



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH IN HEALTH SCIENCE

An International Open Access, Peer-reviewed, Refereed Journal

Autism Spectrum Disorder: A Review

R. Thamizselvi

Associate Professor, Vivekananda Nursing College,
Iyyankuttipalayam, Puducherry.

Abstract:

Autism spectrum disorder (ASD) is a complex condition, a neurodevelopmental disorder, that is defined by its difficulties in communicating socially, interacting with others and repeating behaviours. Enhanced awareness of ASD and the expanding scope of diagnosis and screening have led to a significant rise in the prevalence of ASD around the world in recent decades. ASD is more commonly diagnosed in males and is associated with multifactorial causes involving genetic susceptibility and environmental influences. Several prenatal, perinatal, and environmental risk factors, including vitamin D deficiency and exposure to pollutants, have been linked with ASD development. Individuals with ASD frequently experience comorbid conditions such as epilepsy, intellectual disability, schizophrenia spectrum symptoms, and behavioral disorders. Despite extensive research, challenges remain in early diagnosis, management, and inclusive representation in autism studies. This review summarizes the definition, prevalence, sex differences, etiological factors, and common comorbidities associated with ASD, providing an overview of current evidence and highlighting the importance of early identification and multidisciplinary intervention strategies.

Keywords: Autism, prevalence, review article.

INTRODUCTION:

Autism spectrum disorder (ASD) is a neurodevelopmental disorder that involves ongoing difficulties in social communication and interaction, and restricted and repetitive patterns of behavior, interests or activities [1,2]. Previously two distinct disorders – autistic disorder and Asperger syndrome – along with pervasive developmental disorder-not otherwise specified (PDD-NOS) – were combined as a diagnosis of (ASD) [3,4]. Common clinical manifestations include impaired speech communication, difficulties in social interaction, repetitive behaviors, restricted interests, and intellectual challenges [5].

Epidemiology and Prevalence

Global ASD prevalence is estimated to range between 0.6% and 0.77% among children [6,7][8,9]. Meta-analyses involving millions of participants have demonstrated regional variations in prevalence, with reported rates of 0.4% in Asia, 0.5% in Europe, 1% in America and Africa, and 1.7% in Australia [6]. Another review estimated the global prevalence at 0.77% among children [7].

Regional differences are also evident. In mainland China, ASD prevalence among children was estimated at 0.7% between 2017 and 2023 [10]. In Southeast Asia, prevalence was reported at approximately six per 1,000 individuals [11], while South Asian countries reported prevalence rates ranging from 0.09% in India to 1.07% in Sri Lanka [12]. The increasing prevalence trend has been largely attributed to expanded diagnostic criteria, increased awareness, and improved identification methods rather than a true increase in incidence [8,13].

Sex Differences

ASD is more commonly diagnosed in males than females. Research indicates a male-to-female ratio ranging from 3:1 to 5:1 across different populations [6,11,14].

Etiology: Genetic and Environmental Factors

ASD has a multifactorial etiology involving both genetic and environmental influences [15,16]. Heritability estimates range from 50% to 80% [16]. Genetic association studies showed several candidate genes including MET, MTHFR, SLC6A4, RELN, NRXN1, and OXTR [17]. Environmental risk factors include advanced parental age, maternal diabetes, prenatal exposure to valproate, immune activation, toxic environmental exposures, and perinatal complications [15]. Environmental pollutants, particularly aryl hydrocarbon receptor-activating compounds and particulate matter, have also been implicated [13]. Importantly, extensive epidemiological evidence demonstrates no association between vaccination and ASD risk [18,19,20].

Comorbidities

ASD is frequently associated with several comorbid conditions. Epilepsy occurs in approximately 10% of autistic individuals and is more prevalent among females, adults, and individuals with intellectual disability

[21] [22]. Elevated autistic symptoms have also been identified in schizophrenia spectrum disorders [9]. In addition, autistic traits are significantly overrepresented in individuals with anorexia nervosa [23].

Research has highlighted substantial selection bias in ASD research, with many studies underrepresenting individuals with intellectual disability [24]. This limitation may affect the generalizability of research findings and highlights the need for more inclusive autism research.

BIBLIOGRAPHY:

1. Liu X, Sun X, Sun C, et al. Prevalence of epilepsy in autism spectrum disorders: A systematic review and meta-analysis. *Autism*. 2021;26(1):33–50. <https://doi.org/10.1177/13623613211045029>
2. Watkins L, Angus-Leppan H. Increasing incidence of autism spectrum disorder: are we over-diagnosing? *Advances in Autism*. 2022;9(1):42–52. <https://doi.org/10.1108/aia-10-2021-0041>
3. Baxter A, Brugha T, Erskine HE, et al. The epidemiology and global burden of autism spectrum disorders. *Psychological Medicine*. 2014;45(3):601–613. <https://doi.org/10.1017/S003329171400172X>
4. Rosado LEP, Garcia MM, Coutinho ACN. Perinatal aspects and autism spectrum disorder: An update review. *Human Reproduction Archives*. 2020;35. <https://doi.org/10.4322/hra.000819>
5. Xin-hong J, Chen X, Su J, Liu N. Prevalence of autism spectrum disorder in mainland China over the past 6 years: A systematic review and meta-analysis. *BMC Psychiatry*. 2024;24(1). <https://doi.org/10.1186/s12888-024-05729-9>
6. Melo C, Ruano L, Jorge JC, et al. Prevalence and determinants of motor stereotypies in autism spectrum disorder: A systematic review and meta-analysis. *Autism*. 2019;24(3):569–590. <https://doi.org/10.1177/1362361319869118>
7. Salari N, Rasoulpoor S, Rasoulpoor S, et al. The global prevalence of autism spectrum disorder: A comprehensive systematic review and meta-analysis. *Italian Journal of Pediatrics*. 2022;48(1). <https://doi.org/10.1186/s13052-022-01310-w>
8. Catalá-López F, Ridaio-López M, Hurtado I, et al. Prevalence and comorbidity of autism spectrum disorder in Spain: Study protocol for a systematic review and meta-analysis of observational studies. *Systematic Reviews*. 2019;8(1). <https://doi.org/10.1186/s13643-019-1061-1>
9. Crescenzo FD, Postorino V, Siracusano M, et al. Autistic symptoms in schizophrenia spectrum disorders: A systematic review and meta-analysis. *Frontiers in Psychiatry*. 2019;10. <https://doi.org/10.3389/fpsy.2019.00078>
10. Xin-hong J, Chen X, Su J, Liu N. Prevalence of autism spectrum disorder in mainland China over the past 6 years: A systematic review and meta-analysis. *BMC Psychiatry*. 2024;24(1). <https://doi.org/10.1186/s12888-024-05729-9>

11. Loomes R, Hull L, Mandy W. What is the male-to-female ratio in autism spectrum disorder? A systematic review and meta-analysis. *Journal of the American Academy of Child & Adolescent Psychiatry*. 2017;56(6):466–474. <https://doi.org/10.1016/j.jaac.2017.03.013>
12. Hossain MD, Ahmed HU, Uddin MJ, et al. Autism spectrum disorders in South Asia: A systematic review. *BMC Psychiatry*. 2017;17(1). <https://doi.org/10.1186/s12888-017-1440-x>
13. Dhulkifle H, Agouni A, Zeidan A, et al. Influence of the aryl hydrocarbon receptor activating environmental pollutants on autism spectrum disorder. *International Journal of Molecular Sciences*. 2021;22(17):9258. <https://doi.org/10.3390/ijms22179258>
14. Shrestha M, Basukala S, Thapa N, et al. Prevalence of autism spectrum disorder among children in Southeast Asia from 2002 to 2022: An updated systematic review and meta-analysis. *Health Science Reports*. 2024;7(4). <https://doi.org/10.1002/hsr2.2005>
15. Russell G, Mandy W, Elliott D, et al. Selection bias on intellectual ability in autism research: A cross-sectional review and meta-analysis. *Molecular Autism*. 2019;10(1). <https://doi.org/10.1186/s13229-019-0260-x>
16. Salari N, Rasoulpoor S, Rasoulpoor S, et al. The global prevalence of autism spectrum disorder: A comprehensive systematic review and meta-analysis. *Italian Journal of Pediatrics*. 2022;48(1). <https://doi.org/10.1186/s13052-022-01310-w>
17. Mpoulimari I, Ζιντζαράς H. Synthesis of genetic association studies on autism spectrum disorders using a genetic model-free approach. *Psychiatric Genetics*. 2022;32(3):91–104. <https://doi.org/10.1097/YPG.0000000000000316>
18. Wang Z, Ding R, Wang J. The association between vitamin D status and autism spectrum disorder: A systematic review and meta-analysis. *Nutrients*. 2021;13(1):86. <https://doi.org/10.3390/nu13010086>
19. Mohammed SA, Rajashekar S, Ravindran SG, et al. Does vaccination increase the risk of autism spectrum disorder? *Cureus*. 2022. <https://doi.org/10.7759/cureus.27921>
20. Brown RB. Dysregulated phosphate metabolism in autism spectrum disorder: Associations and insights for future research. *Expert Reviews in Molecular Medicine*. 2023;25. <https://doi.org/10.1017/erm.2023.15>
21. Li Y. Global autism prevalence, and exploring Montessori as a practical educational solution: A systematic review. *Frontiers in Psychiatry*. 2025;16. <https://doi.org/10.3389/fpsy.2025.1604937>
22. Wang Z, Ding R, Wang J. The association between vitamin D status and autism spectrum disorder: A systematic review and meta-analysis. *Nutrients*. 2021;13(1):86. <https://doi.org/10.3390/nu13010086>
23. Kaleli İİ, Doğan N, Köse S, Bora E. Investigating the presence of autistic traits and prevalence of autism spectrum disorder symptoms in anorexia nervosa: A systematic review and meta-analysis. *International Journal of Eating Disorders*. 2025;58(1):66–90. <https://doi.org/10.1002/eat.24307>
24. Russell G, Mandy W, Elliott D, et al. Selection bias on intellectual ability in autism research: A cross-sectional review and meta-analysis. *Molecular Autism*. 2019;10(1). <https://doi.org/10.1186/s13229-019-0260-x>

Cite this Article: R. Thamizselvi (2025). Autism Spectrum Disorder: A Review. *International Journal of Innovative Research in Health Science*, 1(8), 28-32. <https://doi.org/10.63349/ijirhs.202448>