Noise Pollution and Human Health Issues a Mutual Co-Relation

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Abstract :- Noise pollution is unwanted sound, it needs to be controlled to make the workplace comfortable. This chapter analyses noise mathematically and the effects of multiple sources are examined. Two noises of exactly the same level can have a combined noise level that is 3 dB higher than the individual values. The greater the difference between the two individual noise sources, the lower is the combined noise level. Different people react differently to the same type of noise. A noise level up to 90 dB does not have any appreciable effect. Exposure in excess of 115 dB is not permitted with unprotected ears as it runs the risk of hearing impairment. The average noise level of various equipment used inside the washery generally ranges from 85 to 110 dB. Various control measures for the abatement of noise pollution have been studied. The hierarchy of control for a reduction of hearing loss to personnel is illustrated.

Keywords :- Noise, Hierarchy, dB, Pollution, Health Issues.

Introduction :- Annoyance from noise pollution is a growing global environmental health problem. Industrialization and higher transport volumes, together with the spatial spread of motorized transport, result in an increase in the number of people adversely affected by industry and transportation noise and air pollution. This is especially true in developing nations. National and city authorities strive to counteract the increase in transport, energy usage, and production of greenhouse gases by densifying city areas. However, increasing the number of people and activities per unit area makes it difficult to come up with good overall noise solutions that also do not have undesirable side effects.

By nature, noise pollution is also a local problem where the characteristics of the noise source vary from situation to situation, from time period to time period, and from country to country. Housing standards, architectural solutions, vehicle and aircraft fleets, human activity patterns, historical, cultural, and natural environments, and differences in climate give rise to important variations in noise and receiver characteristics. Population characteristics and temporal and spatial exposure

patterns thus need to be taken into account when assessing health impacts from noise exposure.

Noise is usually part of a complex environmental exposure situation multisensorially perceived and reacted to both in part and as a whole. In Europe, there is an increased awareness that it is not enough to reduce noise, but quiet spaces and recreational areas also need to be provided where it is possible to escape the noise. However, achieving good sound quality and a supportive environment is a magnitude more difficult than simply reducing high noise levels.

Annoyance is the most prominent adverse effect of noise – associated with exposure to intermediate and high noise levels. Noise authorities in different countries impose environmental limits and provide guidelines to reduce the amounts of noise that their where acoustic assessments are made mandatory. New residential developments and infrastructure projects are often restricted in the noise zones depending on the characteristics of the activities (hospitals, kindergartens). Environmental

Analysis of noise samples :- The data of noise level taken from various industries situated in the industrial area inside/ outside.

Equipment used for noise measurement - Sounds level meter.

After the analysis of the various parameters, the detected values were compared with that of the standard one.

On the basis of the variation in values and the study of questionnaires, the intensity of impact was studied.

Table 4.3.12: Central Board for Pollution Control Standards for Noise

Area	Day dB(A)	Night dB(A)
Silence Zone	51	41
Residential	56	46
Commercial	66	56
Industrial	76	71

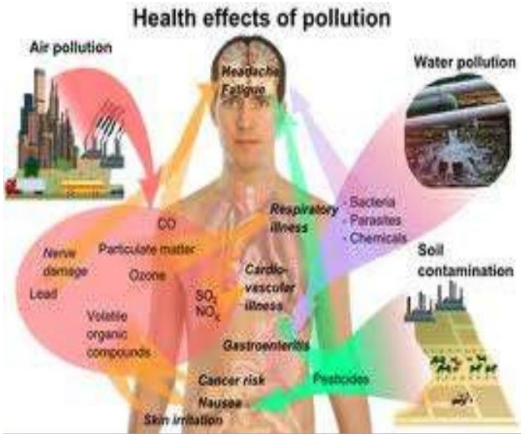
Day Time : 6.00 A.M. to 9.00 P.M
Night Time : 9.00 P.M. to 6.00 A.M

- Silence Zone is defined as area upto 100m around such premises as hospitals, educational institutions and courts. The silence zones are to be declared by the competent authority. Use of Vehicles horns, loudspeakers and bursting of cracker shall be banned in these zones.

Health effects of environmental noise pollution :- Exposure to prolonged or excessive noise has been shown to cause a range of health problems ranging from

stress, poor concentration, and productivity losses in the workplace, and communication difficulties and fatigue from lack of sleep, to more serious issues such as cardiovascular disease, cognitive impairment, tinnitus and hearing loss.

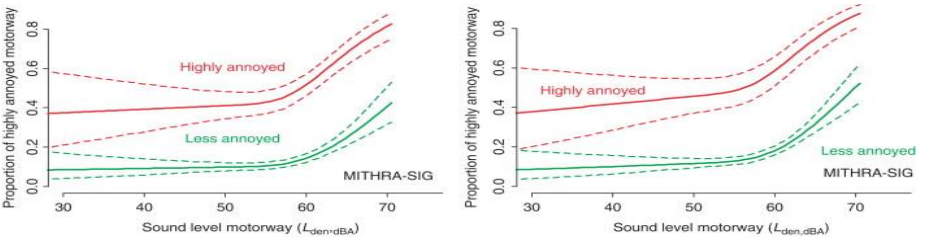
In 2011 the World Health Organization (WHO) released a report titled 'Burden of disease from environmental noise'. This study collated data from various large-scale epidemiological studies of environmental noise in Western Europe, collected over a 10-year period.



The studies analysed environmental noise from planes, trains and vehicles, as well as other city sources, and then looked at links to health conditions such as cardiovascular disease, sleep disturbance, tinnitus, cognitive impairment in children, and annoyance. The WHO team used the information to calculate the disability-adjusted life-years or DALYs—basically the healthy years of life—lost to 'unwanted' human-induced dissonance. Their results might surprise you.

They found that at least one million healthy years of life are lost each year in Europe alone due to noise pollution (and this figure does not include noise from industrial workplaces). The authors concluded that 'there is overwhelming evidence that exposure to environmental noise has adverse effects on the health of the population' and ranked traffic noise second among environmental threats to public health. The authors also noted that while other forms of pollution are decreasing, noise pollution is increasing.

Interestingly, it may be the sounds we aren't even aware we're hearing that are affecting us the most, in particular, those we 'hear' when we're asleep. The human ear is extremely sensitive, and it never rests. So even when you sleep your ears are working, picking up and transmitting sounds that are filtered and interpreted by different parts of the brain. It's a permanently open auditory channel. So, although you



may not be aware of it, background noises of traffic, aircraft or music coming from a neighbour are still being processed, and your body is reacting to them in different ways via the nerves that travel to all parts of the body and the hormones released by the brain.

The most obvious is interrupted sleep, with its flow-on effects of tiredness, impaired memory and creativity, impaired judgement and weakened psychomotor skills. Research has shown that people living near airports or busy roads have a higher incidence of headaches, take more sleeping pills and sedatives, are more prone to minor accidents, and are more likely to seek psychiatric treatment.

But there is another, more serious outcome. Even if you don't wake up, it appears that continual noise sets off the body's acute stress response, which raises blood pressure and heart rate, potentially mobilising a state of hyperarousal. It is this response that can lead to cardiovascular disease and other health issues.

Sound is an important and valuable part of everyday life. But when sound becomes noise, it can negatively affect our mental and physical health. The realities of modern life mean the noises created in our world are not going to suddenly fall silent. Instead, we need to recognise that noise pollution is a serious health concern worthy of our attention, and find realistic and sustainable ways to manage and reduce it—starting with banning those rubbish truck pickups in the middle of the night!

Conclusion :-

1. Workers in noisy industrial environments should be provided with some form of ear protection (ear plugs, ear mufflers and other ear protective devices). Individual monitoring kit can also be given to workers, who work in highly noise area.

2. Highly noise producing machines can be kept in isolated buildings and glass cabin can be provided for the operator.
3. Plantation of trees inside the industrial area is required. Parks should be maintained properly around the houses to reduce the domestic noise pollution.
4. Awareness of people about the hazards of loud sound and restriction on the use of pressure horns, loud speakers and fire crackers shall play an important role in mitigating sound.

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