

Noise pollution and its probable impacts on public health in Dhaka city

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Noise is a “loud and unpleasant” sound that exceeds the acceptable level and creates Annoyance. With urbanization and increasing human activities, the problem of noise pollution in Dhaka, the capital city of Bangladesh, is worsening day by day. Along with water and air pollution, noise pollution has also become a hazard to the quality of life. Noise pollution is a subtle killer. Even a relatively low noise level affects human health adversely. In Dhaka, the average sound level is 80-110dB in prime areas such as Farmgate, Karwan Bazar, Shahbagh, Gabtoli, and Mohakhali Bus Terminal, says the study report. This is almost twice the maximum noise level that can be tolerated by humans – 60dB – without suffering a gradual loss of hearing, according to the World Health Organization (*WHO*).

UN Environment Program (*UNEP*, 2022) report declared Dhaka the world’s noisiest city. Against the permissible limits of 55 decibels as set by the WHO, the noise levels in Dhaka were found to be at least twice that, at 110-132 decibels. 75% of noise pollution in Dhaka originates from vehicles. According to the WHO, around 5% of the world’s population is facing several kinds of health hazards due to complexities related to noise pollution. Around 11.7% of the population in Bangladesh has lost their hearing due to noise pollution, says the Department of Environment (DoE) study, which was conducted in order to check noise pollution, the government has introduced Bangladesh Sound Pollution (Control) Rules, 2006. According to the guidelines, exceeding the maximum noise level in a certain area is a punishable offense.

Also, using a stone breaker machine in a residential area is prohibited, and a permit from the DoE is required to organize any social or religious event that could generate loud noise in a residential area. However, the rules have never been properly implemented anywhere in the country, the study has found. The department of environment occasionally monitors traffic and industrial noise pollution. The major sources of noise pollution in urban areas are traffic and loud horns. The DoE found that in Dhaka, 500-1,000 vehicles honk at the same time when stuck in traffic. Other causes of noise pollution include loud music during social, political, and religious programs, construction work, and factory noise.

It may cause hypertension, disrupt sleep, and/or hinder cognitive development in children. The effects of excessive noise could be so severe that either there is a permanent loss of hearing and memory or a psychiatric disorder. Besides, World Health Organization identified many other adverse effects of long exposure to moderate-level noise or sudden exposure to excessive noise. Due to the environmentalist 17th International Congress on Sound and Vibration (*ICSV17*), Cairo, Egypt, 18-22 July 2010 movements in different countries, some remarkable initiatives have been taken to check the noise level. For example, the USA has established sites where human-caused noise pollution is not tolerated. Similarly, the European Union prepared ‘noise maps’ of big cities. The laws of the Netherlands do not permit the construction of houses in areas where 24-hour average noise levels exceed 50dB. In Great Britain and India, the Noise Act empowers the local authorities to confiscate noisy equipment and take legal action against people who create excessive noise at night. Several countries are also investing in newer technology, which can curtail noise pollution. It is reported that most of the dwellers of Dhaka city are not aware of the ill effects of noise pollution. They even do not consider noise a pollutant and take it as a part of routine life. The environmentalist movements here are also not much serious about noise pollution. However, it has been recognized as a pollutant in some recent studies. In Bangladesh, a set of guidelines for regulation and control of noise and for establishing “silent zones” around educational and medical institutions has been formulated in Bangladesh Environment Conservation Act, of 1995. Bangladesh High Court gave a ruling on 27 March 2002 banning hydraulic and all sorts of excessively noisy horns in vehicles. In a gazette notification in 2006, the ministry of environment and forest affairs empowered the authorities to confiscate noisy equipment or vehicle and fine people guilty of causing noise pollution.

Maximum noise levels in different areas

Areas	Maximum noise level (dB)
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Sensitive areas (Education, Hospital, Mosque)	40-50
Residential Zones	45-55
Mixed areas	60-70
Commercial areas	65-70
Industrial areas	70-75

Source: *Bangladesh Noise Pollution (Control) Rules, 2006.*

Measured Noise Levels in Some Sensitive Areas of Dhaka

Location (Inside the facility)	Measured noise level average (dB)	
	Morning	Afternoon
Eden Mohila College	69	67
Udayan School	57	55
Willes Little Flower School and College	66	69
Motijheel Ideal School and College	77	72
Curzon Hall (Dhaka University)	87	77
Dhaka medical college hospital	89	91
Bangabandhu Sheikh Mojib Medical College Hospital	90	95
Ever care Hospital	55	53
Ramna park	57	54

Source: *Field survey, 2022*

According to table, it can be observed that the sensitive areas have a maximum sound level of 95 dB in Bangabandhu Sheikh Mojib Medical College Hospital followed by Dhaka medical college hospital, Curzon Hall (Dhaka University), Motijheel Ideal School and College, Willes Little Flower School and College, Eden Mohila College, Udayan School, Ever care Hospital, Ramna park. A significantly high amount can cause health issues such as hearing and sleeping problems, and cardiovascular problems/ heart problems.

Effects of noise pollution on Traffic police, Driver

Sex	Traffic police			Driver		
	Below 30	30-40	40-50	Below 30	30-40	40-50
Age, Yrs.						
Respondent (total) 297	25	73	52	35	77	35
Loses of attention and performance	10 (40%)	23(32%)	7(13%)	14(40%)	23(29%)	8(23%)
Insomnia. Stress-related illness	3(12%)	11(15%)	15(29%)	7(20%)	11(14%)	5(14%)

High blood pressure	2(8%)	12(16%)	10(19%)	3(8%)	16(21%)	7(20%)
Hearing and Sleeping disturbance	6(24%)	17(23%)	7(13%)	8(23%)	19(25%)	8(23%)
Annoyance and Aggression	3(12%)	7(10%)	8(16%)	2(6%)	6(8%)	3(8%)
Cardiovascular problems/ Heart problems	1(4%)	3(4%)	5(10%)	1(3%)	2(3%)	4(12%)

Source: Field survey, 2022

The World Health Organization (WHO) has documented seven categories of adverse health effects of noise pollution on humans which are: hearing loss, interference in speech communication, sleep disturbance, cardiovascular and physiological effects, mental health disturbance, impaired task performance, negative social behavior and, annoyance. These are grouped into 6 groups as shown in these Tables. The respondents are asked to choose the kind of problem he/she is facing due to noise pollution. The identified most dominant problems caused by noise pollution are loss of attention and performance in study or job and bad temper/annoyance, hearing, and sleeping disturbance. Both are, in fact, interrelated. It is difficult for a disturbed mind to concentrate on a job and perform properly.

Significantly, among the Traffic police, Drivers interviewed, almost all of both said that hearing loss, interference in speech communication, sleep disturbance, mental health disturbance, negative social behavior and annoyance. They face a family crisis. About 9% of traffic police are at risk of permanent hearing loss, while 20% are suffering from temporary hearing problems due to acute noise pollution. About 10 % of drivers are at risk of permanent hearing loss, 17% are suffering from temporary hearing problems, 7% high blood pressure due to acute noise

The survey indicates that the noise pollution level is perceived to be high all day long and the principal source of noise pollution is vehicle horns. It also reveals that noise results in reduced efficiency and causes annoyance or bad temper, interference in speech communication, sleeplessness, etc. Nowadays people are becoming more aware of noise pollution's bad impacts and the significance of noise pollution control. However, this much awareness is not enough to make them proactive in taking steps to abate the problem.

Recommendations

* Make a conscious effort, and/or instruct your drivers, to honk as little as possible. *Work with others in your neighborhood (home/ office) to control noise pollution. Post a sign banning honking, and ask those who work outside to help enforce it. If a special source of noise is present- such as a shop selling music, or a brick-breaking machine –approach the owner as a group, and demand that the noise be reduced.

*Ban industrial activity in urban areas. This would have a double benefit: reduce both noise and air pollution. *Visit neighborhood schools, and give the teachers and students leaflets about noise pollution and the need to reduce it. *Work with media, or personally write a letter or article, about noise pollution. Stress the damages it causes, the need to reduce it through our own actions, and the importance of having strong noise pollution laws, to make Dhaka a more livable city.

*Try to get a local camera or cable TV station to air ads for free or with minimal cost, on the importance of action to reduce noise pollution.

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