

# Awareness on Effects of Noise Hazards in Shopkeepers/Street Vendors in Market Area of Mysore City

Abhilash T<sup>1</sup>, Dr. Satish Kumaraswamy<sup>2</sup>

<sup>1,2</sup> *Hearing and Noise, DR MV Shetty College of Speech and Hearing*

**Abstract - This study aimed to test the awareness on Noise exposure among street vendors and shopkeepers who work in the market area of mysore city. A designed questionnaire was circulated to 39 vendors and shopkeepers. The results show that the shopkeepers and vendors were unaware of the health effects of noise, and they also show that approximately 50% of participants had tinnitus.**

## INTRODUCTION

Noise is an unpleasant sound that has become recognized as a growing environmental annoyance as a result of urbanization and industry (Nathaniel, 2007; Pathak, Tripathi & Mishra, 2008). As far the technology increases, environmental pollution increases eventually. Recent studies and articles explained that public complaints more about excessive noise pollution, especially at the market areas.

The source of noise pollution varies in place to place. Market is a gathering place for buyers and sellers to conduct business. Which results in a noise pollution of the environment. Loud noise does not just cause reduced hearing sensitivity, tiredness, cranky and can cause other health issues like sleep disturbances, high blood pressure, faster heart rate, stomach upsets, even after the noise stops. Noise can lead to severe problems like delay in development of womb.

Noise can make difficult to pay attention, to hear warning signals or equipment problems, which may reduce your safety. Noise can also affect the quality of work. Noisy classrooms can make learning difficult for children. It's hard to understand what others are saying at a loud volume. You may need to focus more and spend more energy to listen. And the speaker needs to speak louder than their usual level. This can make conversation difficult. Many articles support that noise causes more than deafness. It can affect your health, work, learning, and social life.

Noise-induced hearing loss (NIHL) is a condition caused by exposure to loud noise for a period of time.

Long-term exposure to noise, or even relaxing music, above a certain sound pressure level can lead to temporarily or permanently change in the structure and function of the auditory system. The continuous exposure to noise can lead to permanent threshold shift in hearing sensitivity. Temporary threshold shift seen when exposed to sudden loud noise like gunshot which can be recovered after a certain time period.

Mysore, the administrative city of Mysore District is one of the second largest cities in Karnataka and is situated in the southern part of the state. There are too many noises levels above the recommended limit in several places in Mysore. The Karnataka State Pollution Control Board monitors noise levels at ten locations around the clock. The permissible noise level in a silent zone is 50 dBA during the day, and 40 dBA at night. According to the Central Pollution Control Board (CPCB), the permissible noise level in a quiet zone is 50 dBA during the day and 40 dBA at night. Case study on noise level in Mysore city shows that Medium Road Traffic (Streets)- 70-80A. Heavy Road Traffic (Highways)- 80-90A.

To safeguard hearing it is necessary to understand the effects of noise and to be aware of techniques to shield the ears from noise exposure. This study aims to check the awareness of noise and its effects on health in street vendors and shop keepers in market area of Mysore city.

Pachpande & Attarde (2009) assessed daily noise exposure and prevalence of hearing Loss in the Shopkeepers Working Near National Highway in Jalgaon City. working for 10 to 12 hours. Results revealed that shopkeepers, 87% reported hearing loss and defined at least some difficulty with hearing in one or both ears.

Gnateja, Chengappa & Varsha (2018) studied the Effect of below-damage-risk criteria environmental noise on auditory perception and working memory. Concluded that regular exposure to environmental

noise even if the levels are below DRC will have negative influence on speech perception, stream segregation skills, and working memory abilities.

Nandita, Abira & Dash (2022) studied the Impact of Noise Pollution on Human Health in Barasat Urban Area, West Bengal and concluded based survey among adults which established that people suffered from headache, anxiety, hearing impairment, hypertension and sleeping disorders that could be attributed to exposure to noise.

Bandopadhyay, Bandopadhyay & Patil(2018) did A Cross-sectional Study to Assess Respiratory, Eye and Ear Health Problems among Traffic Police Personnel in Nasik City and Concluded that respiratory health problem was the most common morbidity in traffic police. Age (=40 years) and long service duration were significantly associated with respiratory and ear diseases.

Parvari, Hashemi & Sayadi (2014) Simultaneous Assessment of Traffic Noise Pollution and Hearing Threshold Level of Shopkeepers in Congested Area of Behbahan in 2014 and result shows that noise pollution is high in Behbahan and considering the traffic noise is low frequency, maximum of hearing loss occurred at the frequency of 125 Hz.

Crandell, Silcox, Ferguson & Lohani (2022) studied the Effects of Captioning Errors, Background Noise, and Hearing Loss on Memory for Text-Captioned Speech and findings show that even a single-word error can be deleterious to memory for text-captioned speech, especially in older adults with hearing loss.

Rajasekar, Parida & Sunali (2022) analysed Bibliometric analysis and review of auditory and non-auditory health impact due to road traffic noise exposure and results was noise exposure and health impact caused by heterogeneous traffic conditions. The majority of studies are self-reported and restricted to some causes such as headache, sleep disturbance, hearing issues and irritation.

**METHODOLOGY**

**AIM:**

This study aims to test the awareness on Noise exposure among street vendors and shopkeeper.

Table 2: Shows the percentage scores for questionnaire.

	Yes		No		May be	
	n	%	n	%	n	%
Have you ever checked your hearing before?	16	41	20	51.3	3	7.7

**OBJECTIVES:**

- To find the awareness of noise exposure.

- To find the knowledge on effects of noise on health  
**PHASE- 1 PREPARATION OF THE QUESTIONNAIRE:**

A set of 15 questions was developed in a Questionnaire and validated by 5 Audiologist who are currently in practice. All the 15 questions are on the basis of awareness and knowledge on noise exposure and its effects on health. 3-point rating scale was used to score the response were 1- Yes, 0 - No, 0.5 - May Be.

**PHASE- 2 INCLUSION AND EXCLUSION CRITERIA:**

39 Shopkeepers and Street vendors from Mysore city market area who are exposed to continuous noise for longer period of time were included as a participant in this study. Other street vendors/ Shop keepers who are not exposed to continuous noise were excluded from the study.

**STIMULUS USED:** The developed closed set of questionnaires is used for collecting data.

**PROCEDURE:**

A set of 15 validated questions were distributed among shop keepers and street vendors. The participants were instructed to read, understand the questions properly and mark for the response.

**RESULT AND DISCUSSION**

Table 1: Frequency for hours of noise exposure peer day and year of noise exposure.

(n = 39)		Frequency	%
Hours of noise exposure per day	0 to 4	16	41
	5 to 8	11	28.2
	9 to 12	12	30.8
Years of noise exposure	0 to 3	13	33.3
	4 to 7	11	28.2
	8 to 11	9	23.1
	> 12	6	15.4

Have you ever been diagnosed with any hearing issues?	7	17.9	29	74.4	3	7.7
Have you experienced with ringing/buzzing sound inside your ears?	9	23.1	22	56.4	8	20.5
Do you think that loud noise/traffic noise can damage your hearing?	30	76.9	4	10.3	5	12.8
Do you feel that your hearing sensitivity is getting reduced day by day?	13	33.3	19	48.7	7	17.9
Have you ever experienced any physiological problems like increased heart rate, sleep disturbances, digestive problems, Giddiness, Vomiting sensation?	11	28.2	23	59	5	12.8
Is it necessary to protect your ears from noise exposure?	38	97.4	0	0	1	2.6
Are there any government schemes available for persons with hearing impairment?	15	38.5	10	25.6	14	35.9
Is it true that continuous noise exposure will cause irreversible change to your hearing	25	64.1	3	7.7	11	28.2
Are you have a habit of continuously listening to high volume music player/Ear phones?	14	35.9	22	56.4	3	7.7
Do you feel stressed working in noise environment?	18	46.2	17	43.6	4	10.3
After reaching home, do you feel any differences in hearing compared to work place?	19	48.7	15	38.5	5	12.8
Are you aware of audiologist?	18	46.2	17	43.6	4	10.3

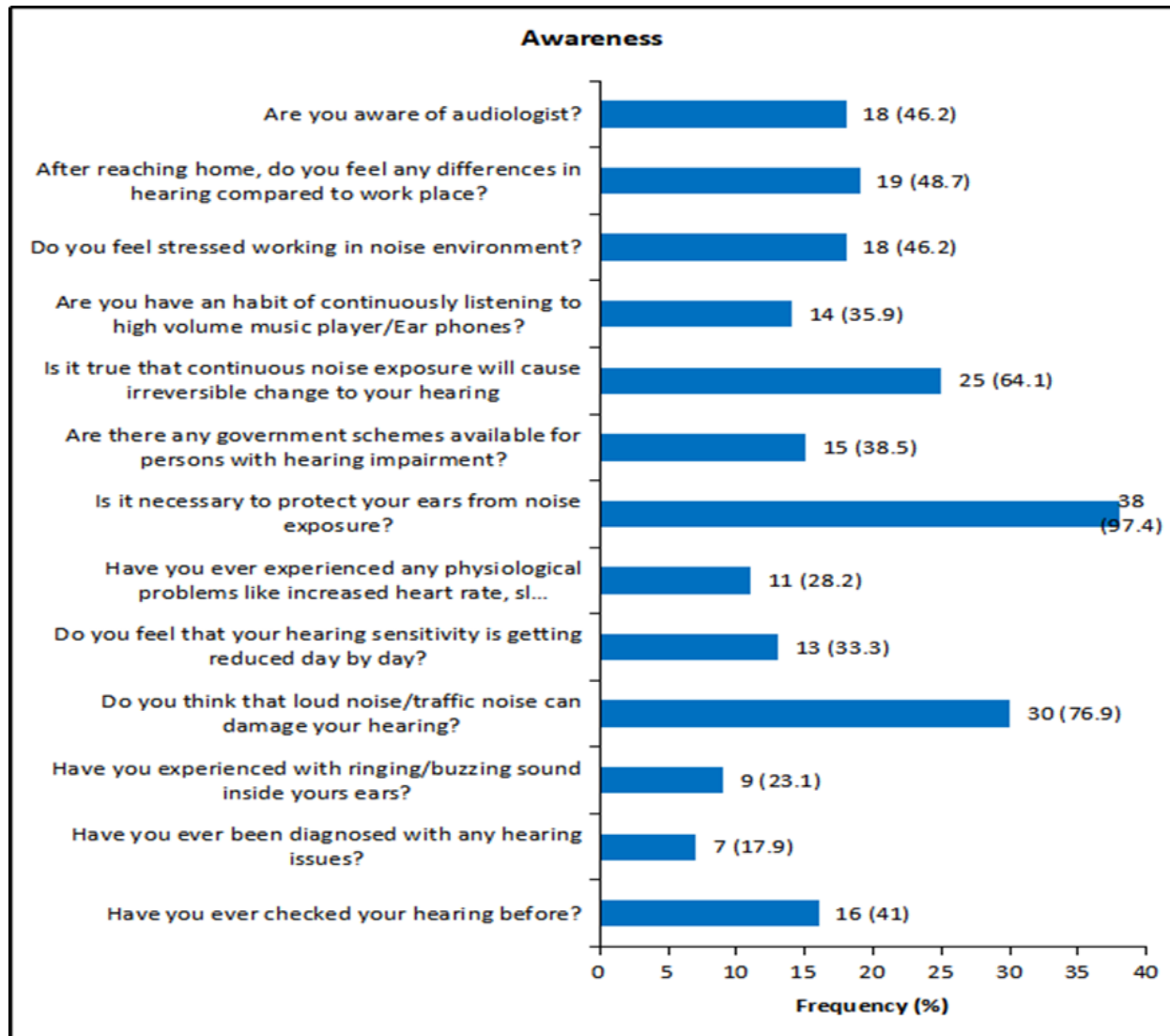


Figure 1: Shows the frequency of Awareness for questionnaire

51.3% of the population has never had their hearing tested. Hearing problems have been diagnosed in 7% of individuals. 56.4 % of people had never had ringing or buzzing in their ears. 76.9% of respondents agreed that loud noise and traffic noise can be harmful to the ears. 48.7% of people say they have never experienced a reduction in hearing sensitivity over time. 59% of individuals said they had no physiological concerns, such as an elevated heart rate, sleep interruptions, digestion problems, giddiness, or nausea. Individuals agree that protecting their ears from loud exposure is

important, with 97.4% agreeing. 38.5% of respondents are aware of government programs for hearing impaired people. Sixty-four percent of people are aware that continuous loud exposure will permanently impair their hearing. 56.4% of people do not listen to loud music. While working in a noisy workplace, 46.2% of people report feeling stressed. 48.7% of persons report hearing differences that are better than at work after leaving work. 46.2% of those known have a consultant when their hearing is impaired.

Table 3: Shows the Comparing year of work experience with awareness.

		Years of noise exposure								Likelihood ratio	p value
		0 to 3		4 to 7		8 to 11		> 12			
		n	%	n	%	n	%	n	%		
Have you ever checked your hearing before?	Yes	11	84.6	3	27.3	2	22.2	0	0.0	23.359	0.001*
	No	2	15.4	7	63.6	7	77.8	4	66.7		
	May be	0	0.0	1	9.1	0	0.0	2	33.3		
Have you ever been diagnosed with any hearing issues?	Yes	0	0.0	3	27.3	3	33.3	1	16.7	12.461	0.052
	No	13	100.0	6	54.5	5	55.6	5	83.3		
	May be	0	0.0	2	18.2	1	11.1	0	0.0		
Have you experienced with ringing/buzzing sound inside yours ears?	Yes	2	15.4	2	18.2	4	44.4	1	16.7	6.764	0.343
	No	10	76.9	5	45.5	4	44.4	3	50.0		
	May be	1	7.7	4	36.4	1	11.1	2	33.3		
Do you think that loud noise/traffic noise can damage your hearing?	Yes	12	92.3	8	72.7	5	55.6	5	83.3	8.470	0.206
	No	1	7.7	2	18.2	1	11.1	0	0.0		
	May be	0	0.0	1	9.1	3	33.3	1	16.7		
Do you feel that your hearing sensitivity is getting reduced day by day?	Yes	2	15.4	5	45.5	3	33.3	3	50.0	14.095	0.029*
	No	10	76.9	5	45.5	4	44.4	0	0.0		
	May be	1	7.7	1	9.1	2	22.2	3	50.0		
Have you ever experienced any physiological problems like increased heart rate, sleep disturbances, digestive problems, Giddiness, Vomiting sensation?	Yes	1	7.7	7	63.6	3	33.3	0	0.0	23.792	0.001*
	No	12	92.3	4	36.4	3	33.3	4	66.7		
	May be	0	0.0	0	0.0	3	33.3	2	33.3		
Is it necessary to protect your ears from noise exposure?	Yes	13	100.0	11	100.0	8	88.9	6	100.0	3.022	0.388
	May be	0	0.0	0	0.0	1	11.1	0	0.0		
Are there any government schemes available for persons with hearing impairment?	Yes	9	69.2	3	27.3	1	11.1	2	33.3	15.541	0.016*
	No	0	0.0	5	45.5	4	44.4	1	16.7		
	May be	4	30.8	3	27.3	4	44.4	3	50.0		
Is it true that continuous noise exposure will cause irreversible change to your hearing	Yes	10	76.9	6	54.5	4	44.4	5	83.3	4.666	0.587
	No	1	7.7	1	9.1	1	11.1	0	0.0		
	May be	2	15.4	4	36.4	4	44.4	1	16.7		
Are you have an habit of continuously listening to high volume music player/Ear phones?	Yes	4	30.8	6	54.5	4	44.4	0	0.0	10.753	0.096
	No	7	53.8	5	45.5	5	55.6	5	83.3		
	May be	2	15.4	0	0.0	0	0.0	1	16.7		
Do you feel stressed working in noise environment?	Yes	7	53.8	5	45.5	3	33.3	3	50.0	2.955	0.814
	No	5	38.5	5	45.5	4	44.4	3	50.0		
	May be	1	7.7	1	9.1	2	22.2	0	0.0		
After reaching home, do you feel any differences in hearing compared to work place?	Yes	6	46.2	8	72.7	3	33.3	2	33.3	9.908	0.129
	No	5	38.5	1	9.1	6	66.7	3	50.0		
	May be	2	15.4	2	18.2	0	0.0	1	16.7		
Are you aware of audiologist?	Yes	4	30.8	5	45.5	4	44.4	5	83.3	8.617	0.196
	No	8	61.5	5	45.5	4	44.4	0	0.0		
	May be	1	7.7	1	9.1	1	11.1	1	16.7		

(\* Significant)

The Likelihood test was used to find the comparison between awareness and the year of exposure to loud noise. On the above table it was clear that there was a significant difference ( $p < 0.05$ ) for question like, have you ever checked your hearing before; Do you feel that your hearing sensitivity is getting reduced day by day; Have you ever experienced any physiological problems like increased heart rate, sleep disturbances, digestive problems, giddiness, vomiting sensation; Are there any government schemes available for persons with hearing impairment.

#### DISCUSSION

Vendors in market area are exposed to high noise levels which can lead to noise induced hearing loss and other health issues. So, this present study aimed to find whether the shopkeepers and the street vendors are aware of noise and its effects on health. On responding for the developed questionnaire, the result was clear that the vendors are not aware of noise and its impact on health. On the other side it was shown that some of the symptoms are prone to street vendors. Most of them are experienced reduced hearing sensitivity, tinnitus. The second phase of the study compared the year of work experience in a noisy environment with the knowledge. In that the findings shows, some of the domains is significantly correlating with both the domains.

#### CONCLUSION

This study concluded that the vendors who are working in a noisy market area were not aware on noise and its health hazards. By rooting this study as a reference, awareness should be extent among the populations who are exposed to continuous noise which will prevent them from a risk of developing health issues.

#### REFERENCE

- [1] Joshua YohannaGwanshak, Onoja Sunday, Jatau Ramond Yohanna: Evaluation of Noise Level in selected Markets in Jos-North, Plateau State: International Journal of Research in Environmental Science (IJRES) Volume 6, Issue 3, 2020, PP 27-35.
- [2] National Institute on deafness and other communication disorders: NIH Publication No. 14-4233, March 2014.
- [3] Deccan Herald Noise pollution on the rise jun 03 2022 <https://www.deccanherald.com/metrolife/metrolife-your-bond-with-bengaluru/noise-pollution-on-the-rise-1114755.html>
- [4] Nasim Alnuman and Talha Ghnimat: Awareness of Noise-Induced Hearing Loss and Use of Hearing Protection among Young Adults in Jordan- International journal of Environment research public health- 2019 Aug; 16(16): 2961. Published online 2019 Aug 17.
- [5] S T IngleB g, PachpandeN D Wagh S B attarde Noise exposure and hearing loss among the traffic policemen working at busy streets of Jalgaon urban centre- Transportation Research Part D: Transport and Environment; Volume 10, Issue 1, January 2005, Pages 69-75.
- [6] Maruthy, S., Gnanateja, G. N., Chengappa, P. C., Publius, S. A., & Athreya, V. M. (2018). Effect of below-damage-risk criteria environmental noise on auditory perception and working memory. *Indian Journal of Otology*, 24(2), 98.
- [7] Mukherjee, K., Deb, N., Roy, A. D., & Dash, P. (2022). Impact of Noise Pollution on Human Health in Barasat Urban Area, West Bengal. In *Sustainable Urbanism in Developing Countries* (pp. 375-393). CRC Press.
- [8] Bandopadhyay, A., Bandopadhyay, S., Lele, P., & Patil, R. N. (2018). A Cross-sectional Study to Assess Respiratory, Eye and Ear Health Problems among Traffic Police Personnel in Nashik City. Bandopadhyay A, Bandopadhyay S, Lele P, Patil RN. A Cross-sectional Study to Assess Respiratory, Eye and Ear Health Problems among Traffic Police Personnel in Nashik City.
- [9] Peivast, N., Parvari, R., Hashemi, Z., Safari, M., Omid, S., Asadi, N., & Sayadi, M. (2017). Simultaneous assessment of traffic noise pollution and hearing threshold level of shopkeepers in congested area of Behbahan in 2014. *Journal of Rafsanjan University of Medical Sciences*, 16(7), 645-660.
- [10] Crandell, H. A., Silcox, J. W., Ferguson, S. H., Lohani, M., & Payne, B. R. (2022). The Effects of Captioning Errors, Background Noise, and Hearing Loss on Memory for Text-Captioned Speech. *Journal of Speech, Language, and Hearing Research*, 1-27.
- [11] Manohare, M., Rajasekar, E., Parida, M., & Vij, S. (2022). Bibliometric analysis and review of

auditory and non-auditory health impact due to road traffic noise exposure. *Noise Mapping*, 9(1), 67-88.