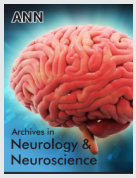

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Review Article

Autism Spectrum Disorder: Evaluating Historical and Current Trends through the lens of Neurodiversity

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Historical Trends

Over the years, many theories and myths surrounding the root causes of Autism Spectrum Disorder have passed between listeners and the media. In 1910, according to Paul Bueler, the word autism was considered a symptom of Schizophrenia. As we know, this theory was disproven time in and time out. Noted names such as Hans Asperger, Leo Kanner formally researched Autism Spectrum Disorder [1] as how we know it today, and set the ball in motion for how autism was looked at both medically and clinically.

A major turning point came with Bruno Bettelheim's theory on refrigerator mothers being debunked. In 1964, Bernard Rimland discredited the refrigerator mom theory. His published book, Infantile Autism: The Syndrome and Its Implications for a Neural Theory of Behavior, questioned the theory of the unloving parent-child relationship as a cause of Autism, but rather suggested the counter-theory that ASD is a biological condition. Fast forward to the 1990s, and the circulation of the mercury in vaccinations causing autism theory took off. By identifying mercury as the cause of ASD, an anti-vaccine movement ensued, which still persists today. Dr. Andrew Wakefield's research led to a sharp decline in vaccinations, he since the retracted study, where he followed twelve 6-year-old children who had chronic enterocolitis and regressive developmental disorders. The children underwent gastroenterological, neurological, and developmental assessments, which included MRIs and EEGs. The results demonstrated that five of the children had an adverse reaction to immunizations, including rash, fever, delirium, or convulsions [2]. Wakefield et al. also suggest that chronic enterocolitis was related to neuropsychiatric dysfunction, often occurring after measles, mumps, and rubella immunization. Following this publication, a sharp rise in research on the cause of ASD ensued. Soon after this publication, Wakefield et al. was found guilty of ethical violations, scientific misrepresentation, and deliberate fraud. By selecting data that suited their hypothesis, the team led individuals to believe vaccines were directly causing autism. After being overthrown, due to little empirical evidence, many professionals dismissed this notion of the cause of autism from vaccines [3]. This did not curb the hysteria already surrounding the unsubstantiated claim. Currently, genetics as a cause is being researched. As time and social media continue, the question arises if the role of genetics will gain support as earlier theories did.

Curent Trends

A current trend in autism causes is indicating a correlation between Autism Spectrum disorder and genetics. According to Bauer, S. C., & Msall, M. E. [4] genetic research "including family studies, twin studies, candidate gene studies, and associations with genetic disorders" continue to be implemented. This article identifies that clinicians may now order karyotypes and fragile X testing. It also suggests considering CGH as a part of an etiologic evaluation done for children with ASD (Shen et al, 2010). CGH is a comparative genomes hybridization. Bauer, S. C., & Msall, M. E. [4] suggests that behavioral phenotypes are influenced by genetic factors, "data suggests that the origins of ASD have a strong genetic component" [4]. A new study looking at autism in 5 countries found that 80 percent of autism risk can be traced to inherited genes rather than environmental factors and random mutations [5]. Although this theory remains unproven, it lends itself to the importance

of behavioral therapists staying up to date on the research while understanding it is only a theory until final conclusions are made.

As we have concluded, there have been many theories over the years. We have reviewed where we came from, to where we are going. In terms of behavioral therapy, we have also evolved. In the beginning, we looked at the individual's behavior and the interactions with the mother's behaviors as a cause of Autism. We know that neither the individual nor the mother's behavior individual nor the mother's behavior that causes ASD. An individual cannot cause one's autism nor can the lack of love or interaction of a mother, so to say, cause ASD. In fact, now we have completely changed the pseudoscience philosophy to look at if there is a genetic link as to what causes ASD. With the rise in prevalence, diagnosis, and overall, more empirical evidence, this drive to find a cause of Autism in vastly growing. This thus shifts us to a different perspective, in regard to the treatment role and where that fits in.

Neurodiversity: Role of An Applied Behavior Analyst

With the rise in research on causes of Autism, treatment and acceptance of the diagnosis equally grows. Neurodiversity asserts that the idea that disability does not equate to abnormal cognition. Neurodiversity focuses on neurodivergent individuals having cognitive strengths and skills that are not only valuable but accepted. Many neurodiversity advocates are still in favor of intervention when it is (a) provided in a respectful manner, (b) focused on teaching useful skills, and (c) improves subjective quality of life [6,7,8]. How then does the framework of the most sound, evidence based treatment for the symptoms of ASD fit into this? There are seven defining characteristics of Applied Behavior Analysis which outline how closely the implementation side works hand in hand with promoting the core values of a neurodiversity mindset. These characteristics include applied, behavioral, analytic, technological, conceptually systematic, effective, and generality (Cooper, 2007) [9].

The characteristic most connected to neurodiversity discussions aligns to the applied area. It is important to note if the behavior meant for targeting has a socially significant impact on the individual's life. The answer to this question dictates the treatment followed. This can range from social, linguistical, academic, self-care, recreational skills, to name the most common. Clinicians often spend time asking themselves, will improving this behavior impact the individual or others they interact with in a positive manner? According to Cooper (2007) [9], when prioritizing behavior, we must look at the hierarchy of threat to health or safety, frequency, longevity, the potential for higher rates of reinforcement, importance, reduction of negative attention, reinforcement for significant others, the likelihood of success, and cost-benefit analysis. By focusing on the strengths and talents of the individual, the neurodiversity movement is supported. Addressing these goals within the framework of applied behavior analysis, we are enabling real-time data and evidence base treatments to support our goal for independence. Pairing this with targeting self-advocacy, self-determination, and personal agency through open dialogue and assessment thus leads to effective and significant changes that promote inclusion and foster neurodiversity. Generalizing behavior achievements creates and spreads the core ethical goal that all individuals have the right to develop social competencies to achieve their self-determined social goals in all aspects of their lives. The defining characteristic of applied supports eliminating stigma through person-centered approaches that foster self-esteem and resilience.

Applied Behavior Analysis continues to grow as a science-based intervention, and is often praised for being client-centered, neurodiversity-affirming, and equitable. Over the last 40 years, there have been hundreds of studies, reviews, and meta-analyses of research that have demonstrated the principles of ABA, when used correctly, can lead to progress in communication, language ability, cognitive ability, academic skills, adaptive skills, and social interactive behavior in individuals with autism (Helt et al., 2008; Rodgers et al., 2020; Weitlauf et al., 2014) [10,11,12]. Applied behavior analysts work closely with advocates on neurodiversity, oftentimes leading to adults with autism acknowledging the benefits of such interventions (Schuck et al., 2021) [13]. The core focus of applied behavior analysis remains in the principles and ethics which strive to support and advocate for acceptance and understanding of all abilities [14,15].

Conclusion

In conclusion, having an independent life is the end goal for both behavior analysts and supporters of neurodiversity. While applied behavior analysis as a science has many years of research supporting both success in achieving targeted skills and decreasing aberrant responses, it also cues us on how to better support an individual for their most independent future. This key point, while often overlooked, is right there in the basic building blocks of applied behavior analysis, ensuring the two worlds collide.

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Conflict of Interest

No Conflict of interest.

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