



## Effect of Air Pollution on Respiratory Disease in Western China

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Ambient air pollution is a global public health concern that is estimated to cause approximately 3.7 million premature deaths worldwide per year. A number of studies have confirmed the association between air pollution and morbidity and mortality of respiratory disease in developed countries and some Asian countries. In this study, the status and trends of air pollution in severely polluted city of Lanzhou and its influence on respiratory disease were analysed using statistical methods based on the data of PM10 and air pollution Index (API). The results showed that both the air pollution level and occurrence of respiratory disease had seasonal change. The most serious air pollution occurred in spring and winter. The reason for severe pollution in winter mainly attributed to the house heating period in Lanzhou city from 15th November to 15 March every year. The spring pollution is mainly caused by invasion of desert dust from dust events on the upstream regions. The most cases of respiratory disease were also found in spring and winter in Lanzhou. The sex and age specific associations between air pollution and respiratory disease were also evaluated. The cases of respiratory disease were mainly concentrated in children ( $\leq 10$ ) years and the elder ( $\geq 60$ ) years. There was also sex differences for respiratory disease in Lanzhou. Men suffering from respiratory disease were 1.8 times than women. For the elder ( $\geq 60$ ), the ratio for lung disease is 2.70 and the ratio of male and female for bronchitis is 1.8. This probably related with smoke, drink, work pressure and mental attitude to the disease and needs further research. Correlation analysis between daily, weekly and monthly API and respiratory disease showed that there are close relationship between air pollution and the occurrence of respiratory disease.

Keyword: Lanzhou; air pollution; respiratory disease; API; correlative analysis;