

EDITORIAL

Noise Induced Hearing Loss in Karachi: An Ignorant Problem

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Pakistan has a population of over 183 million and it is the world's sixth-most-populous country¹. Karachi is the biggest and most populous metropolitan city of Pakistan with an estimated population of over 23.5 million people as reported in 2013. The approximate area of Karachi is 3,527 square km (1,362 square mile) resulting in a density of more than 6,000 people per square kilometer (15,500 per square mile)². It is the 3rd-largest city in the world by population within city limits, the 7th largest urban agglomeration in the world and the largest city in the Muslim world. Pakistan's current urban population has expanded over seven fold as compared to population in 1950. Like any major metropolitan city of the world, Karachi has also many health related problems. Among them one of the important but almost ignorant health problem is 'noise induced hearing loss'.

Noise is un-wanted, non-harmonic, un-pleasant and very high amplitude sound. From the ancient time, the hammer of professional black smith is believed to cause and start noise induced hearing loss. Noise is known to be one of the environmental and occupational hazard listed in the Factory and Machinery Act 1967³. Hearing loss that is caused by noise exposure due to recreational or non-occupational activities is termed as 'sociocusis' while the hearing loss due to injurious noise at workplace is called 'occupational noise induced hearing loss'. Environmental noise is a common and preventable cause of hearing loss in industrialized societies. Hearing loss may also lead to abnormal behavior like anxiety, mood disorders, personality disorders, schizophrenia and communication breakdown. Firstly, the threat of loss of employment may convince people to remain in the environment with noises higher than they would otherwise tolerate. Secondly in the workplace, high level of noise may be sustained on a regular basis for many hours a day for over years and years.

Karachites are exposed to all types of noises and few of the common types include: 1: Factory and industrial noise, 2: Traffic and transportation noise, 3: Building and civil work noise, 4: Social gathering noise, 5: Road side engineering noise, 6: Firearms and violence noise etc.

Occupational noise-induced hearing loss is a worldwide problem and contributes 16% of hearing loss among

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adults ranging from 7% to 21% in various regions being higher in the developing countries⁴. Karachi has two large industrial zones with thousands of small to heavy industries. Many studies have been done on occupational noise induced hearing loss in different factories and industries of Karachi. According to one study conducted among the textile workers of weaving unit in Karachi, the sound level in these industrial units was in the level of 88.4 to 104 dB, which is far above the acceptable limit of 85 dB⁵. Furthermore only 54.8% of the workers were using ear protection devices and 22.5% did not responded well on whisper test in this study. In another study which was conducted on 50 workers of Karachi Shipyard and Engineering Works showed that all of the workers had some degree of sensori-neural hearing loss on pure tone audiogram where noise level was above 85 dB and none of the worker was using ear protection device⁶. Karachi is a huge mega city with an international airport and a very busy sea port. Total length of all the roads in Karachi is approximately 8,000 km with around 1.8 million vehicles which is growing with 9% increase per year⁷. Karachi port has 30 dry cargo and 3 liquid cargo handling berths which facilitates around 1600 ships annually⁸. Karachi airport is a busy international airport with a flight capacity of 15 flights per hour⁹. All these transportation activities are generating a lot of noises which are injurious to people of Karachi in general but workers in these areas are especially prone to develop noise induced hearing loss. Rickshaw is a popular tri-wheeler public transport in Karachi which generates a lot of noise as most of the rickshaw drivers remove the silencer from their rickshaw. In the past few years, the number of rickshaws has increased many fold as it is the most cheapest transport for the Karachiites. In addition excessive use of horn (especially pressure horn) is very common by the drivers of big buses, trucks and taxis. The vehicle noise is not affecting the drivers and passengers only, it is also affecting roadside hawkers, shopkeepers and residents. A study conducted on 51 rickshaw drivers who were all below 50 years of age and engaged in this profession for more than 5 years, showed sensori-neural deafness in most of the cases¹⁰. In another study, hearing threshold of rickshaw drivers were compared to taxi drivers in Karachi which showed that rickshaw drivers were 3 times more prone for hearing loss, 2 times more prone for tinnitus and 2.5 times more prone for difficulty in telephonic conversation¹¹. In a similar way, another study conducted on the workers of Pakistan National Shipping Corporation (PNSC), showed presence of 19% of sensori-neural deafness specially at

around 4000 Hz in their permanent workers¹². Aviation workers related with airport and aircrafts in Karachi were compared to similar age and gender related villagers, showed a difference of hearing threshold of about 30 dB in two groups¹³. All these studies are showing that noise induced hearing loss is a serious problem for Karachi but very little has been done for its education, prevention and treatment.

Noise induced hearing loss is not only limited to the workers of factories and transport related fields, almost every individual of Karachi is under this risk due to increasing building and civil work, social and religious gathering using heavy speakers, road side engineering works and now a days by firearm and bomb blast noises. Wedding in our region is getting noisier and noisier every day by the arrangements of loud music and by the use of firearms and fireworks on this occasion. There is an increasing trend of listening to music during work and studies by headphones and frequently attending musical concerts. However, all these injurious effects of noise are preventable. Suggestions and recommendations that can prevent this ailment are:

a) Standard methods of identification of hazardous level of noise should be adopted in industries, sea ports, airports, public places and road sides, b) Make plans to improve engineering technology to decrease the noise of machines, vehicles and specially rickshaws by using proper silencers, c) Recording of hearing threshold level of every person should be compulsory at the time of employment and at regular interval in all the above mentioned places of work, d) Health insurance should be compulsory for compensation of affected workers, e) Alternate jobs should be offered to the affected workers, f) Provide hearing protective devices such as the ear plugs and ear muffs to workers, g) Public awareness about this problem should be highlighted in a proper way through every available resource including electronic media, print media, seminars etc.

REFERENCES:

1. Demographics of Pakistan. http://en.wikipedia.org/wiki/Demographics_of_Pakistan.
2. Amer K. Population explosion: put an embargo on industrialization of Karachi. *The Express Tribune*, October 6, 2013. <http://tribune.com.pk/story/614409/population-explosion-put-an-embargo-on-industrialisation-in-Karachi>.
3. Ismail AF, Daud A, Ismail Z, Abdullah B. Noise induced hearing loss among quarry workers in north-eastern state of Malaysia: a study on knowledge, attitude and practice. *Oman Medical Journal*, 2013; 28(5): 331-6.

4. Nelson DI, Nelson RY, Concha-Barrientos M, Fingerhit M. The global burden of occupational noise-induced hearing loss. *American Journal of Internal Medicine*, 2005; 48(6): 446-58.
5. Ashraf HD, Younus MA, Kumar P, Siddiqui T, Ali SS, Siddiqui I. Frequency of hearing loss among textile industry workers of weaving unit in Karachi, Pakistan. *J Pak Med Assoc.*, 2009; 59(8): 575-6.
6. Iqbal SM, Khan IA. Occupational noise induced hearing loss. *Pak. J. Otolaryngol* 2007; 23(1): 12-6.
7. Khan SA. Intra-city bus travel in Karachi. *Monthly Economic Review*. May 15, 2013. <http://www.economic-review.com.pk/may-2013/karachi-transportation>.
8. Karachi Port Trust official website. Port in general. <http://kpt.gov.pk/pages/default.aspx?id=39>.
9. Jinnah International Airport Karachi official website. *Runway*. <http://www.karachiairport.com.pk/runway.html>.
10. Abbasi F, Zaheer J, Ahmed A, Saifuddin S, Khan H, Mehmood R. Effects of noise on rickshaw drivers of Karachi city. *Ann Abbasi Shaheed Hosp Karachi Med Dent Coll* 2007; 12(2): 117-21.
11. Merchant A, Lalani I, Afridi Z, Latif N, Malik T, Merchant S et al What is the effect of rickshaw noise on its driver? *J Pak Med Assoc.* Apr 2000;50(4):124-8.
12. Ashrafi KA, Khan IA. Effect of noise pollution on hearing. *Pak J Otolaryngol.*, 2005; 21(2): 33-4.
13. Siddiqui IA, Siddiqui RA. The effect of excessive noise exposure on the hearing thresholds of aviation workers in Karachi. *Pak J Med Sci.*, 2008; 24(3): 525-30.