal with any problem they are facing. For children with ASD, it is beneficial for them to have this interaction. In their 2018 paper, Mengxian Zhao and Shihui Chen found that putting children with ASD in a structured physical activity program had a positive result in social skills, frequency of expression, communication, and prompt response. Programs that putting children who have ASD with non-autistic children allowed them to express themselves and develop critical interpersonal skills. However, socioeconomic status may keep some with ASD from being able to go through these programs.



In 2017, a study was done testing socioeconomic, racial, and ethnic disparities among US children. The study found that "the proportion of children in poverty receiving services or supplementary income because of ASD was lower than the proportion expected on the basis of estimates of the prevalence of ASD in the general population" (Durkin et al.) This observation tells us that those in a lower socioeconomic status might have little to no resources available to them, thus delaying the diagnosis of ASD and the help needed for individuals with ASD.

Going into adulthood, an adult with ASD faces social challenges when looking for a job. Job searching is difficult due to the stigma/misunderstandings associated with ASD. Even if they can find a job, they may find themselves excluded/rejected by their coworkers, leading adults with ASD to isolate themselves. Children with ASD do the same when they face comparable situations in school or any public space. Other barriers adults with ASD face with employment is that employers find it hard to communicate with someone with ASD and to deal with the episodes that an adult with ASD may go through.

After 50 years of ASD research, there are still many things that have yet to be discovered. Using what has been researched so far, we looked at the relationship factors of the biopsychological model and how it helped us look at the differences between adulthood ASD and childhood ASD. The biopsychosocial model helps us see all these factors and be able to catch the differences between adulthood ASD and childhood ASD. This model leads us to have a better detailed understanding of ASD; in addition, we can see that, although there is not much information on adults with ASD, there needs to be a drive for more studies on the effect of ASD on children as they go into adulthood.



Bibliography

- Adamou, Marios, et al. "Predicting Diagnostic Outcome in Adult Autism Spectrum Disorder Using the Autism Diagnostic Observation Schedule, Second Edition." *BMC Psychiatry*, vol. 21, no. 1, 2021, <https://doi.org/10.1186/s12888-020-03028-7>.
- Ashwood, K. L., et al. "Predicting the Diagnosis of Autism in Adults Using the Autism-Spectrum Quotient (AQ) Questionnaire." *Psychological Medicine*, vol. 46, no. 12, 2016, pp. 2595-2604, <https://doi.org/10.1017/s0033291716001082>.
- "Autism Spectrum Disorder: Supporting Children and Youth: - Module 1." ConnectABILITY Autism Spectrum Disorder Supporting Children and Youth Module 1 Comments, <https://connectability.ca/2012/11/22/supporting-children-with-autism-module-1/>.
- Beenstock, Michael, et al. "Transition into Adulthood with Autism Spectrum Disorders: A Longitudinal Population Cohort Study of Socioeconomic Outcomes." *Journal of Disability Policy Studies*, vol. 32, no. 3, 2020, pp. 159-170, <https://doi.org/10.1177/1044207320943590>.
- Black, Melissa H., et al. "Multi-Informant International Perspectives on the Facilitators and Barriers to Employment for Autistic Adults." *Autism Research*, vol. 13, no. 7, 2020, pp. 1195-1214, <https://doi.org/10.1002/aur.2288>.
- "Childhood Autism Rating Scale, 2nd Edition (CARS2)." Center for Autism Research, 29 June 2020, <https://www.carautismroadmap.org/childhood-autism-rating-scale/>.
- Cox, Sarah. "Research Suggests Link Between Ageing and Severity of Autism Traits." Goldsmiths, University of London, 22 Aug. 2016, <https://www.gold.ac.uk/news/autism-and-ageing/>.
- Durkin, Maureen S., et al. "Autism Spectrum Disorder Among Us Children (2002-2010): Socioeconomic, Racial, and Ethnic Disparities." *American Journal of Public Health*, vol. 107, no. 11, 2017, pp. 1818-1826, <https://doi.org/10.2105/ajph.2017.304032>.
- Happé, Francesca G., et al. "Demographic and Cognitive Profile of Individuals Seeking a Diagnosis of Autism Spectrum Disorder in Adulthood." *Journal of Autism and Developmental Disorders*, vol. 46, no. 11, pp. 3469-3480, <https://doi.org/10.1007/s10803-016-2886-2>.
- Lane Regional Medical Center. "The 3 Levels of Autism Explained." Lane Regional Medical Center, 7 May 2021, <https://www.lanermc.org/community/lane-health-blog/the-3-levels-of-autism-explained>.
- Leonard, Jayne, and Alina Sharon. "Everything You Need to Know About Autism in Adults." *Medical News Today*, 31 Oct. 2021, <https://www.medicalnewstoday.com/articles/326841>.
- Lord, Catherine, and Michael Rutter. *Autism Diagnostic Observation Schedule, Second Edition*, Western Psychological Services, 2012, <https://www.wpspublish.com/ados-2-autism-diagnostic-observation-schedule-second-edition>.
- Mayes, Susan Dickerson, and Hana Zickgraf. "Atypical Eating Behaviors in Children and Adolescents with Autism, ADHD, Other Disorders, and Typical Development." *Research in Autism Spectrum Disorders*, vol. 64, 2019, pp. 76-83, <https://doi.org/10.1016/j.rasd.2019.04.002>.
- McMorris, Carly A., et al. "Mental Health Issues in Post-Secondary Students with Autism Spectrum Disorder: Experiences in Accessing Services." *International Journal of Mental Health and Addiction*, vol. 17, no. 3, 2018, pp. 585-595, <https://doi.org/10.1007/s11469-018-9988-3>.
- Pratt, Cathy, et al. "Characteristics of Individuals with an Autism Spectrum Disorder (ASD)." Indiana Resource Center for Autism, 2017, <https://www.iidc.indiana.edu/irca/articles/characteristics-of-individuals-with-an-asd>.
- Rowden, Adam. "What Are the Types of Autism?" *Medical News Today*, 23 Nov. 2021, <https://www.medicalnewstoday.com/articles/types-of-autism?c=328375335048>.
- Schopler, Eric, et al. *Childhood Autism Rating Scale - 2nd Edition*. Western Psychological Services, 2010.
- "Screening and Diagnosis of Autism Spectrum Disorder." Centers for Disease Control and Prevention, 13 Mar. 2020, <https://www.cdc.gov/ncbddd/autism/screening.html>.
- Thapar, Anita, and Michael Rutter. "Genetic Advances in Autism." *Journal of Autism and Developmental Disorders*, vol. 51, pp. 4321-4332, 2021, <https://link.springer.com/article/10.1007/s10803-020-04685-z#Sec6>.
- United States, Department of Health and Human Services, National Institutes of Health, National Institute of Mental Health. "Autism Spectrum Disorder." National Institute of Mental Health, March 2022, <https://www.nimh.nih.gov/health/topics/autism-spectrum-disorders-asd>.
- "What Is Autism Spectrum Disorder?" Centers for Disease Control and Prevention, Centers for Disease Control and Prevention, 25 Mar. 2020, <https://www.cdc.gov/ncbddd/autism/facts.html>.
- Zhao, Mengxian, and Shihui Chen. "The Effects of Structured Physical Activity Program on Social Interaction and Communication for Children with Autism." *BioMed Research International*, vol. 2018, 2018, pp. 1-13, <https://doi.org/10.1155/2018/1825046>.