

RISK OF DEATH FOR RESPIRATORY AND CARDIOVASCULAR DISEASES ASSOCIATED WITH AIR POLLUTION IN VOLTA REDONDA CITY, RIO DE JANEIRO STATE, BRAZIL

Marcio Oliveira, EPJSV/FIOCRUZ
Inés Mattos, ENSP/FIOCRUZ
Sergio Koifman, ENSP/FIOCRUZ

Background and Objective: For many years we have observed that fast technological advancement has brought an increase in the quantity and variety of pollutants in the atmosphere, which are affecting the quality of life on our planet. By virtue of the many roles that it plays, the respiratory system is particularly exposed to aggressive environments and is often the organ most affected by exposure to air pollutants. After him the cardiovascular system is the most affected. This study aimed to evaluate the effects of PM₁₀, SO₂ and O₃ on deaths from respiratory and cardiovascular diseases among the elderly in Volta Redonda city, Rio de Janeiro State, Brazil.

Methods: This ecological time-series study used data on daily deaths from respiratory and cardiovascular diseases (ICD-10: J00-J99 and I00-I99) of people. These data were organized, average concentrations of PM₁₀, SO₂ and O₃, minimum temperature and relative humidity for the period from January, 2002 to December, 2006. The data were analyzed using generalized additive Poisson regression, with constrained distributed lag models adjusted for long time trend, weekdays and holidays. The quality of fit for the final model was estimated using residual deviance analysis and the Akaike criteria.

Results: An increase of 10µg/m³ in PM₁₀ and SO₂ concentrations were associated with an increased risk of death from respiratory and cardiovascular diseases around 5.23%. For O₃, did not have an association with risk of death in Volta Redonda city.

Conclusion: The results showed an association between ambient PM₁₀ and SO₂ concentrations and an increased risk of death for respiratory and cardiovascular diseases. Additionally, the greatest increased risk was in elderly people.