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Perspective

A Study on Current State and Future Research Opportunities on ASD

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ABSTRACT

The number of studies investigating neurotransmitters in autism spectrum disorder (ASD) has increased in recent years, whereas previous studies primarily focused on cerebral blood flow and glucose metabolism. The underlying and contributing causes of ASD are mostly unknown, and the behavioural phenotype is used to diagnose ASD. The discovery of biochemical endophenotypes would be a watershed moment in autism research, paving the way for ASD subtype differentiation and innovative therapeutic medication development.

The study recommends future research areas for better understanding the aetiology and pathophysiology of autism spectrum disorder (ASD), as well as pharmacologic and psychosocial therapies for ASD throughout life. In the last few years, there has been a sea change in our understanding of ASD neurobiology, genetics, early detection, and intervention. Recent rises in ASD prevalence estimates, on the other hand, underline the critical need to continue efforts to transform new ASD discoveries into effective interventions for all people with ASD.

INTRODUCTION

New research is projected to hasten scientific discovery and, as a result, the translation of research findings into accessible and empirically validated interventions for people with ASD. Asperger's syndrome (ASD) is a neurological developmental disorder that affects speech, sensory processing, and social relationships. Despite recent advances in autism research, there is still much to learn about the factors that influence this neurotype. With autism rates on the rise, scientists have been even more interested in discovering the variables that cause autism.

Some experts believe that autism is caused by gene variants Trusted Source; while others feel that environmental factors Trusted Source, such as exposure to toxins Trusted Source, have a role. Others believe that abnormalities in the intestinal microbiome are at work Trusted Source. The most recent autism research involves studies into genetic variations, gut biome imbalances, and neurological aspects that may contribute to the neurotype [1,2].

Investigations investigating gene variations that may play a role in the development of ASD are another area of autism research. A recent study looked into the DNA of over a million people around the world, including some autistic persons. The researchers discovered variations in a subset of impacted genes that have been associated to an elevated risk of developing ASD. The researchers also observed that the majority of the genes examined were linked to autism rather than other developmental disorders [3].

The researchers found that autistic participants with the ASD-specific gene mutations trusted Source had higher intellectual function than autistic people without the variations in a follow-up investigation. The gene variants discovered by the researchers are mostly found in the cerebral cortex, which is in charge of complex behaviours. These mutations may have an impact on how brain neurons interact as well as how other genes are turned on or off, which could be a contributing factor in autism.

Researchers are now using mouse models to test treatments that promote myelination in the brain to determine if this helps ASD-related behaviours that individuals may find difficult. Autism can be difficult to diagnose, especially in young children [4]. Early diagnosis and treatment treatments have been demonstrated to improve autistic people's long-term outcomes, according to Research Trusted Source.

As a result, scientists are attempting to develop new diagnostic methods that will allow them to discover this neurotype much earlier. Early detection of developmental abnormalities, such as autism spectrum disorder, requires visual observation and analysis of children's natural behaviours (ASD). While there is a gold standard observational instrument available, there are certain drawbacks that make early detection of ASD in children difficult.

However, because ASD is a genetically and biologically based neurodevelopmental disorder, there is still a great unmet need for interventions that reliably and robustly address the core symptoms

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Received: September 06, 2021; **Accepted:** September 20, 2021; **Published:** September 27, 2021

Citation: Margaret T (2021) A Study on Current State and Future Research Opportunities on ASD. Autism Open Access.S3:003. DOI: 10.35248/2165-7890.21.S3.003.

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of the disorder, and translational research linking basic research findings to clinical practise is still limited [5].

Furthermore, therapy of people with ASD may fit less with the medical paradigm and more with the "neurodiversity" model, which claims that neurological variances in ASD are natural variations that should be acknowledged and cherished rather than regarded as an illness to be cured. The neurodiversity movement is not anti-treatment, but it recognises the importance of maximising positive outcomes, indicating alternative avenues for adult ASD research in the future, such as a stronger emphasis on acceptance and self-advocacy [6].

CONCLUSION

Recent advances in ASD prevalence estimates, on the other hand, highlight the urgent need to translate these gains into universal access to effective interventions for all people with ASD. Understanding the high level of psychiatric comorbidities and overlapping features shared with other neurodevelopmental disorders, combining different research methodologies, and developing ASD interventions that meet the needs and desires of individuals with ASD and their families, including improving the functioning of individuals with ASD while preserving the positive and unique characteristics of each individual with ASD.

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