

Occupational noise exposure and pregnancy complications: results from five urban Nordic cohorts

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ABSTRACT

Noise is among the most common occupational health risks. Besides hearing impairments, occupational noise exposure exceeding 80-85dB has been associated with increased risk of hypertension and cardiovascular disease. Some groups such as pregnant women might be particularly susceptible to these effects, but the effect of high occupational noise exposure on pregnancy complications has rarely been studied. We examined these associations in cohorts from five Nordic metropolitan areas containing all pregnancies (≥ 22 weeks) during the selected years: Copenhagen, Denmark 2005-2016; Stockholm and Gothenburg, Sweden 2007-2012; Oslo, Norway 2005-2014; and Helsinki, Finland 2004-2014. Altogether the data contained more than 500,000 pregnancies. Noise exposure during pregnancy was assessed with a Swedish-developed job-exposure matrix based on assessed noise levels in different occupations. The outcomes, obtained from national health registries, included gestational diabetes, gestational hypertension, and severe and mild-to-moderate pre-eclampsia. The data was analysed with binary logistic regression models, controlling for potential demographic and environmental confounders. Based on cohorts from Denmark, Norway, and Finland, we found that occupational noise exceeding 80dB (compared with < 70 dB) was significantly associated with greater odds of gestational diabetes (ORs 1.14 - 1.47) and mild-to-moderate pre-eclampsia in Denmark and Norway (1.20 and 1.53, respectively), but not with severe pre-eclampsia or gestational hypertension. The results including Sweden (and meta-analyses) will be presented at the conference. Our results suggest that occupational noise level exceeding 80dB is associated with increased risk of gestational diabetes and mild pre-eclampsia in urban Nordic populations. Therefore, reducing high occupational noise exposure during pregnancy should be promoted.

Keywords (3-6): hypertensive disorders of pregnancy, occupational health, occupational noise, gestational diabetes, gestational hypertension, pre-eclampsia