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Physiological and Physical Impact of Noise Pollution on Environment

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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 mechanic 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 speak s 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)

Objective
- To find out the Physiological effects of Noise pollution
- To study Physical effect of Noise pollution
- To explore relationship between Physiological and physical effect of noise pollution

Sound	Loudness (db)
Whisper	30-40
Quiet Room	50
Conversation	60
Lawnmower	90
Stereo Headphones	110-120
Rock Concert	110-120
Jet	140
Gunshot	140-170

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 etal., 2013). Disturbance caused by noise affect the quantity and quality of sleep. Difficult in sleeping, awakenings and change in sleep

stages, especially a reduction in Rapid Eye Movement. Traffic noise more than
30dB is enough to disturb the sleep disturb. London Health Organisation says that road traffic is the only cause of noise pollution in London. Transport noise is linked with production losses caused by an inability to focus at work. A guide to noise threshold levels - stress related health effect performance 55dB, cardiovascular effects 65dB,hypertension 70dB, heart disease 70dBH,earing loss 70dB[8]. Noise is a major environmental risk of the global world, originating from a different variety of sources including traffic, which plays main role in noise pollution (Goines and Hagler, 2007). About 60% of population of Europe, is affected by traffic noise (Singh and Davar, 2004). Improper use of horn by the traffic and wide use of loudspeakers in Indian religious and social ceremonies causes health risk to the urban people (Ritovska et al., 2004). vehicular traffic is also a source of noise pollution around the globe especially in most urban cities around the world. The situation is getting seriously alarming with increase in traffic density on city roads. The smoke from cars and traffic are of great concern to the changes the climate of this country and that of the world in general (Niemann et al., 2006). Medical

sciences giving lot of time and hard work to treat health hazards and risk, whereas health is a main issue because know increasing number of factories and transport in the globe the noise risk has been increased. Mainly in the cities areas throughout the world, this difficulty is increasing day by day due to population of huge industries, construction, high traffic, recreational areas etc; becomes the main font of noise production. Countries in particular which are developing in general have established their noise control standards, which are followed and implemented to protect their people (Zannin and Bunn, 2014). Industrial noise is major problem of noise mess in the industrial sites of Pakistan. The noise frustration among the workers of textile industries due to noise exposure is main problem in workers; there is criteria based on annoyance rather than hearing damage criteria (Regecová and Kellerová, 1995). Noise is one of the main pollution in the cities areas of Pakistan it has adverse affect on human health and community. It may be long term and short term exposure. These results of exposure can decrease the efficiency and output of work, loss hearing and feeling of irritated. It is estimated human that working in noisy environments shows many problems Heart problems work place accidents , Irritation, headache problems, Respiratory problems, Nervous problems and many physiological issues (McCarthy, 2004). Noise pollution is increased with increase of cardiovascular disease. These effects are destructive for body “fight or flight” leads to autonomic nervous and endocrine effects chronic to body if noise greater than 65 dB or acute affect above 80 to 85 dB (Fritschi, et al., 2011). Unluckily, there is prove that young people are also at risk. In one case performed in 1995, heart rate and blood pressure was measured of 1,542 children and their age is of 3-7 years old in areas with traffic noise was greater than 60 dB. The study showed that the children had a greater mean diastolic and stolic blood
pressure and higher heart rate than in quite areas. 95th percent of the children have high blood pressure (Ristovska and Lekaviciute, 2013). Another study included 2,000 heart attack people that were study with over 2,000 control patients from 32 hospitals of Berlin from 1998 to 2001. Traffic noise level was mentioned for each patient based on noise maps in the city. Uniform interviews were taken to meet with possible baffling factors of noise sources. All the results of the study support the hypothesis that chronic contact to traffic noise increases the risk for heart problems by increased cardiovascular risk conditions such as stress. Men expose to sound levels that equalled 70 dB(A) in the day shows increase in risk of heart attack than with those who lived in streets where the sound level is less than 60 dB (Öhrström, et al., 1979). Noise levels have been linked with more negative response such as increased aging, excitement, anger, and distraction it may give blow to social and behavioural negative responses. The level of annoyance is dependent on the noise and its type, the time at which it occurs (Getzner and Zak, 2012). Study shows the research which was done to investigate the difficulties faced by the workers and its risk on them while working in textile based industries. Research gives necessary tip-offs to remove those risks in a systematic way. It was to know that large number of machines (looms) driven by one worker. Different noise levels were estimated by using digital sound level meter to measure noise level/ unit. To indicate the health hazard like respiratory, hearing/listening, irritation, heart/BP, annoyance and headache. So the minimum noise recorded was 101.6dB and maximum as 109.8dB according to OSHA and WHO (World Health Organization) standards.

Result of this study shows that due to high intensity of noise there are mental and physical problems (Zannin and Bunn, 2014). The study of noise and air pollution in Geneva is estimated by Baranzini and Ramirez (2005). Three different results are included in the monitoring; a statistical data geographical informational data, on their results and study for airport noise and between public and private sector tenants, and day (LD measure) and day-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 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 gernates from different sources, e.g., loud music, sirens, car and home alarms, neighbours, , , motorcycles ,horns 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 (Regecová and Kellerová, 1995). Estimation of noise by railway traffic is present in large Latin American city. They 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 level limits- 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 distressing. This experiment showed that 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 human deeds. However noise pollution under the act of marine mammal protection is not clearly mention and nearly impossible to implement, yet, noise pollution in our marine environment and ocean is a real danger to the continued existence of many marine mammals. “The Marine Mammal Protection Act cannot links broadly with the source levels that cause pollution or and the total amount of noise produced in a mention area. Industry should be environmental friendly contact studies because in the long term it may benefit they more than get in the way their projects. Government, industry and institutes can help in by providing funding to research institution to form methods of monitoring noise caused by seismic blasts. It may be possible to decrease destructive explosive of seismic blasting and help to save marine species while economic growth of underwater areas (Khan, et al., 2010). Sound Thermometry is a type of researching and testing global warming. “Sound waves move faster in warm water than in cold water, so , scientists measure the sound in two points and they measure the average temperature along that way (Jasny, 1999). San Diego scientists started the research they set two transmitters on the coast of Hawaii and other to the coast of California pumping(195)dB of sound across the Pacific Ocean the sound energy spreads out in a small depth in the whole ocean sink and is less loud at greater distances. At 1000km from the starting place the strength of intensity will be one-millionth as more as at one meter from the source. But the problem is not long exposure of the noise so much as it is exposure next to sensitive marine

environments. Even though small research has been conducted into estimating the risk of sound thermometry on marine species and the marks so far are hopeful, researchers should not discard their studies in advance but should struggle to answer the basic questions of its long effects on marine species mainly how this type of monitoring will affect habitats. By decreasing cycles of transmission and the decibel levels even further this could help decrease risks to marine mammals (Blessing, 2008). 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. Consequently, noise is unwanted sound. What is pleasant to some ears may be extremely unpleasant to others depending upon a number of psychological factor (Rabinowitz, 2000). Noise pollution is one of the environmental hazards affecting human as well as climate. In most urban areas of the third or developing countries of the world there are lots of noise pollutants which includes noise from exhaust cars, industrial as well as home generating plants. In the advanced countries however, scientific experimentations like launching and re-launching rockets, bombs and satellites sounds constitutes a major climate pollutant. Human being, animals, plants and even inert objects like buildings and bridges have been victor the increasing noise pollution caused in the world. Noise has become a very significant stress factor in the environment, to the level that the term noise pollution has been used to signify the hazard of sound which consequences in the modern day development is immeasurable (Blessing, 2008). Household equipments such as vacuum cleaners, mixers 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 cannot be neglected. Furthermore, noise can be

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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 ,spoil and all plants all layers of atmosphere 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 our 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, and 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 and as well as in developing countries so positives steps are taken by individual person, community, policy makers and Government to avoid and maintain this hazard .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, and 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 . 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'

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