

Links to studies mentioned:

Study: ***A study of self-reported health problems of the people living near railway tracks in Raipur city***

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“Majority of the study subjects (64%) stated that they were facing a problem of noise pollution [Table 2]. The vibrations generated due to rail tracks/and engine radiate sound from the wheel and the rail and also from other vibrating surfaces such as parts of the boggi and suspension, rail car sides, and so on. In the present study, around half (47.8%) of the study subjects responded that train engine caused major noise pollution which was followed by track vibration (43.3%), and 9% reported train whistle as a source of noise.”

“Among the study subjects, 23.0% of them responded of facing auditory fatigue, followed by 11.5% of them reported of hearing loss [Table 3], which was similar to the study of Christi and Adriyan[9] which reported 14% suffered from hearing loss among people living near a railway track.”

“A few (3%) of residents complained that their efficiency is reduced because of noise [Table 4]. Nausea was reported by 10.5% of participants. Visual disturbances were problem in 8.8% of the participants. Giddiness was perceived as a problem in 11.75% of the participants. In the present study, 17% population reported annoyance. Noise annoyance can result in interference with daily activities, feelings, thoughts, sleep, or rest, and may be accompanied by negative emotional responses, such as irritability, distress, exhaustion, a wish to escape the noise, and other stress-related symptoms. Severe annoyance has been associated with reduced well-being and health and, because of the high number of people affected, annoyance contributes substantially to the burden of disease from environmental noise. Studies have shown that the likelihood of depression and anxiety increased with annoyance.[10] Beutel et al.[11] and Pultznerova et al.[12] found that the degree of annoyance because of noise around the railway track to be 15.6% and 14.29%, respectively, which was similar to our study.”

“It has also been proven that nocturnal noise pollution significantly impairs sleep, objectively and subjectively. Loss of sleep/insomnia was reported by 6% of resident in our study, whereas Pultznerova et al.[12] in Northwest Slovakia found 26.42% sleep disturbance because of railway noise in its respondents (moderately + very much) and interfered with their daily activities and Khaiwal et al.[13] in India found that more than half of the respondents (55.6%) reported disturbance during sleeping due to noise. Nonauditory effects of noise exposure are those effects that do not cause hearing loss but still can be measured, such as elevated blood pressure, loss of sleep, increased heart rate, cardiovascular constriction, labored breathing, and changes in brain chemistry [Table 5]. 6% of the study participants perceived that the surrounding noise led to an increase in their blood pressure. Two previous cross-sectional studies have investigated the effect of railway noise on the prevalence of hypertension and one found a significant positive association on road traffic noise, whereas the other study found no associations.[14,15] An overview from 2006 of the effects of exposure to transport noise (road, air, and rail) on cardiovascular health concluded that transport noise is associated with hypertension.[16]”

“Increase in heart rate and breathing was reported by 12.25% of the participants but the increase in sweating was reported by 34.8% of the participants. Headache and heaviness were reported by only 10.75% of the participants in our study which was lower as compared to Khaiwal et al.[13] where 40.4% of respondents suffered from headache due to noise. **There is clear evidence that sleep disturbances are associated with health deterioration, and growing evidence that exposure to noise pollution, around-the-clock, negatively affect health too.**”

Study: ***Living alongside railway tracks: Long-term effects of nocturnal noise on sleep and cardiovascular reactivity as a function of age***

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“We investigated the effects of nocturnal railway noise on sleep and cardiovascular response in young and middle-aged adults living for many years either near a railway track or in a quiet area. Forty subjects (50% males) divided into two age groups (juniors: 26.2+/-3.6 and seniors: 56.2+/-4.2) participated in this experiment. Half of them lived near a railway track (RW group: 2.6 to 19 years) and the other half in a quiet environment (QE group: 8.1 to 14.2 years). After an adaptation night, all subjects underwent two nights in the laboratory: one control night and one noisy night (30 by-passes of a freight train). Sleep and cardiovascular modifications were assessed in response to noise. Sleep fragmentation indices were lower in RW subjects compared to QE whatever their age. In response to noise, there was a higher cardiovascular response rate to noise in RW juniors and a lower cardiovascular response rate in RW seniors compared to their age-paired QE counterparts. **In conclusion, permanent exposure to nocturnal railway noise leads to decreased sleep fragmentation and to cardiovascular habituation.** It is suggested that during the initial period experienced by residents living near railway tracks, nocturnal railway noise could induce a sensitization process on the autonomic response to noise reflecting a startle/defense reflex due to its functional significance, which progressively turns to habituation in the long-term if no adverse effect is experienced.”

Study: ***“Railway noise and diabetes among residents living close to the railways in Västra Götaland, Sweden: Cross-sectional mediation analysis on obesity indicators”***

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Evidence supports an effect of transportation noise on several health outcomes, including metabolic conditions such as diabetes. However, few studies were directed to railway noise; present studies on railway noise and diabetes so far show ambiguous results while some studies report an association between railway noise and obesity. The aim of this study is to investigate the relationship between railway noise and diabetes prevalence and to assess whether obesity might be a mediator in this association. The study population (N = 5381) was randomly selected from residents living within 1 km of a trafficked railway in Västra Götaland, Sweden. Survey data was combined with modelled exposures and health register data (ICD10 codes for diabetes). The study uses a cross sectional design, logistic regression analysis and a counterfactual mediation analysis. ***We found an increase in the prevalence of diabetes associated with the exposure to railway noise: OR = 1.33 per 10 dB increase Lden (95% CI 1.09-1.63) accounting for sociodemographic and lifestyle factors. BMI and waist circumference partially mediate the association between railway noise and diabetes. This is the first study to report an association between railway noise and diabetes in Sweden.*** BMI and waist circumference seem to be a potential mediators in this association. Still, future studies should further explore the mechanisms from noise to diabetes, considering different pathways in relation to obesity but also exploring other potential mediators.

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Study: ***“Effects of train noise and vibration on human heart rate during sleep: an experimental study”***

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3657678/>

Results

The train exposure led to a significant change of HR within 1 min of exposure onset ($p=0.002$), characterized by an initial and a delayed increase of HR. The high-vibration condition provoked an average increase of at least 3 bpm per train in 79% of the participants. Cardiac responses were in general higher in the high-vibration condition than in the low-vibration condition ($p=0.006$). No significant effect of noise sensitivity and gender was revealed, although there was a tendency for men to exhibit stronger HR acceleration than women.

Conclusions

Freight trains provoke HR accelerations during sleep, and the vibration characteristics of the trains are of special importance. In the long term, this may affect ***cardiovascular functioning of persons living close to railways.***

There are dozens of studies proving that living close to train railways impacts and hinder health outcomes. Like I said on my comments, how can we get to this point? How did the project get approved by our county? No citizen knew about the location of the train, this came as a surprise to us. We are not opposed to growth within our city, but locating a Private railway investment next to a neighborhood that is already established, with American families that bought their dream home with all their effort, to bring a prosperous life to their families? It is incredible, unbelievable and as a citizen of Eagle Pass, Texas and Maverick county I am completely opposed to the location of this project.