



Microplastics and Human Health: An Emerging Public Health Concern

R. Thamizselvi

Associate Professor, Vivekananda Nursing College, Iyyankuttipalayam, Puducherry.

Abstract:

Microplastics are tiny plastic particles measuring less than 5 mm in size. They are increasingly found in drinking water, food, air, and soil, making human exposure unavoidable. Recent studies have detected microplastics in human blood, lungs, placenta, and other tissues, raising concerns about their possible effects on health. Although research is still evolving, evidence suggests that prolonged exposure may contribute to inflammation, oxidative stress, hormonal imbalance, and cardiovascular and respiratory diseases. This short communication highlights the sources of microplastic exposure, potential health effects, and the importance of preventive measures to reduce human exposure.

Key words: Microplastics, Human health, Plastic pollution, Public health, Environmental pollution

INTRODUCTION

Plastic products have become an essential part of everyday life because they are inexpensive, lightweight, and durable. However, improper disposal of plastic waste has led to widespread environmental pollution. Over time, larger plastic materials break down into tiny particles known as microplastics. These particles are now found in oceans, rivers, drinking water, seafood, packaged foods, household dust, and even the air we breathe. As a result, humans are exposed to microplastics every day.

Sources of Human Exposure

People are exposed to microplastics through several routes:

- Drinking bottled and tap water.
- Eating seafood, salt, fruits, vegetables, and packaged foods.

- Breathing indoor and outdoor air containing plastic particles.
- Using plastic containers and single-use plastic products.
- Wearing and washing synthetic clothing that releases plastic fibers.

Health Effects

Although the long-term effects are still being studied, current evidence suggests that microplastics may affect human health in several ways.

- They may trigger inflammation in different organs.
- They can increase oxidative stress, which damages cells.
- Some plastics contain chemicals that may interfere with hormone function.
- Inhaled microplastics may contribute to respiratory problems.
- Research suggests a possible link between microplastics and cardiovascular diseases, although further studies are needed.
- Scientists are also investigating their possible effects on reproductive health and the immune system.

More research is required to fully understand the health risks associated with long-term exposure.

Prevention and Public Health Measures

Reducing exposure to microplastics requires both individual and community efforts.

- Reduce the use of single-use plastics.
- Prefer reusable glass or stainless-steel containers for food and water.
- Avoid heating food in plastic containers.
- Dispose of plastic waste properly and support recycling.
- Encourage policies that reduce plastic pollution.
- Increase public awareness about environmental protection and sustainable practices.
- Support research and monitoring of microplastic contamination.

CONCLUSION

Microplastics have become an important environmental and public health concern because they are present in many aspects of daily life. Although research is ongoing, existing evidence suggests that reducing plastic pollution and limiting human exposure are important steps toward protecting health. Public awareness, environmental responsibility, and continued scientific research are essential to address this growing global challenge.

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