Physiological and Physical Impact of Noise Pollution on Environment

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Objective

To study the physiological effects of noise pollution
To explore the relationship between physiological and physical effect of noise pollution

ABSTRACT

Environment pollution is a major problem of the world and it is mainly influence to the health of human, animals and ecosystem. This paper provides the brief view about the affects of noise as environment pollution in the perspective of noise pollution on human by diseases and problems among living organisms. Study finds that these kinds of pollutions are not only seriously affecting the human by diseases and problems but also the biodiversity. Still time left in the hands of worlds institutions, local bodies and government to use the advance resources to balance the environment. With the promotion of science and technology at a unique tempo, the urban points of the world have evolved not just in size but also in terms of the living situation. This brings about new awareness about the noise pollution, which is the part of our day-to-day lives. It is conducted by studies that trace the amount of damage caused by the noise from various natural as well as anthropogenic sources, especially traffic. Noise is associated with the physical, mental, emotional and psychological to all the individuals be it human beings or even animals. This is a potential risk to the requirements of sound living conditions and needs to be checked at judicial level.

1. Introduction

Sound is a mechanical vibration produced from elastic medium (as air and water) which creates the pressure moving the particles and can be feels by a person or equipment. Sound is defined by its characteristics. Sound has mechanism vibration, determine as the combination of pressure (Pascal, Pa) and frequency (Hertz, Hz), frequency or pitch is the number of cycles per second (Hertz, Hz or kilo Hertz, KHz), intensity or loudness is the “level of sonorous pressure” and is measured in Pascal (Pa) or decibels (dB). The intensity of human speech average is 50 dB. Decibels are used for ease to express sound on a compressed, logarithmic scale. Noise is an unwanted or undesired sound. (For example, produced by a machine or airplane). Noise pollution can be from all sources such as an computers, traffic, a television, human talking, a dog barking, to more machinery such as large trucks and airplanes industrial equipments. Noise is affecting the work efficiency directly and indirectly (Singh and Davar, 2004). The Occupational Safety and Health Administration (OSHA) advise hearing protection in the working area if there is hazard of noise more than 85 (dB) for eight hours or the potential of constant hearing loss (Griffiths and Langdon, 1968).

Below is a chart that indicates some sources of noise taken from an article published in the American family Physician in 2001 (Blessing, 2008)

<table>
<thead>
<tr>
<th>Sound</th>
<th>Loudness (dB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whisper</td>
<td>30-40</td>
</tr>
<tr>
<td>Quiet Room</td>
<td>50</td>
</tr>
<tr>
<td>Conversation</td>
<td>60</td>
</tr>
<tr>
<td>Lawnmower</td>
<td>90</td>
</tr>
<tr>
<td>Stereo Headphones</td>
<td>110-120</td>
</tr>
<tr>
<td>Rock Concert</td>
<td>110-120</td>
</tr>
<tr>
<td>Jet</td>
<td>140</td>
</tr>
<tr>
<td>Gunshot</td>
<td>140-170</td>
</tr>
</tbody>
</table>

It is a fact that noise is a biological irritant. High exposure to noise has confirmed health hazard and risk. The risks caused by the noise exposure are high coronary heart disease, blood pressure, colitis, ulcer, and headache. It is estimated by research that there is synchronization between the increasing ratio of health problems and noise. It also some confirms that noise exposure can cause the viral disease and hazardous substances in the body (Onwuka, 2005).

Literature review

Population, economic development and advance transport are some of the main objects for environmental noise and health risks (Maschke et al., 2006). A study in London tells that 340 children are expose to the air craft noise of ages 8-11 they results in annoyance poor reading and comprehension (Hagler, 1999). In one other research children who have exposure to noise levels above 55 dB they have low attention, less social adaptability, and have opposite behaviour to others compared to children (Costa et al., 2013). Disturbance caused by noise affect the quantity and quality of sleep. Difficult in sleeping, awakenings and change in sleep quality are high coronary heart disease, blood pressure, colitis, ulcer, and headache. It is estimated by research that there is synchronization between the increasing ratio of health problems and noise.
day and evening-night noise levels (Laden measure). Private rental sector the property price effect in terms of Ld per additional 10 dB(A) is 6.6%, while in the public sector it is 8% lower and airport area have 12% per additional 10 dB(A) is observed. 1% per additional dB the impact of airport noise is relatively higher than other noise sources of 0.7% (Haines et al., 2001).

Noise pollution in cities environments generates from different sources, e.g., loud transportation, motors, etc. Section 4 presents information about different types of noise sources including noise from exhaust cars, trucks, cars, public buses, trains and planes etc. K, (Maschke et al., 2006).

Many divisions of community are affected by noise, which is particularly generated by traffic. Traffic noise - road, railway and planes causes uneasiness and frustration especially during activities that require consideration and attention (Regeczov and Kellereov, 1995). Estimation of noise pollution in the city of Curitiba reveals an increase in the long term. The researchers measure the level of noise passing nearby through industrial/residential areas. Noise maps were also made and calculated showing noise pollution produced by the train traffic. Annoyance of the community and residential area affected by railway noise pollution was evaluated based on interviews. That the noise levels produced by the moving of the train with its horn, clearly more than the daytime limits of equivalent sound levels - Leq = 55 dB made by the municipal laws No10.625 of the city of Curitiba. The Leq = 45 dB (A) is for night time but it is not in limits while train is moving. The people reported feeling disturbed by the noise generated by passing trains, which causes health problems, and 88% of them claimed 'disturbed' and other to the 'pleasant' 'shirfulness', with a majority of residents (69%) believe that the noise other train can bring down their property (Shahid and Bashir, 2013). Noise pollution in aquatic niches has become an increasing problem for policy makers and conservationists. In 1972 the U.S. federal government enacted the Marine Mammal Protection Act, a law suggesting that marine mammals would not be destructively harmed by noise (McKee, 1992). However, scientific experimentations like launching and re-launching rockets, bombs and satellites sounds constitute a major climate pollutant. Human being, animals, plants and even inert objects like buildings and bridges have been victror the increasing noise pollution caused in the world. Noise has become a very significant stress factor in the environment, to the level of which over the term it has been implied that the world is going to be deaf. The reduction of sound which consequences in the modern day development is inmeasurable (Blessing, 2008). Household equipments such as vacuum cleaners, and some kitchen appliances are noisemakers of the house. Though they do not cause too much of problem, their effect of noise emitted on human health can be neglected. Furthermore, noise can be
generated from neighbourhood noise consisting of neighbouring apartments and noise within one’s own apartment. The Federal Environmental Protection Agency Act defines environment broadly to include, air, water, soil and all plants and layers of atmoshpere and human being or animals living organic and inorganic substance and there interaction. Environment is the totality of the living and non living things and surroundings, in which we do cultural, religious, political and socio-economic work for self- and to enhance the communities, societies and nations. Human being in the globe till death lives in an environment and their life base mainly on an environment, once an environment becomes polluted. Environmental hazards on the other hand, has been provoked as the contamination of the surrounding by chemical, biological, or physical agent that are lethal to human, animal or plant, life and the general environment may be disturbed from natural events, industrial and human activities. Pollution is ‘man made or man aided alteration of chemical, physical or biological quality of the environment to the extent that is detrimental to that environment or beyond acceptable limits’ (Shahid and Bashir, 2013).

Conclusions

Children are subgroups and they are more sensitive towards noise children less than 5year have problem in reading, Comprehension, and their studies are affected by continuous exposure of noise so schools, colleges and universities are made away from busy and noisy areas. Noise more than 30 db also disturbs sleep cause stress and hyper tension and there should be strong implementation of law and enforcement of standards. Noise also affects the social disturbance and increase the crime rate and negative impact on environment. Noise also causes heart problem, nervous system disorder, respiratory problems, blood pressure problem and other physical problems related to health. Noise pollution is a type of energy pollution in which distracting sounds which are clearly audible and which may result in disturbing any natural process or causes human harm. Industrial worker should wear personal protective measures while doing their work in fact noise pollution is becoming a major issue is developed industrial and human. Pollution is ‘man made or man aided alteration of chemical, physical or biological quality of the environment to the extent that is detrimental to that environment or beyond acceptable limits’

Reference


Cite this article as: Malik Muhammad Anees1, Muhammad Qasim2, Aroj Bashir3 Physiological and Physical Impact of Noise Pollution on Environment Earth Sciences Pakistan (ESP) 1(1) (2017) 8-10