

A Study on Noise Pollution in Metropolitan City, Mumbai

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Abstract: Noise is an unwanted sound which is above the permissible limits and causes noise pollution. Long-term exposure to noise pollution directly shows adverse impact on human health leading to poor concentration, stress, sleep and cardiovascular diseases. The present study was conducted to study the noise level from different places in Mumbai. Our observations suggest that most of the people in Mumbai are constantly living under high noise level which could be one of the cause that has negative impact thus affecting human health.

Keywords: Noise pollution, decibel, health

1. Introduction

Noise pollution has become a common problem in developed as well as developing countries (Belojevic et. al., 2008). Sound level above 55 dB is considered as noise pollution and long term exposure of noise has harmful effect on human health (Muralidharan et. al., 2018). Noise is considered as a pollutant under the air (Prevention and Control of Pollution) Act, 1981 (Ministry of Environment and Forests, Government of India. No. 14 of 1981). It included annoying, unpleasant, disturbing or persistent sound which has a negative effect on normal human life (Jamir et. al., 2014) and disturbs the people's routine activity, sleep pattern, reduced performance, increased annoyance, and changes in social behavior (Muralidharan et. al., 2018; Noise, 2011). Noise can be divided into two parts: (i) community noise also known as environmental noise, residential noise, or domestic noise (it consist the noise from loudspeaker, vehicles, community activities, construction and work firework) (Jamir et. al., 2014) (ii) industrial noise (Burglund et. al., 1999). Increasing number of vehicles, unnecessary honking, and traffic rush are one of the main sources of noise pollution especially in cities.

2. Materials and methods

In present study, noise levels were recorded from different area of Mumbai to determine the noise pollution level in metropolitan city. Hand held digital sound meter was used for sound recording. Fast time evaluation mode was set for sound measurement. The measurements were made during day time

on the noise level generated at homes, community gatherings, markets and vehicles including public transport.

3. Results and discussion

The present study investigates the noise pollution level by diverse sources of noise in different area of Mumbai a metropolitan city, to find out whether the sound level are matches with the recommended standard sound level or not. According to Ministry of Environment and Forests, Government of India, have notified Noise Level Standards and Guide-lines under Environment (Protection) Rules, 1986, known as Noise Pollution (Regulation & Control) Rules, 2000 as shown in Table 1.

Table 1
Permissible noise level in India

No.	Area/ Zone	Limits in dB	
		Day	Night
1	Industrial Area	75	70
2	Commercial Area	65	55
3	Residential Zone	55	45
4	Silence Zone	50	40

As evident from Table 2 the noise frequency which we encounter daily is beyond the permissible limits. Frequency of noise pollution is increasing day by day and become a routine part of life. Most of the people do not consider it as pollution. But the fact is that we are surrounded by this monster everywhere including shopping malls, schools, workplace, roads, and even at homes. It is very difficult to get away from noise pollution. Many studies indicate that noise apart from the transport or workplace, household tools and appliance also produces harmful noise (Chepesiuk, 2005; Muralidharan, 2018). Literature suggests that diseases such as sleep-apnoea, stress, and cardiovascular disease are related to the high level of noise. In present study results shows the noise level above 55dB from different sources. The observations are supported by the studies of Muralidharan et al., (2018) and Chepesiuk (2005). Previous studies shows that increase in population, increased traffic, and changed life style are the major factor for the

Table 2
Noise level obtained from different sources of Mumbai region

Number	Source of Noise Pollution	Sound Level Recorded (dB)
	By Transport	
1.	Car Horn	98
2.	Truck Horn	100
3.	Train Horn	109
4.	No train, no announcement, empty platform	64
5.	Announcement on platform	77
6.	Train arriving on station	78
7.	Departure of the train from the station	90
8.	Bhajan Mandali in local train	80
9.	Ghatkopar station	79
10.	Bhandup Station	77
11.	Bus horn	94
12.	Running bus on road	95
13.	Bus at the Bus Stop	75
14.	Autorikshaw Horn	90
15.	Running autorikshaw on road	69
16.	Bike Horn	92
17.	Car Horn	78
18.	Passing by Car	85
19.	Noise at the traffic light Signal	105
20.	Noise at the toll tax	87
21.	Road traffic near residential area	70
	At Different Location	
22.	Construction site	75
23.	Vegetable Market	74
24.	Fruit Juice Centre	79
25.	Noise pollution at Andheri	79
26.	Ambedkar Procession	100
27.	Ganpati festival	116
28.	Navratri mahotsav	114
29.	Road touching Building during day time	68
30.	Road touching building during night time	57
31.	In front of Hospital	65
32.	In front of School	70
33.	Lift	70
	House Appliances	
34.	Washing Machine	70
35.	Refrigerators	50
36.	Mixer grinder	90
37.	Air conditioner	60
38.	Electric toothbrush	60
39.	Sewing machine	64
40.	Vacuum Cleaner	80
41.	Alarm Clock	75
42.	TV Audio	70
43.	Exhaust fan	57
44.	Doorbell	80
45.	Electric Drill	95
46.	Cooker Whistle	80
47.	Telephone Ring	102
48.	Average fire cracker	140
49.	Microwave oven	60
50.	Noisy squeeze toy	130

growing noise pollution (Reddy and Jherwar, 2012). High level of sound has adverse impact on human health such as annoyance, mental health effects, cardiovascular effects, sleep disturbances, delayed language and reading skills in children and hearing impairment (Reddy and Jherwar, 2012). The present study recommends that vehicular noise can be reduce by imposing no-honking and sharing of public transport or use of bicycle. Judicious use of home appliance may lead to decrease in noise level.

4. Conclusion

As evident from the results of this study uncontrolled increase in noise pollution is one serious concern. Exploding population density in big cities and metros is leading to uncontrolled and increasing noise pollution which is causing various health related concerns. This is also supported by many studies which have shown the adverse effect of noise on human health. We would like to create awareness about this issue and strictly impose the guidelines in order to curb the pollution.

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