

Effects of Noise Pollution on Mood and Academic Performance of Students in Dhaka City: A Mixed-Methods Study

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**Abstract**

*Dhaka has been listed as one of the world's highest noise-polluted cities, creating very serious risks to both health and learning and yet no research has been conducted to determine how environmental stressors affect this student population. This study was one of the first in Dhaka to investigate the perceived noise pollution, academic decline, and emotional well-being of secondary school students using a mixed-methods approach. A survey of 145 students from grades 7-12, along with 20 semi-structured interviews, confirmed that more than 68% reported experiencing moderate to very high noise pollution levels, with 39% reporting noise pollution levels for over 5 hours a day. Statistical tests such as Chi-Square and t-tests indicated that students reported academic decline due to noise exposure ( $p .0001$ ), had poor confidence in their study with fatigue and mood disturbances, including irritability and stress. Students reported hearing frequently compromised their ability to focus, and were more supported at local or community levels of noise control. By juxtaposing subjective perceptions and quantitative data, the findings provided a new way forward to understand how environmental noise shapes youth experiences in Dhaka and provided a context-specific baseline for future studies. The results reveal the need for urgent urban noise regulation, specifically in residential and educational settings, and should inform new and ongoing policies aimed at improving health and academic success amongst adolescents in noisy urban cities.*

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**Introduction**

The negative impact of constant noise exposure has been known to hinder people's well-being, attention, and thinking processes. This is, without a doubt, a global problem; however, it is very common in congested urban areas with higher populations and more centralized infrastructure. In this regard, Bangladesh, and in particular the city of Dhaka, is ranked as one of the most noisy and polluted cities in the world. According to a report by the United Nations Environment Programme, Dhaka is the noisiest city in the world [1]. The most crucial sources of noise in Bangladesh cite traffic congestion (38%) and construction work (24%) [2], [3].

It is said that noise pollution has a variety of negative effects on one's health. Some of these effects include: stress that is associated with the ear, headaches, sleeping disorders, mental disorders, and in higher degrees, a more permanent loss of hearing in addition to nervous system disorders [4]–[6]. The data is alarming; about 11.7% of Bangladeshis suffer from some degree of hearing loss as a direct result of noise pollution. Bangladeshis have also been identified as academically and cognitively