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A Significant Percentage of Adults Suffer from Infertility, Which Is a Worldwide Health Issue

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A significant percentage of adults suffer from infertility, which is a worldwide health issue. The World Health Organisation (WHO) has estimated that infertility affects 17.5% of people globally. In the context of Pakistan, a low-middle-income country, the issue of infertility is particularly pronounced. In Pakistan, infertility is estimated to affect 22% of people, with 9% of men and 13% of women affected. Even though infertility is still a major worry, it is important to take into account the larger environmental issues that may be involved. The existence of “microplastics,” which are pieces of any plastic that are less than 5 mm (0.20 in) in length, in the environment is one growing worry. Endocrine-disrupting chemicals (EDCs) and other dangerous substances are among the many chemicals found in microplastics. These microparticles can enter the body primarily via ingestion, inhalation, and skin contact, and target the reproductive system (hormonal changes) in a size-dependent manner.

Pakistan generates approximately 20 million tons of solid waste annually. Pakistan’s plastic consumption is rising at an annual rate of 15 percent. The per capital consumption is 7.5kg per person. The increasing presence of microplastics in the environment and the potential link between these factors become crucial for scientific understanding and public health.

This study was designed to assess the knowledge, and perception regarding microplastics and their possible impacts on hormonal disturbances (infertility) among the female population of Karachi and give possible preventive measures to improve it. A cross-sectional observational study was conducted between October till December 2024, using a questionnaire distributed via Google Forms. In this study, 154 females participated.

The study population targeted adult females aged 18-45 residing in Karachi. Participants taking hormonal medications or undergoing treatments that could interfere with hormonal assessments were excluded. Additionally, women who were currently pregnant or had a history of pregnancy within the last 12 months were also excluded. The majority of the females were aged between 20-24 (n=98, 63.7%), and those that were unmarried were (n=118, 76.6%) and had bachelor’s degree (n=90, 58.4%). Approximately (n=82, 53.3%) faced problems in their menstrual cycle and approximately (n=130, 84.4%) used single-use plastics. The knowledge score related to microplastics was (n=106, 68.8%) and the rest were unaware of microplastics and their sources. The majority of the females assessed were unaware of the impact of microplastics on hormonal health (n=132, 85.7%). From this research, it was concluded that there is a need to create awareness and knowledge of microplastics and their potential impact on female health. The prevalence of menstrual problems and the extensive use of plastics emphasize the importance of addressing environmental and health concerns in this demographic. Future efforts in research and awareness campaigns can play a pivotal role in addressing these issues and fostering more informed and sustainable practices among women of reproductive age.