

I analyzed the article *A Mechanistic View on the Neurotoxic Effects of Air Pollution on Central Nervous System: Risk for Autism and Neurodegenerative Diseases* by Sahreh Shabani. In this article, the author discusses how air pollution affects a person's brain and subsequently causes neurological issues such as schizophrenia and autism spectrum disorder (ASD). For this analysis, I have decided to focus on the autism side of this paper as I feel it's something that has a lot of misconceptions surrounding it, along with misinformation.

The author first compares ASD to neurodegenerative disorders, while both involve the brain, ASD is not neurodegenerative, it is a neurological disorder. As defined by the Cleveland Clinic "Neurodegenerative disorders are chronic conditions that damage and destroy parts of your nervous system over time, especially your brain" while neurological disorders are "conditions that target how your nervous system (brain, spinal cord and nerves) functions." Although this may be a smaller part of the article, I find that it can be harmful to put them in the same category as it perpetuates stereotypes and misleads readers. ASD already has a lot of misinformation surrounding it, as well as people who think less of and poorly of those with ASD. According to the Centers of Disease Control and Prevention (CDC), Alzheimer's is a neurodegenerative disease, while according to the American Brain Foundation, autism is a neurological disorder. While they may sound similar, neurodegenerative diseases and neurological disorders are very different, as a disease is something that is caused physically while a disorder is not. By putting these two under the same category and insinuating that autism has a cause, the author is being careless with the research they did and could spread harmful stereotypes.

In this article, the author explains how autism is caused by air pollution, although according to the American Brain Foundation, “researchers are not sure what causes autism, but they believe genetic and environmental factors may play a role.” Through the extra research I did into autism, it is widely agreed that no one knows what causes autism, although there is speculation as stated by the American Brain Foundation. While this could be taken as the author being correct, I believe that it's important to be careful with spreading information like this. While I don't believe it's harmful to discuss these speculations, it can still be careless to take speculation as fact, especially for something that is already surrounded by a large amount of misinformation and stereotypes. I think if the author had instead been more clear in defining these points as speculation and didn't group ASD alongside neurodegenerative diseases, the article would seem less harmful.

The evidence that the author shows connecting air pollution to ASD is still currently being researched and speculative. While the sources provided are credible, it is still made clear in them that the research is ongoing and speculative. The rodent model references all specify that the animals exhibit “autism like behaviors” as animals can't actually have autism. However, rats are known to have very similar brains to humans, making this part of the author's research more credible. My only issue with this aspect of the article is that these are the only instances mentioned of something causing autism, I think if the author had instead found instances of this happening to actual people, it'd feel more truthful. While I understand that a case like that may be extremely rare, I think the risk of misinformation being spread is far more important.

In conclusion, I find that while this article does provide valuable insight on correlations between neurodegenerative disorders and air pollution, it is harmful in its handling of ASD. As I mentioned previously in this analysis, it is still being speculative if autism even has a cause, ASD is not a neurodegenerative disorder, it is a neurological disorder which is much different.

ARTICLE ANALYZED

Shabani, Sahreh. "A Mechanistic View on the Neurotoxic Effects of Air Pollution on Central Nervous System: Risk for Autism and Neurodegenerative Diseases." *Environmental Science and Pollution Research*, vol. 28, no. 6, 4 Jan. 2021, pp. 6349–6373, <https://doi.org/10.1007/s11356-020-11620-3>. Accessed 18 Sept. 2021.

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