

Are environmental noise and air pollution in middle-sized cities risk factors for preterm delivery?

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ABSTRACT

The aim of this study was to analyze the relationship between preterm birth and environmental multi-exposure to noise and air pollution, in middle sized cities.

A case-control study was conducted on single pregnancies without associated pathologies (303 cases and 1208 controls). The mothers lived in the urban community of Dijon or in the city of Besançon (France). The delivery occurred in one of the two university hospitals between 2005 and 2009. Four controls were matched to each case on the mother's age and city of delivery. Different noise and nitrogen dioxide (NO₂) exposure assessments were modeled at the mother's home.

No significant differences in pollutant exposure levels were found between cases and controls. The adjusted odds ratios were very close to 1. The correlations between noise assessments and between NO₂ assessments were very high. Sensitivity analysis conducted using different temporal and spatial exposure windows lead to the same results.

The results are in line with of a lack of association between preterm delivery and multi exposure to noise and air pollution in moderately polluted cities, in pregnant women without underlying diseases.