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133 - ENVIRONMENTAL NOISE AND SLEEP DURING MID-ADULTHOOD IN URBAN SETTINGS: EXAMINING SEX AND SOCIOECONOMIC DIFFERENCES

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Resumen

Background/Objectives: Sleep is essential for physical and mental health but tends to deteriorate from mid-adulthood, particularly among women and environmental noise is a major disruptor. This study estimated the impact of nocturnal road traffic noise on sleep during mid-adulthood and examine sex-based differences in this relationship. Objectives also included quantifying adults exposed to noise above European thresholds, describing sleep health, and assessing sociodemographic differences.

Methods: We conducted a cross-sectional analysis using population health survey (PHS) data (2021-2023) from adults aged 40-60 living in Barcelona and in the capitals of the Basque Country and Valencian Community. Nocturnal road traffic noise (Lnight) was obtained from official noise maps. Sleep was assessed using questionnaire-based, self-reported measures from the PHS, including sleep duration, overall sleep satisfaction, and sleep quality (SATED score). We applied group comparisons and Generalized Additive Mixed Models to examine sociodemographic differences. For the main analysis, Directed Acyclic Graphs and linear models accounting for the complex survey design were used to estimate associations between noise and sleep.

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Results: Sociodemographic differences were observed for sleep, with women reporting poorer sleep than men, and sleep quality increasing with household income. Noise exposure increased with income at lower levels, with regional variation at higher incomes. Regarding the association between environmental noise and sleep, no consistent pattern was observed. In Barcelona, noise was positively associated with sleep satisfaction; however, when results from the three study regions were combined in a meta-analysis, the pooled association was not statistically significant. In contrast, higher noise exposure was associated with lower sleep quality, particularly among women, and this pattern remained consistent in meta-analyses across regions.

Conclusions/Recommendations: Our findings support the development of context-specific public health strategies that address vulnerable populations and account for sex- and age-related differences.

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