

Publication**Short-Term Joint Effects of PM₁₀, NO₂, and SO₂ on Cardio-Respiratory Disease Hospital Admissions in Cape Town, South Africa****Journal Article (Originalarbeit in einer wissenschaftlichen Zeitschrift)****ID** 4646599**Author(s)** Adebayo-Ojo, Temitope Christina; Wichmann, Janine; Arowosegbe, Oluwaseyi Olalekan; Probst-Hensch, Nicole; Schindler, Christian; Künzli, Nino**Author(s) at UniBasel** [Adebayo, Temitope](#) ; [Arowosegbe, Oluwaseyi Olalekan](#) ; [Schindler, Christian](#) ; [Probst-Hensch, Nicole](#) ; [Künzli, Nino](#) ;**Year** 2022**Title** Short-Term Joint Effects of PM₁₀, NO₂, and SO₂ on Cardio-Respiratory Disease Hospital Admissions in Cape Town, South Africa**Journal** International Journal of Environmental Research and Public Health**Volume** 19**Number** 1**Pages / Article-Number** 495**Keywords** Cape Town; DLNM; South Africa; ambient air pollution; cardiovascular disease; multi pollutant; respiratory disease; short-term; time-series analysis**Mesh terms** Air Pollution, analysis, statistics & numerical data; Child; Hospitals; Humans; Nitrogen Dioxide, analysis, toxicity; Respiratory Tract Diseases, epidemiology; South Africa, epidemiology

In sub-Saharan Africa, few studies have investigated the short-term association between hospital admissions and ambient air pollution. Therefore, this study explored the association between multiple air pollutants and hospital admissions in Cape Town, South Africa.; Generalized additive quasi-Poisson models were used within a distributed lag linear modelling framework to estimate the cumulative effects of PM₁₀, NO₂, and SO₂ up to a lag of 21 days. We further conducted multi-pollutant models and stratified our analysis by age group, sex, and season.; The overall relative risk (95% confidence interval (CI)) for PM₁₀, NO₂, and SO₂ at lag 0-1 for hospital admissions due to respiratory disease (RD) were 1.9% (0.5-3.2%), 2.3% (0.6-4%), and 1.1% (-0.2-2.4%), respectively. For cardiovascular disease (CVD), these values were 2.1% (0.6-3.5%), 1% (-0.8-2.8%), and -0.3% (-1.6-1.1%), respectively, per inter-quartile range increase of 12 µg/m³; for PM₁₀, 7.3 µg/m³; for NO₂, and 3.6 µg/m³; for SO₂. The overall cumulative risks for RD per IQR increase in PM₁₀ and NO₂ for children were 2% (0.2-3.9%) and 3.1% (0.7-5.6%), respectively.; We found robust associations of daily respiratory disease hospital admissions with daily PM₁₀ and NO₂ concentrations. Associations were strongest among children and warm season for RD.

Publisher MDPI**ISSN/ISBN** 1661-7827 ; 1660-4601**edoc-URL** <https://edoc.unibas.ch/90340/>**Full Text on edoc** Available;**Digital Object Identifier DOI** 10.3390/ijerph19010495**PubMed ID** <http://www.ncbi.nlm.nih.gov/pubmed/35010755>**ISI-Number** WOS:000759267500001**Document type (ISI)** Journal Article