

Project Idea: what age range is most affected by microplastics

Draft Title: Microplastics' Effect on Different Age Groups

Research Question: What age range is most negatively affected by microplastics in water

Hypotheses: If the amount of microplastics in water are increased children will be the most affected

Younger people are more negatively affected by microplastic

Prediction: Younger people will be the most negatively affected due to microplastics in water

Evidence: (Rationale of your hypotheses based on peer-reviewed scientific literature and science news on your topic)

Review Articles: (list the citation and what it says about your topic)

Chia, Rogers Wainkwa, et al. "Microplastic and Human Health with Focus on Pediatric Well-Being: A Comprehensive Review and Call for Future Studies." Clinical and Experimental Pediatrics, U.S. National Library of Medicine, Jan. 2025, [pmc.ncbi.nlm.nih.gov/articles/PMC11725616/](https://pubmed.ncbi.nlm.nih.gov/articles/PMC11725616/). Accessed 20 Sept. 2025

This article reviews multiple sources that talk about microplastics' effect on pediatric well-being, allowing them to improve their understanding on the topic.

Li, Yue, et. al. "Potential Health Impact of Microplastics: A Review of Environmental Distribution, Human Exposure, and Toxic Effects | Environment & Health." ACS Publications, pubs.acs.org/doi/full/10.1021/envhealth.3c00052. Accessed 20 Sept. 2025.

This article reviews how microplastics are frequently detected in environmental and human samples. They also "introduce the source, identification, toxicity, and health hazard of microplastics in the human."

Prata, Joana Correia, et. al. "Methods for Sampling and Detection of Microplastics in Water and Sediment: A Critical Review." ScienceDirect, www.sciencedirect.com/science/article/pii/S0165993618305247. Accessed 20 Sept. 2025.

This article reviews the methods currently used for sampling and detection of microplastics and in turn identifies flaws in study design and suggests promising alternatives.

Research Articles: Ji-Kim, Min, et al. “Microplastic Removal in Conventional Drinking Water Treatment Processes: Performance, Mechanism, and Potential Risk - Sciencedirect.” *Science Article*, 16 Apr. 2016, www.sciencedirect.com/science/article/pii/S0043135421006151. Accessed 18 Sept. 2025.

This article discusses how microplastics can make it into drinking water shows theoretical ways and mechanisms to help remove the microplastics.

Talvite, Julia, et al. “Solutions to Microplastic Pollution – Removal of Microplastics from Wastewater Effluent with Advanced Wastewater Treatment Technologies - Sciencedirect.” *Elsevier*, 3 May 2017, www.sciencedirect.com/science/article/abs/pii/S0043135417305687. Accessed 20 Sept. 2025.

This article discusses how microplastics are a pollutant and are an active hindrance to wastewater treatment, and develops ways to combat the issue of the disruptive microplastics.

Ma, Baiwen, et al. “Characteristics of Microplastic Removal via Coagulation and Ultrafiltration during Drinking Water Treatment.” *Science Direct*, 18 Sept. 2015, www.sciencedirect.com/science/article/pii/S1385894718323908?casa_token=MwcTccMI_DUAAAA:FwZp-f_aP5HufGMn9s3BrwL2BgUi7BH0KjeDYeZAWhZjxdNAwJ-QvMWir_XDX1Nsxs3ixmLwQhU. Accessed 20 Sept. 2025.

This article discusses how microplastics actually interfere with water flow throughout a particular place, and how it can be removed by soaking the plastics all together and filtering.

SciComm Articles: LaMotte, Sandee.

“Microplastics Shed by Food Packaging Are Contaminating Our Food and Drink, Study Finds.” *CNN*, Cable News Network, 24 June 2025, www.cnn.com/2025/06/24/health/microplastics-food-packaging-study-wellness. Accessed 27 Sept. 2025.

This article discusses how microplastics affect human health and what exactly microplastics are. The information is backed by research studies and goes into great detail how microplastics get into food and water.

Cox, David. "How Do the Microplastics in Our Bodies Affect Our Health?" *BBC News*, BBC, 25 July 2025, www.bbc.com/future/article/20250723-how-do-the-microplastics-in-our-bodies-affect-our-health. Accessed 27 Sept. 2025.

This article discusses how microplastics function in the human body and how the start of microplastics studies were conducted. In addition this articles list specific the ways to find how they are affecting human health and is backed up by research studies done by scientists

"It Doesn't Take Much for Microplastics to Leach into Food, Researchers Warn." NBCNews.Com, NBCUniversal News Group, 3 Apr. 2025, www.nbcnews.com/health/health-news/doesnt-take-much-microplastics-leach-food-researchers-warn-rcna198975. Accessed 27 Sept. 2025.

This article discusses the health risk of microplastics building up in the body, it also explores how microplastics interact with our daily life, specifically how they come off of everyday items we may not think of.

Proposed Experiment: (Experimental Design of your research project)

Independent Variables: The age of the stakeholders

Dependent Variable: Negative effects on stakeholders

Control Variables: General Symptoms of water treatment failure

Procedures: test the amount of microplastics in the water and test overall health of community members

Constructed Figure(s): Some type of graph that shows the physical health of the different age groups and how that relates to the amount of microplastics in their water.

graphic representation of the proposed results of data that supports your proposed hypothesis/research question. (hint: it's based on your Prediction Statement