



A LOOK INTO THE FUTURE: NEURODIVERSITY

Lessa Schippers¹

¹Master's Student Cognitive Neurosciences, Donders Institute for Brain, Cognition and Behaviour, Nijmegen, The Netherlands

Insight

For a lot of psychiatric disorders, our perspective has changed over the past century. As an example, homosexuality was removed from the Diagnostic and Statistical Manual (DSM) only in 1973 [1]. Until 1980, it was possible for women to be diagnosed with 'hysteria', a condition for women showing attention-seeking and labile behaviour [2]. At the same time, many new disorders have been defined or redefined, such as hoarding disorder and binge eating disorder in the most recent version of the DSM in 2013 [3]. How do we decide if something is a disorder? Recently, the neurodiversity movement stated that mental disorders are just variations on normal brains and should be treated as such, respecting their unique challenges and capabilities. In this article, I will explore what a neurodiverse future of psychiatry would look like.

Introduction

The neurodiversity paradigm is the concept that there is no normal or healthy brain, but there is a lot of variation between brains. There is no better kind of brain, just like there is a lot of variation in, for example, height or hair colour, but no better or worse hair colour or height. Besides the term neurodiversity, there is also the term neurodivergence, which refers to brains that differ from what we, as a society, see as the standard. For instance, people with autism spectrum disorder (ASD), attention-deficit/hyperactivity disorder (ADHD), or dyslexia are seen as neurodivergent. The opposite of neurodivergent is neurotypical. Neurodiversity does not diminish the struggles neurodivergent people experience as a consequence of their neurodiversity.

In present times, neurodivergent people often struggle with issues like stigma, low self-esteem, and lower quality of life [4–6]. The neurodiversity movement advocates for better outcomes for neurodivergent people. What would a society where we value neurodiversity look like? Let us explore this, using ADHD as an example.

A brief look into the past

Before speculating what the neurodiverse society would look like, it is important to know where we come from. The first description of ADHD comes from Sir Alexander Crichton (1763-1856), who described a case that resembled ADHD but only mentioned inattentive symptoms [7]. He reported ADHD to be purely physiological. Sir George Frederic Still (1868-1941), on the other hand, described ADHD as abnormal moral control of the child [7]. Later, Franz Kramer (1878-1967) and Hans Pollnow (1902-1943) put the focus on hyperactivity, coining the term "Hyperkinetic disease of infancy", but observed other symptoms as well [7]. The next postulated cause for ADHD was minimal brain damage because differences in brain function were visible [7]. This term was later replaced by minimal brain dysfunction [7]. In the second edition of the DSM, ADHD was named "hyperkinetic reaction of childhood" [7]. Inattention was mentioned in the description, but hyperactivity and impulsivity were seen as more important [7]. In the third edition, inattention returned as a core symptom, and the name changed to attention deficit disorder (with or without hyperactivity) [7]. In later versions of the DSM, subtle changes, mainly about the three presentations, were made [8].

From this history, we can learn several things. First of all, we learn that definitions and names of disorders can change over time and that this is related to what is thought to be the core problem. Secondly, the perceived cause of the disorder has varied over time, from entirely nature to entirely nurture and in between. Lastly, the focus has always been on the deficit and the problems a disorder causes for a person and their environment.

Always look on the bright side

As mentioned before, throughout history, the focus for many psychiatric disorders was on the deficits. This in itself is not surprising, as this is what people and their environment experience problems with, and seek help for. Lately, some researchers are slowly shifting away from this deficit-oriented view and are exploring positive aspects of psychiatric disorders. Sticking with the example of ADHD, one of the positive aspects associated with ADHD is creativity [9]. In two qualitative studies, several other positive aspects were brought to light, such as being energetic, having a great sense of humour, or having great social intelligence [10, 11]. The research into positive aspects related to psychiatric disorders is still in its infancy.

In the future, we should know what strengths are commonly associated with different disorders and how they correlate with symptom severity and different symptom domains. For instance, we might discover that sociability and ADHD are positively correlated and, more specifically, that it is correlated with hyperactive symptoms. In that case, a person with ADHD can discover their strength and use this in their daily life. Knowing and using your strengths can boost self-esteem, general well-being, and quality of life.

Adapting the environment

Another important point from the neurodiversity movement is that problems an individual experiences related to their disorder are not inherently caused by the person but by a mismatch with the environment. In the same way, not being able to enter a building because of stairs for a wheelchair user is not inherently caused by the wheelchair but by a lack of a wheelchair ramp. In the same way, we could say that not being able to sit still in a classroom for someone with ADHD is not inherently a problem caused by their ADHD but by a mismatch between our societal expectations and their brain. By adapting the way we teach, we can meet their needs instead of them meeting our expectations.

Currently, this is already done for the working environment on a small scale with, for example, special companies for neurodivergent people, such as Authentict, an ICT company for people with ASD. They focus on the strengths of their employees and provide an optimal work environment with, for instance, little stressors, low sensory stimulation, and extra coaching for areas they struggle with [12].

Although these initiatives are great, it would be even better if, in the future, all companies seek to be neurodiverse and inclusive. This would mean that neurodivergent people are valued for their strengths and different perspectives, and the workplace is adapted to their unique needs.

Moreover, the society of the future should not only strive to be inclusive for neurodivergent people at their workplace but also in all sectors of society. This includes schools and universities, but also supermarkets, sports clubs, and cinemas.

Implications for the clinic

Adopting the neurodiversity paradigm in clinics has several implications. In the first place, clinicians have the possibility to change the story of a diagnosis from the beginning. In their article, Brown *et al.* give useful tips on how clinicians can adopt a neurodiversity perspective in diagnosing psychiatric disorders [13]. The article focuses on the use of positive language (e.g. not “deficit” or “co-morbid”), the tone used, the needs and emotions of the parents, how to present treatment, and intersectionality [13]. In the future, this should be adopted by all diagnosing clinicians. Moreover, attention should be given to recognizing strengths and not only difficulties a person experiences. If this is included from the start of the diagnosis, this could prevent a decline in self-esteem.

Not only psychiatrists and other clinicians that diagnose individuals with psychiatric disorders should adopt this strategy. The whole health care system should be more inclusive of neurodivergent people, providing an environment where they can feel safe and understood. This could, for example, mean providing online consults with patients who feel anxious in the hospital itself or dimming the lights for patients with sensory sensitivities.

Implications for research

The neurodiversity paradigm should not only change our society or the clinic but also the way we do research. In their article, Edmund Sonuga-Barke and Anita Thapar argue that the shift away from deficit-oriented research will radically change the way we perform research [14]. We should not be looking for a cure anymore. Instead, we should put the experiences of neurodivergent people first and listen to what they think is worth researching, as neurodivergent people often see their neurodiversity as an important part of their identity. Moreover, the primary outcome of trials should change from merely a reduction of symptoms to improvement in quality of life, self-esteem, and other positive indicators.

Additionally, we should pay attention to how the environment can be (in)accessible for neurodivergent people, the stigma, and attitude towards them. Researchers should take the experiences of neurodivergent people as a starting point for research, focusing on positive outcome measures.

Conclusion

This article discussed what a neurodiverse society in the future would look like. This includes approaching neurodivergence from a positive angle and focusing on their strengths. At the same time, we should adapt society to make it more accessible to neurodivergent people. This should be done at, for instance, the workplace and in the clinic. Clinicians should provide a more nuanced story when diagnosing an individual, listening to their needs and experiences. Finally, our research should focus on positive outcomes for neurodivergent people. The future should value neurodiversity and will be better because of it.

Acknowledgements

RAMS would like to thank Martine Hoogman, PhD, and Mejdán Gashi, BSc., for providing the author of this article with feedback.

References

1. J. Drescher, 'Out of DSM: Depathologizing Homosexuality', *Behav. Sci.*, vol. 5, no. 4, pp. 565–575, Dec. 2015, doi: 10.3390/bs5040565.
2. R. E. Kendell, 'Hysteria', in *International Encyclopedia of the Social & Behavioral Sciences*, N. J. Smelser and P. B. Baltes, Eds. Oxford: Pergamon, 2001, pp. 7133–7138. doi: 10.1016/B0-08-043076-7/03725-6.
3. *Diagnostic and statistical manual of mental disorders : DSM-5*. Arlington, VA: American Psychiatric Association, 2013.
4. T. V. Masuch, M. Bea, B. Alm, P. Deibler, and E. Sobanski, 'Internalized stigma, anticipated discrimination and perceived public stigma in adults with ADHD', *Atten. Deficit Hyperact. Disord.*, vol. 11, no. 2, pp. 211–220, Jun. 2019, doi: 10.1007/s12402-018-0274-9.
5. P. E. Newark, M. Elsässer, and R.-D. Stieglitz, 'Self-Esteem, Self-Efficacy, and Resources in Adults With ADHD', *J. Atten. Disord.*, vol. 20, no. 3, pp. 279–290, Mar. 2016, doi: 10.1177/1087054712459561.
6. R. Agarwal, M. Goldenberg, R. Perry, and W. W. Ishak, 'The Quality of Life of Adults with Attention Deficit Hyperactivity Disorder', *Innov. Clin. Neurosci.*, vol. 9, no. 5–6, pp. 10–21, 2012.
7. K. W. Lange, S. Reichl, K. M. Lange, L. Tucha, and O. Tucha, 'The history of attention deficit hyperactivity disorder', *Atten. Deficit Hyperact. Disord.*, vol. 2, no. 4, pp. 241–255, 2010, doi: 10.1007/s12402-010-0045-8.
8. J. N. Epstein and R. E. A. Loren, 'Changes in the Definition of ADHD in DSM-5: Subtle but Important', *Neuropsychiatry*, vol. 3, no. 5, pp. 455–458, Oct. 2013, doi: 10.2217/npv.13.59.
9. M. Hoogman, M. Stolte, M. Baas, and E. Kroesbergen, 'Creativity and ADHD: A review of behavioral studies, the effect of psychostimulants and neural underpinnings', *Neurosci. Biobehav. Rev.*, vol. 119, pp. 66–85, Dec. 2020, doi: 10.1016/j.neubiorev.2020.09.029.
10. S. Mahdi *et al.*, 'An international qualitative study of ability and disability in ADHD using the WHO-ICF framework', *Eur. Child Adolesc. Psychiatry*, vol. 26, no. 10, pp. 1219–1231, Oct. 2017, doi: 10.1007/s00787-017-0983-1.
11. J. A. Sedgwick, A. Merwood, and P. Asherson, 'The positive aspects of attention deficit hyperactivity disorder: a qualitative investigation of successful adults with ADHD', *Atten. Deficit Hyperact. Disord.*, vol. 11, no. 3, pp. 241–253, Sep. 2019, doi: 10.1007/s12402-018-0277-6.
12. 'AUTHENTICT - ICT mét autisme :: Waarom ICT'ers met autisme?' <https://authentict.nl/waarom-ict-ers-met-autisme-> (accessed

Dec. 12, 2021).

13. H. M. Brown, A. C. Stahmer, P. Dwyer, and S. Rivera, 'Changing the story: How diagnosticians can support a neurodiversity perspective from the start', *Autism*, vol. 25, no. 5, pp. 1171–1174, Jul. 2021, doi: 10.1177/13623613211001012.
14. E. Sonuga-Barke and A. Thapar, 'The neurodiversity concept: is it helpful for clinicians and scientists?', *Lancet Psychiatry*, vol. 8, no. 7, pp. 559–561, Jul. 2021, doi: 10.1016/S2215-0366(21)00167-X.

EXAM QUESTION

Question 1

The so-called 'tricyclic antidepressants' inhibit the reuptake of two specific neurotransmitters. One of these is norepinephrine. Which one is the other neurotransmitter?

- A. 5-hydroxytryptamine
- B. Dopamine
- C. Acetylcholine

(Topic from Q8 MGZ Psychology, 2020)

Question 2

Which cells can be grown ex vivo and applied therapeutically to reduce rejection?

- A. Donor regulatory T cells
- B. Donor tolerogenic dendritic cells
- C. Both donor tolerogenic cells and regulatory T cells

(Topic from Q5 MGZ Immune system, 2021)

The answer to these questions can be found on page 24 in this journal.