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NOISE AND CARDIOVASCULAR DISEASES: FIRST RESULTS OF A META-ANALYSIS

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ABSTRACT

To get more insight in the health effects of noise exposure, a meta-analysis of epidemiological studies on noise and cardiovascular effects was carried out. From reviews it appears that studies on the relationship between noise exposure and cardiovascular effects show contradictory results. Furthermore, some of the reviews had important drawbacks such as the lack of clear selection criteria for evaluating the literature and poor descriptions of the methods. Tables and/or figures, presenting individual study results, were hardly shown. At the moment, no reliable dose-response relationships on noise and cardiovascular diseases are available.

Therefore a meta-analysis was carried out. This is a quantitative analysis of study results.

Epidemiological studies investigating the relationship between noise exposure and blood pressure and/or ischemic heart diseases (ICD-9: 410-414) and published between 1970-1999 in English, German or Dutch, were selected.

Eventually, about 40 occupational and community-based studies were evaluated. Effects such as blood pressure changes, changes of hypertension rates, rates of angina pectoris and myocardial infarction, were investigated. Three noise exposure sources were distinguished: noise from road traffic, air traffic and occupational noise.

The studies showed contradictory results and appeared to be heterogeneous on several important study characteristics.

Exposure characterisation was a problem: in community-based studies, stationary measurements are often used as an indicator for exposure. However, it remains the question if this is a good proxy for personal exposure to noise. Funnelplots showed publication bias: studies, finding negative results, are often not published.

Further results, including quantitative risk estimates and sensitivity analysis, will be presented.

Note: for more information about this work, please contact the authors.