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Estimating health risks from air pollution and exposure to cigarette smoke during pregnancy using Merseyside community child health survey and air pollution data

Air pollution is a serious public health issue that can lead to child health problems. The objectives of this study were to develop and establish a combined database of air pollution indicators, exposure to cigarette smoke and health variables and to complete a descriptive analysis of environmental exposures and child health outcomes. And also, to compute odds ratio estimates for adverse birth and child health outcomes in relation to PM_{10}/NO_x emissions and PM_{10}/NO_2 concentrations and combined with pregnancy smoking categories and to estimate mean emissions for NO_x and PM_{10} and mean concentrations for PM_{10} and NO_2 in areas with high and low prevalence of adverse birth and child health outcomes. A descriptive cross-sectional study was conducted by linking air pollution data with data available from the community child health survey in 2006 using postcode sectors. PM_{10} and NO_2 monitoring data were available as total and average emissions measured in tons per annum and NO_2 and PM_{10} concentrations data in microgram per metre³. Outcomes included birth and child health outcomes. SPSS 20 was used for univariate analysis and backward stepwise logistic regression. The research project had ethical approval. Data from 792 school and children aged 5-11 years from 10 schools combined with corresponding air pollution data were used. There was independent association of childhood obesity with combined high NO_x - PM_{10} emissions + maternal pregnancy smoking (adjusted OR 4.47, 95% CI 1.22-16.43, $p=0.024$) after adjustment for confounding factors. Combined high NO_x - PM_{10} emissions and maternal pregnancy smoking were associated with an increased risk of childhood obesity.

Biography

Gibby Koshy has completed his PhD from Amsterdam University and Post-doctoral studies from Liverpool School of Tropical Medicine. Currently, he is working as a Senior Public Health Specialist Advisor specializing in children's substance misuse with Public Health England. He has also worked as an Associate Specialist with The Global Fund to Fight AIDS, Tuberculosis and Malaria, Switzerland and also as a Senior Public Health Intelligence Analyst with Public Health England. He has published more than 40 articles including text book chapters in recent advances in Pediatrics, peer reviewed journals and in other reputed international journals.

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