ANALYSIS PRESENTATION OF BACKGROUND

1.DETAILED-EXPLANATION:

Urban air pollution is a growing global issue that threatens both environmental sustainability and human health. Rapid urbanization, industrial activities, and an increase in vehicular traffic have led to higher emissions of harmful pollutants such as PM2.5, PM10, NO2, SO2, CO, and O3. These pollutants have been linked to various health issues, including respiratory diseases, cardiovascular disorders, and even premature deaths. The effects of air pollution are more pronounced in urban areas, where population density and pollution sources are concentrated.

2.CURRENT-SITUATION-OVERVIEW:

According to the World Health Organization (WHO), more than 90% of the global urban population breathes air that exceeds recommended pollution levels. Cities such as Delhi, Beijing, and Mexico City have reported alarming pollution levels, resulting in severe health crises. In many cities, PM2.5 concentrations are far above the safe limit of 10 μg/m³ set by WHO. The current situation highlights the urgent need for effective policy interventions to mitigate the health impacts of air pollution.

3.PREVIOUS-RESEARCH-SUMMARY:

Several studies have established the link between air pollution and adverse health outcomes. Research conducted by Pope et al. (2002) demonstrated that long-term exposure to PM2.5 is associated with increased mortality from cardiovascular and respiratory diseases. A study by Dockery et al. (1993) found that children living in polluted areas are more likely to develop asthma and other respiratory issues. However, most of these studies focus on general population trends without analyzing the effects on vulnerable demographic groups.

4.GAPS-IN-KNOWLEDGE:

Despite numerous studies on urban air pollution, there are still significant gaps in understanding how different pollutants affect various demographic groups, such as children, the elderly, and low-income communities. Moreover, limited research has been conducted on the combined effects of multiple pollutants. There is also a lack of comprehensive statistical analysis that integrates both air quality data and health records across different urban regions.

5.JUSTIFICATION-FOR-THE-STUDY:

This study aims to address these gaps by conducting a detailed statistical analysis of air pollution's impact on public health, with a focus on vulnerable populations. By identifying correlations between pollutant levels and health outcomes, the study will provide actionable insights for policymakers. The findings will help develop targeted interventions to improve air quality and protect public health, contributing to more sustainable urban environments.