

# NONRESPONSE BIAS IN EPIDEMIOLOGICAL SURVEYS: DIFFERENCES BETWEEN RESPONDERS AND NON-RESPONDERS ACCORDING TO CHRONIC CONDITIONS AND ENVIRONMENTAL EXPOSURES

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**Background and Aims:** in the last decades, several cross-sectional studies have been designed to investigate the association between air pollution and respiratory or cardiovascular diseases. However, the differences between responders and nonresponders according to the study outcome and exposure have been neglected. Our aim was to address the nonresponse bias issue in the PREDICTOR study.

**Methods:** the PREDICTOR study is a population-based survey designed to estimate the prevalence of heart failure in the population aged 65-84 years in Rome. Subjects received an invitation to perform a clinical examination and an echocardiogram at the local hospital. For each subject, information was available on: age, gender, a list of chronic conditions derived from the past 9-year hospitalizations. In addition, multiple air pollution indicators were collected at the census-block level: proximity to high traffic roads; meters of streets and traffic density within a 150-m buffer; average NO<sub>2</sub> concentrations as estimated from land-use regression; average concentrations of PM<sub>10</sub> and ozone, as estimated from dispersion modeling. Odds ratios of nonresponse were estimated in relation to individual and environmental variables, from logistic regression models adjusted for age and gender.

**Results:** the study population consists of 3,753 subjects: 1,512 responders and 2,241 nonresponders. Responders were younger (mean age=73 years) than nonresponders (mean age=75), and were males in higher proportion (52% versus 40%). Patients with previous respiratory failure, cerebrovascular, and neurological disorders were less likely to respond. No difference emerged in the responding rate of patients with or without past heart failure. With regard to air pollution exposure, responders and nonresponders were similar for all the parameters collected.

**Conclusions:** we found a differential response rate with regard to demographic and some disabling chronic conditions, but not to air pollution exposure. The health effects of air pollution in the PREDICTOR study should not be affected by differential response rate.