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EFFECTS OF NOISE POLLUTION ON THE HEARINGS OF THE DRIVERS OF THE PUBLIC TRANSPORT IN THE CITY OF FAISALABAD

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Abstract:

Objective: *The objective of this research work is to know about the impacts of noise pollution on the auditory system of the drivers running civil transport in the city of Faisalabad.*

Methodology: *This research work carried out in the department of ENT of Allied Hospital Faisalabad. The duration of the research was from January 2018 to June 2018. About 100 drivers of civil transport who have an association with this profession from last eight to ten years were included in this research work. Twenty-five were the drivers of rickshaw, twenty-five were the taxi drivers, twenty-five were the drivers of wagon & twenty-five were the drivers of bus. Question answer session carried out with each driver. Questions were present on an already prepared Performa for this purpose. After ENT check-ups, the test conducted with audiometry of the pure tone.*

Results: *The average age of the drivers was about 41.35 years. Fifty-one percent drivers were driving from past eight to ten years. Sixty-five percent of those drive found with NIHL (noise induced hearing loss). Twenty-five percent had reached the threshold of normal hearing & ten percent drivers found with disable hearing loss.*

Conclusions*: The civil transport drivers are always in contact with the heavy noise on the roads in the city of Faisalabad and most of the drivers are suffering of hearing loss because of noise.*

Key Words: *Threshold, Occupational, pollutants, civil transport, noise, average,*

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INTRODUCTION:

The unwanted voice is known as noise but it is a very wide definition as the sound of someone may be the noise for someone [1]. There is no disparity among noise & sound physically. The complicated design of the waves of sound are called music, noise etc. The noise produced in the environment is the main reason of the loss of hearing. When hearing loss occurs at the workplace then it is known as occupational NIHL. The most important foundations of environmental noise are the noise from road traffic, rail &air traffic. The most important sources of indoor noise are systems of ventilation, machines, appliances used in house & neighbours. Noise is now main factor of stress in the surrounding of man. Noise pollution describes the dangers of the sounds which is the outcome of modernization and leads to the various dangers of the health. Faisalabad is very populated city of our country with a population of more than 7 million and 3 million vehicles are on the roads.

There are many types of the civil transport in the city of Faisalabad. The people of Faisalabad are in danger of noise pollutants. A research proved that ninety-five decibels per day is the noise produced by the civil transport in five main cities of our country which are Quetta, Peshawar, Faisalabad, Karachi & Rawalpindi [2, 3]. Auto rickshaws are the main contributors in the noise of the environment [4]. The drivers are under the constant danger of thee NIHL. There many sources of noise in the big cities from a small motor to heavy machineries. The aim of this case study was to know the impacts of noise on the hearing capability of the divers of civil transport working in the city of Faisalabad.

MATERIAL AND METHODS:

This research work carried out in the department of ENT of Allied Hospital Faisalabad. The duration of the research was from January 2018 to June 2018. The drivers of the civil transports of Faisalabad were the participants of this research work.

Inclusion standard: The drivers of civil transport who had a link with this profession from last eight to ten years in the city of Faisalabad.

Exclusion standard: The patients who were suffering of any disease of middle ear as suppurative otitis, effusion as well as otitis media & otosclerosis of any serious disease as type 2 diabetes, hypertension & mental illness was not the part of this research work.

The sampling method of non-probability used to select one hundred civil transport drivers from the city of Faisalabad. They were separated into 4 different groups.

Group I: Twenty-five rickshaw drivers were the members of this group.

Group II: Twenty-five taxi drivers were the members of this group.

Group III: Twenty-five drivers of wagon were the members of this group.

Group IV: Twenty-five bus drivers were the participants of this group.

A questionnaire was in use for the collection of data from all drivers. The age of the patient, daily hours of driving, driving from that year and total working days in a week recorded. Drivers were asked about bad effect of noise pollutions and they are using any protective material in high noise areas. Local evaluation of the ears of all drivers carried out. After that PTA (Pure tone audiometry) conducted on all the patients. The audiometry carried out in noise free room in the department of ENT of Allied Hospital Faisalabad. All the information was analysed manually and placed on master record sheet.

The standards for a patient to be identified as NIHL are as [4]

1. Previous history of exposure to noise, which was available in all the patients.
2. Twenty-five decibel hearing level is the threshold of good hearing.
3. The abnormality of hearing is sensorineural (air–bone space average at the frequency of 1000, 2000, and 4000 Hz is smaller than fifteen decibel).
4. The abnormality of hearing is not unilateral.

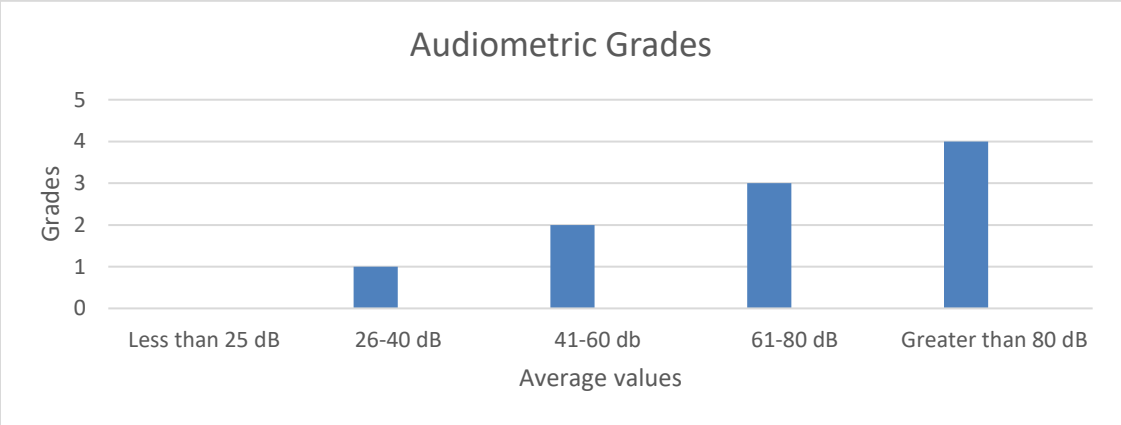
RESULTS:

One hundred drivers who were driving in Faisalabad were the participants of this research work. They were from thirty years to fifty-five-year-old with an average age of 41.35 years. Most of the drivers about fifty-one percent were driving from previous eight to ten years. Fourteen percent were driving from previous ten to fifteen years, twenty-one percent driving from previous fifteen to twenty years. Fourteen percent drivers were driving from previous more than twenty years at the time of study. The timings of their working hours were different from 6 to 12 hours per day. Seventy-two percent drivers were maintaining their vehicles on monthly basis. Twenty-eight percent drivers were irregular in the maintenance of their vehicles. Sixty-two percent drivers were working seven days in a week but the remaining were working six days in a week. Eighty-four percent drivers were aware about the dire consequences of the noise pollution. Only four

percent drivers were using protective devices. The data according to the standard presented by WHO is available in Table-1; Twenty-five percent drivers had levels normal hearing or grade 0. Hearing loss from twenty-six to forty decibels was in grade 1. Ten percent drivers were in grade 2 with moderate abnormality of hearing.

Table-I: Grades of Audiometric Impairment

Grades of audiometry	Audiometric Average of 500, 1000, 2000, 4000 Hz (ISO value, Better Ear)	Performance
0 No incapacity	<25 dB	No incapacity, Patient can hear whispers.
1 Slight incapacity	26-40 dB	Patients able to hear normal voice from 1 meter distance.
2 Moderate incapacity	41-60 db	Patients can hear repeated words from 1 meter distance at a relatively louder voice.
3 Severe incapacity	61-80 dB	Patients able to recognize some words shouted in better ear.
4 Profound incapacity Including deafness	>80 dB	Fully impaired.



DISCUSSION:

The association between noise & loss of hearing is visible. The occurrence of the loss of hearing varies depending upon the noisy professions [7-10]. This research work shows a strong link between NIHL & noise, the rise in the time period of the noise increases the amount of NIHL. There are some other factors available which can be the reason of hearing loss as contact with vibrations, drugs, chemicals etc. NIHL is very frequent reason of the loss of hearing and it is completely avoidable [11]. NIHL is mostly present in occupational situations [12]. NIHL increases steadily over a period of great time as an outcome of contact to the loud noise. Acoustic trauma is the complete alteration in hearing as a consequence of sudden single burst. The lowest limit of noise is eighty-five decibels while working in that environment for eight hours daily five days in week according to the world health organization. Eighty-five to ninety decibels are medium high noise exposure & more than ninety decibels are very high noise exposure. Audiometry is in use for the evaluation of the threshold level. The variation in the threshold of hearing with ten decibels is known as threshold shift [13].

The calculation of NIHL carried out by the comparison of the hearing threshold at a particular frequency with standard of ideal hearing and unit is dBHL. NIHL normally happens at very high frequencies. It is permanent and increases in its seriousness with sustained contact. The average age of the drivers in this case study was 41.35. They were driving from more than past ten years. Ten years contact with the noise can cause the occurrence of the high value of NIHL [14]. In this research work, the most of the drivers were driving ten to twelve hour in a day, so they were more in contact with the high noise. Eighty-four percent drivers were aware about the dire consequences of the noise on their ears. It displays the high level of the education about health

but still ninety-six percent drivers were not using the protective devises. According to the standard of WHO ass mentioned in Table-1, only twenty-five percent drivers had normal hearing and seventy-five percent drivers were falling under the various grades of hearing impairment.

There is very high amount of noise is present on roads in the main big cities of our country. Many case studies concluded that the noise pollution is also available in small cities. ISO declared that the levels of standard noise should be less than seventy decibels on roads [15]. The levels of noise of seventy decibels or less for twenty-four hours to the whole life time have no harm on ears [16]. The rules for motor vehicle (1969) section 158 describes that motor should not create noise when in motion. But the reality is opposite and levels of noise on the roads are about ninety decibels [2, 3, 17]. The high amount of the noise in Faisalabad has caused the hearing loss of seventy-five percent drivers. NIHL will increase if the remedial actions are not in force. The high amount of noise can lead to the serious disease as hypertension and many other heart diseases. Noise has the ability to impact the concentration, memory retention and performance [18]. The high noise on the roads can also lead to the fatal accidents. The noise more than eighty decibels can increase aggressive attitude. The knowledge about the dangerous impacts of the noise pollution is very important for every person of the society.

CONCLUSIONS:

The drivers of public transport are in contact with the heavy noise on the roads of city of Faisalabad. Seventy-five percent drivers are suffering of hearing loss and ten percent among them are complete disable in the matter of hearing.

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