ASSOCIATION BETWEEN AIR POLLUTION AND RESPIRATORY DISEASES

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Abstract - This study examines the effects of air pollution on the three most common respiratory diseases, lung cancer, acute lower respiratory infection (ALRI), and chronic obstructive pulmonary disease (COPD). Whether there are significant differences in the incidence of disease and medical utilization under different pollutants. The impact of different socioeconomic status on exposure to different concentrations of pollutants is also studied. The medical utilization data comes from the National Health Insurance Research database in 2010 and the air pollution concentration data comes from 78 air quality monitoring stations. Because the analysis is based on the monthly data of 22 counties and cities in Taiwan for 7 years, a fixed-effect panel data model is used.The results of the study show that when the concentration of various pollutants in Taiwan's counties and cities increases, it will obviously cause the risk of diseases, especially the outpatient medical treatment of COPD. Among all the air pollution, the rise of O3 has the most extensive influence, both for outpatient medical utilization and inpatient medical utilization for the three diseases.In addition, this study also finds that with the increase of CO, the number and cost of lung cancer outpatient care will also increase, and the increase of PM2.5 will increase the outpatient rate of ALRI.As for socioeconomic factors, income, education level, gender, and age all significantly affected the incidence and medical utilization of the three respiratory diseases. Although the medical utilization rate of respiratory diseases in counties and cities with a high proportion of middle and high income is obviously low, under the threat of air pollution, the medical utilization rate of respiratory diseases may be higher than that of low-income counties and cities. In counties and cities with a high degree of urbanization and industrialization, although higher incomes attract highly educated people, the harm of air pollution to respiratory diseases cannot be ignored. How to reduce all kinds of air pollution, especially the hazards of O3, in order to maintain the health of the people may be a topic that relevant government agencies must actively face.

Keywords - Air Pollution, Health, Burden Of Diseases, Respiratory Diseases, Socioeconomic Status