

RESIDENTIAL HISTORY, DURATION OF ENVIRONMENTAL AND NEIGHBORHOOD SOCIOECONOMIC EXPOSURES AND MENTAL AND CARDIOVASCULAR HEALTH

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Background and Aims: High traffic at the residence has been linked to cardiovascular and mental health in cross-sectional analyses; however, the lack of a residential history to assess duration of exposure has limited prior analyses. We investigate the effect of exposure duration on disease prevalence.

Methods: We used baseline data (2000-2003) from the population-based prospective Heinz Nixdorf Recall Study in Germany. Residential history of 10 years before baseline examination was obtained from the city registries for 3,320 participants, aged 45-75 years. Proximity to state/federal highways, traffic noise (EU-directive; 2002/49/EC), and neighbourhood unemployment rate were assigned on a monthly basis to all of the participants' addresses. Outcomes included depression, high coronary artery calcification (CAC), and hypertension. Logistic regression was used, adjusting for cardiovascular risk factors and traffic proximity (in models with noise and neighbourhood unemployment as main exposures).

Results: Full ten-year residential history was available for 95.3%, 20.7% changed their residence at least once. In the subset of participants with complete residential history (n=2,830), night-time noise exposure >60 dB for 1-60 months yielded ORs for depression (2.68; 1.08-6.64) and high CAC (1.67; 0.86-3.23); similar trends, but smaller effect sizes were observed for longer exposure duration. ORs for 1-60 and 61-120 months of residence in neighborhoods with high unemployment rate (upper quintile) were 1.20 (0.54-2.71) and 1.60 (1.10-2.31) for depression and 1.40 (0.87-2.28) and 1.01 (0.80-1.27) for high CAC, respectively. Marginal associations of residence within 100 m of a major road were observed for depression and high CAC, however, no consistent exposure-response relationship was found. ORs for hypertension were elevated, though inconclusive.

Conclusions: We found weak associations of long-term residential exposures with mental and cardiovascular health outcomes, but reductions in sample size due to out-of-area relocations and extrapolation of exposures into the past have to be considered.