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**Research Article**

## EVALUATION OF IMPACTS OF THE TRAFFIC NOISE ON HUMAN BEING IN LAHORE CITY OF PAKISTAN

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**Abstract:**

**Objective:** This study aimed to determine the impacts of high traffic noise on people in the city of Lahore, performing their work at these places and to compare the result of this research work with the results of past research works on same literature.

**Methodology:** This research work carried out to assess the hearing loss due to noise because of huge traffic at various locations of Lahore. Total one hundred and fifty persons sample were the part of this work who found with the noise exposure of 90.0 dB or more than this value in their environment for greater than six months. This research work started in November 2018 to February of 2019.

**Results:** The maximum age of the patient was forty seven years and smallest age was eighteen years. The most affected group of age was 23-27 years of age. Male participants were 84.0% & 16.0% were the female participants. The participants exposed to this extreme condition of noise for greater than 12 hours of day were 36.80%. Changeable amount of loss of hearing evaluated among patients in which 17.60% participants were normal, 33.60% found with mild loss of hearing, 45.60% were available with moderate & 3.20% found with reasonably severe loss of hearing. The high noise of traffic was bothering the 55.20% peoples.

**Conclusion:** The analysis of the collected information shows a high change in the levels of noise in comparison with the research works of the past. This research work proved the association between the noises induced hearing loss and time of exposure to noise for more than limit. It is the responsibility of the traffic authorities to start the preventive measures to decrease the levels of noise inside the city especially at busy places.

**KEYWORDS:** Traffic, Authority, Induced, Hearing Loss, Methodology, Db, Participants, Literature, Research, Comparison.

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**INTRODUCTION:**

Noise initiated with the birth of the wheel. The wheel invention is basically the beginning of noise & technology. Noise is the intrusion inside the frequency of normal hearing range of 20Hz-20000Hz [1]. Fast civilization in past few years has taken to an increase of pollution of noise. It is the cause of many dangerous impacts on hearing of human being as well as mental and pathological effects of the health of human beings. Noise is the integral part of the daily activities of human beings and it is very difficult to get rid of it. In fact, one is not able to distinguish among sound & noise. Noise is basically a form of the sound which has no meaning as well as unharmonious. The broad classifications of noise are occupational & environmental noise. There are many originating sources of the environmental noise except the noise from work place or industry which is occupational noise. Traffic of air, rail and road are the main contributors of the environmental noise.

The equipment for construction, machines, industry & noise of the workplace are the contributors of the industrial noise. Mostly the affected peoples are workers of factory, laborers, and drivers of auto rickshaw, shopkeeper of busy places, vendors, mechanics and the personnel of traffic police [2]. The contact with the noise leads to the depression, changes of mood, disturbance in sleep & reduces the efficiency of the work. NIHL is the cause of clumping of platelet which is the reason of cardiovascular diseases [3]. The impairment of hearing is the result of NIHL which is very harmful [4]. Lahore is an industrial city and range of the noise in a mill is 85-110 dB which is too high. In the industry of sheet metal, 8.0% workers are suffering from the impairment due to noise induction. The allowable exposure to noise is different from country to country. International organization has allowed exposure to ninety decibels for duration of eight hours per day in USA, while other countries allowed 85 decibel for 8 hour in a day [5]. A survey of USA concluded that 17.0% of their population was expose to high noise and 34.0% among them stated they were not using any protective devises [6]. The occurrence of the NIHL is also increasing in New Zealand day by day [7]. In the year of 2003, the related medical expenditure on hearing aids were five times higher

than the expenditure in 1995 [8]. In the country of Brazil, the availability of the suspected noise induced hearing loss was 28.50% [9]. A study in India on traffic police showed that 84.0% samples displayed the loss of hearing [10]. Lahore is one of the cities of the world with high noise pollution [11]. In accordance with the WHO, it is the responsibility of the government to tackle such issues to reduce the production of noise [2].

**METHODOLOGY:**

This study conducted in Mayo Hospital Lahore to assess the impacts of NIHL because of high noise of traffic in different locations of Lahore. Total 120 samples were the part of this research work and they found with exposure to noise of 90 dB for greater than six months. The sound level meter was in use to calculate the level of the noise at different busy locations. The calibration of the meter carried out according to the instruction in the manual of that meter. The noise measurement carried out from five different spots. Worker of those spots were the samples of this study. A special Performa was in use to gather the information related to noise. Every participant gave his consent to take part in the case work. Audiometer tests carried out by the professional of ENT department in a sound proof apartment. SPSS V.20 was in use for the analysis of the collected information. The persons with more than fifty years of age or children of less than 10 year of age, past history of ontological disease or suffering from fever or other serious complications as hypertension, DM (diabetes mellitus were not the part of this research work.

**RESULTS:**

Range of age of participants was 18-47 years. Average age was 30.870 years. The most affected age group was 23-27 years. Total 105 were men and only 20 were females. The people exposed to noise for more than twelve hours were 46 (32.8%). Total 41 participants had tinnitus complaints. Figure-1 shows a notch at four thousand hertz on PTA air conduction was available in 80.0% (n: 100). Only 12.80% (n: 16) were aware about their impairment of hearing.

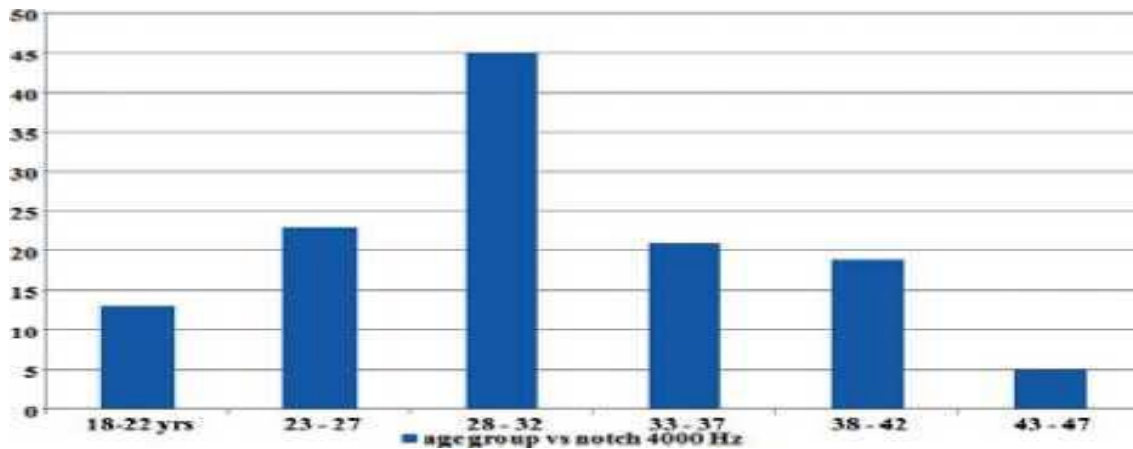
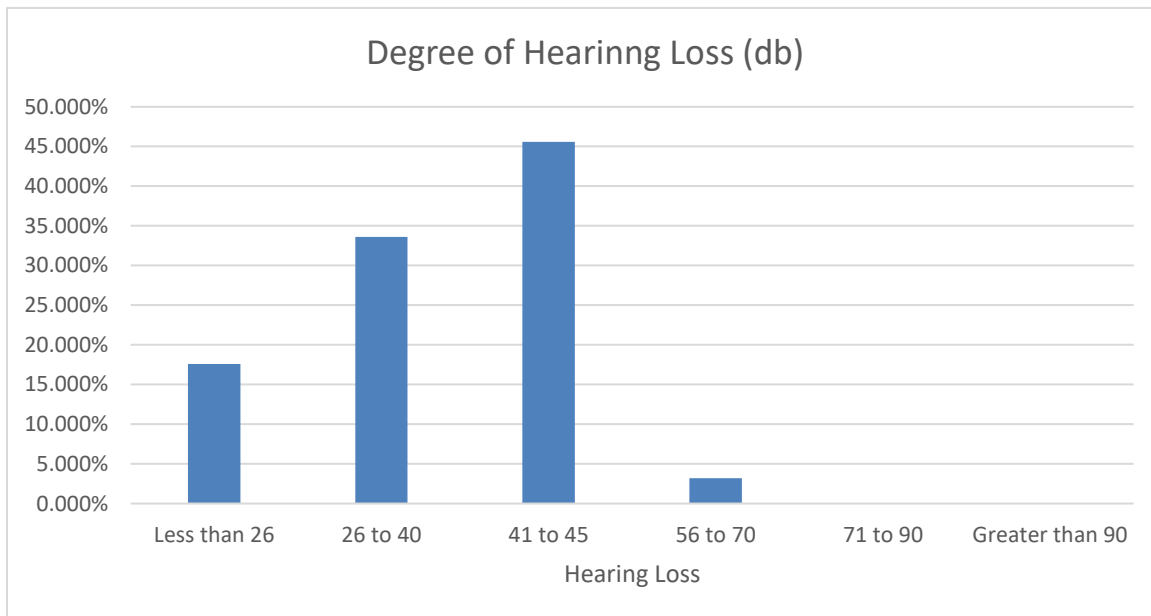


Fig.1: Age group having notch at 4000Hz.

The evaluation of changing degree of loss of hearing carried out in participants in which 17.60% (n: 22) were present as normal, 33.60% (n: 42) found with mild loss of hearing, 45.60% (n: 57) found with moderate loss & 3.20% (n: 4) were available with moderately severe hear loss as presented in Table-1.

Table-I: Degree of hearing loss encountered in subjects.

Hearing loss (Decibel)	Degree of hearing loss	No. of subjects
Less than 26	Normal hearing	17.600%
26 to 40	Slight	33.600%
41 to 45	Average	45.600%
56 to 70	Above Average	3.200%
71 to 90	Intense	0
Greater than 90	Profound	0



The general population was also facing troubles because of excessive noise. Which is available in Figure-2. Traffic noise was bothering the 55.20% (n: 69) subjects. Difficulty in communication was the problem of 28.0% (n: 35).

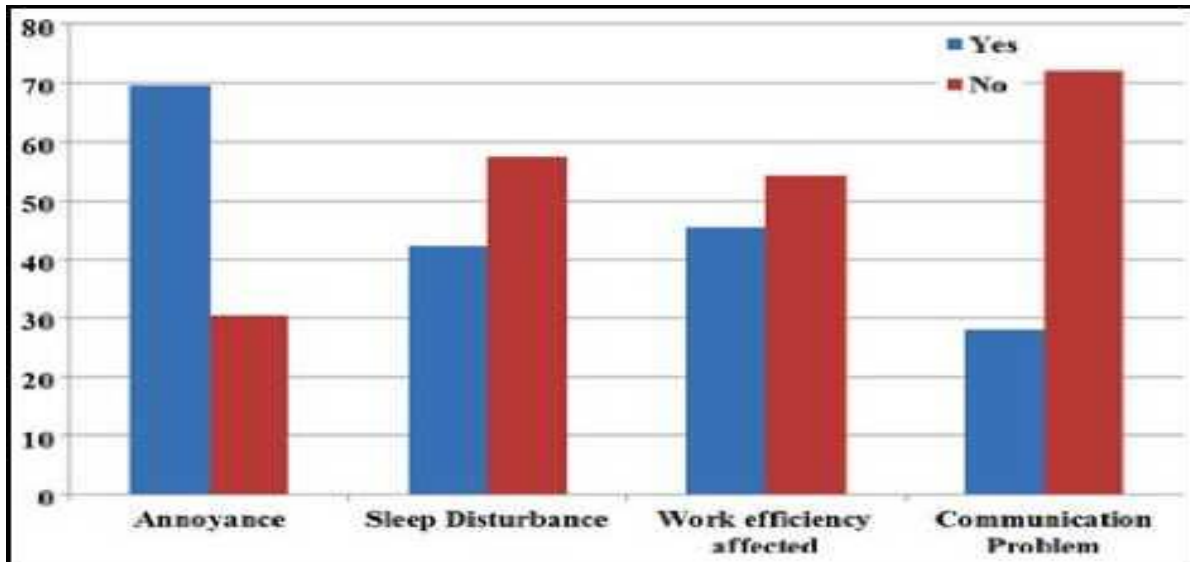


Fig.2: Community response of society to noise

### DISCUSSION:

The high amount of noise is the cause of many hazards of health as NIHL. Environmental noise is the main a category of noise which impacts a large amount of people. The traffic noise on roads is the main source of this category in the city of Lahore [11]. This study carried out to describe the impacts of high noise on human hearing. Some other studies on the same subject carried out in previous times as a study conducted in Karachi by Itrat Javed [12]. We also found that study was not describing anything about the type & calibration method of meter & recording environment. But we described all these things in our case work. Itrat Javed [12] in his study described the subjects from only three categories as auto rickshaw drivers 13.50%, traffic constables 39.50% & shopkeepers 29.50%. But in this case work, we used the eight categories of the subjects.

Another case work [13] concluded that high amount of noise was over 101 decibel which is very near to 110 decibel, this is that level which is the cause of impairment according to the proposal of WHO. Zaidi S.H also conducted a study in 1989 in which he measured the noise levels at various locations of Karachi. The finding of that case work was similar to our current work. Traffic noise is also a source of noise and our current study validate this finding and it needs the attention of the higher authority to reduce the limit of such noise for the prevention of loss of hearing [14]. A study in Madrid carried out to check the impacts of high noise on people with age group of more than sixty five year of age which leads them to mortality [15]. A transverse work in India revealed

that the annoyance because of noise was much in males, this study concluded the association among traffic noise & annoyance [16].

### CONCLUSION:

There is high enhancement in the level of noise in Lahore in comparison with the studies of the past. This research work proved that there is a strong relation between noise induced hearing loss and the contact period with noise above the allowable limit. It is the responsibility of the traffic authorities to reduce the levels of noise at such busy place. There should be noise meters on the roads which will show the allowable limit after that traffic should move to other roads.

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