

# AIR QUALITY IMPACT ON RESPIRATORY MORTALITY RISK IN SÃO PAULO

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## Introduction

Sao Paulo is one of most populous cities in the world. Air pollution caused by automobile traffic, coupled with industrial features in a subtropical climate create special atmospheric conditions that have a particular impact on population health.

## Objective

This study aimed to evaluate the impact of the air quality and meteorological conditions on respiratory mortality (RM).

## Methodology

This paper follows the design of ecological time series study using as dependent variable, the RM causes, by the government registers (CID 10<sup>a</sup> Revison) and independent variables: the daily pollutants concentration and air temperature (AT) and average relative humidity (RH), from 2004 to 2006. Poisson Regression with generalized linear models was used to treat the variables.

## Results

RM were shown to be directly related to the pollutants CO (1 day lag, 0.0190,  $p < 0.05$ ), NO<sub>2</sub> (5 days lag, 0.0006,  $p < 0.0131$ ) and O<sub>3</sub> (1 day lag, 0.0005,  $p < 0.05$ ; 3 days lag, 0.0004,  $p < 0.05$ ) and AT (minimum) (2 days lag, 0,0063,  $p < 0.05$ ) and inversely with RH (-0.0020,  $p < 0.05$ ). The Poisson Regression Analysis (PRA) showed O<sub>3</sub> (3 days lag) 0.0004,  $p < 0.0448$ , that means 2% (95% CI, 0.004; 3.94) increase in the mortality.

## Conclusion

The respiratory diseases for the period studied appear to be directly related to temperature and some pollutants. This indicates that when temperature and pollutants increases the number of cases so increases. The decrease in temperature is commonly coupled with the arrival of cold fronts in the region under study. With the arrival of cold fronts occurs increasing cloudiness followed by rain. The RH is an important element in human comfort in a subtropical climate and the precipitation in the removal of most tropospheric pollutants. Therefore, mortality from respiratory disease decreases when the relative humidity increases and the risk of death increases with increasing pollutants concentration.

Key words: Air pollution, Respiratory Mortality, São Paulo