Knowledge of Hearing Loss Among Automobile Racers and Automobile Enthusiastic

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Abstract **- Hearing is the ability to perceive sounds through an organ, such as an ear, by detecting the vibrations as periodic changes in the pressure of a surrounding medium. In the field of automobile racers and enthusiastic their main problems affecting them are loud sounds and it may lead to hearing problems. The purpose of this study is to find out the knowledge of hearing loss among automobile racers and automobile enthusiastic. The present study includes 25 participants, including racers and riders. A set of 15 closed set (yes/no) questions were prepared to find out the knowledge of hearing loss among automobile racers and automobile enthusiastic. The present study concluded that that automobile racers and automobile enthusiastic they have less awareness about hearing loss.**

1.INTRODUCTION

Hearing, or auditory perception, is the ability to perceive sounds through an organ, such as an ear, by detecting vibrations as periodic changes in the pressure of a surrounding medium.

Noise induced hearing loss is the main reason that may affect their hearing mainly, and also the loud noises coming from the exhaust and some crashes may be also a reason for their reduced hearing.

Noise is a well recognize and significant cause of hearing loss in our society. Though not reversible, noise-induced hearing loss (NIHL) is preventable through hearing-conservation programs and a better awareness of the various occupational and environmental sources of potentially damaging noise (Rose, Ebert and Prazma 2009).

One of the occupational health conditions affecting workers in many occupations is noise. According to recent findings, men are more likely to experience noise-induced hearing loss. This appears to be an issue in especially for those nations transitioning from agricultural to a stronger manufacturing base for their developing economies. When exposed to loud noises over 85 dB (A) for an extended period of time, hearing loss due to noise is the result. In Practically all people exposed to sounds of 130 dB (A) or above will damage their hearing over even brief periods of time. Early intervention can prevent noise-induced hearing loss. There is proof that wearing ear protective devices lowers the risk of noise-induced hearing loss in social and professional settings. In terms of hearing protection, the options are earplugs, earmuffs and active noise reduction. Pure tone audiometry can be used to diagnose noise-induced hearing loss early on. Earplugs are assumed to provide sound attenuation of about 10-15 dB and earmuffs, at least 15 dB

Nandi & Dhatrak (2008) studied occupational noise-induced hearing loss in India, and they concluded like noise is the hazardous industrial pollutant causing severe hearing loss in workers of every country in the world.

Zungu, Edwards & Cosa (2015) done a study on evaluation of current practices oh noise-induced hearing loss training in the South African mining industry and concluded that training in NIHL awareness is not seen as a top priority. Evaluation of employee knowledge only occurred at 40% of the mines surveyed. Recommendations were made to address the factors identified in the evaluation of the current practices in the South African mining industry regarding NIHL awareness training needing to be aligned with best practice.

Richer, Picard, Girard, Leroux, Courteau & Turcotte (2015) studied occupational noise exposure and noise-induced hearing loss are associated with work-related injuries leading to admission to hospital and the study concluded that from a safety perspective, this issue is highly relevant; especially when workers are exposed to intense ambient noise and NIHL.

Morin, Banks, Pineault & Atrach (2019)studied unperceived hearing loss among Canadians aged 40 and 79 and study revealed that an estimated 77 percent (6.3 million) of the 8.2 million older persons with

measured high-frequency hearing loss also had hearing loss that was not noticeable and the conclusion of the study was unperceived hearing loss was more common in people who had never worked in a noisy environment and tinnitus sufferers were less likely than non-sufferers to have an undetected hearing loss.
Dow, Boucher, Rader, Charlton & Hill (2022) done a study on how does hearing loss affect the risk of involvement in a motor vehicle crash and concluded that the quality of the studies permitted the conclusion that the evidence does not support a relationship between hearing impairment and the risk of an MVC. Driver fitness standards recognize this fact implicitly in that none of the national fitness-to-drive standards selected for comparison applied license restrictions to non-commercial drivers.
Pasandi, Mahdavi & Talebi (2021) done a study on investigating the prevalence of hearing loss and its related factors in professional drivers in Shahroud city, and the conclusion of the study was the prevalence and severity of hearing loss in Shahroud drivers are high, and most hearing loss is observed in the left ear.

2. METHOD

2.1 AIM: The Aim of the study was to analyze the hearing related problems among automobile racers and automobile enthusiastic.
The study was carried out in two phases.
Phase 1: Developing questionnaire
In order to determine the knowledge of hearing problems in automobile racers, a series of 15 closed-set (yes/no) questions were developed. All these questions were validated by 5 speech-language pathologists with more than five years of experience. The correction and suggestion advised by SLP'S were incorporate and final questionnaire was, modify to use.

The final questionnaire is as follows.
Q1. Have you ever experienced any hearing loss due to exposure to loud sounds? (yes/no)
Q2. Are you aware that exposure to loud sounds can affect your hearing? (yes/no)
Q3. Have you ever experienced any ringing or buzzling sounds in the ear? (yes/no)
Q4. Are you aware of ear protection devices? (yes/no)
Q5. Have you done any audiological evaluation after being an automobile racer? (yes/no)
Q6. Do you have difficulty in hearing when someone whispers? (yes/no)
Q7. The loud sounds from the exhaust of the bikes or cars are being adversely affecting the population of riders or not? (yes/no)
Q8. Do you frequently ask others to speak more clearly, slowly and loudly? (yes/no)
Q9. Do you feel discomfort to certain sounds? (yes/no)
Q10. Do you feel any problem in discriminating sounds? (yes/no)
Q11. In a day, do you work above 8 hours? (yes/no)
Q12. Soon each and every race, do you feel sudden hearing loss? (yes/no)
Q13. Are you aware that being in this profession will cause hearing loss? (yes/no)
Q14. Have you undergone any kind of audiological evaluation after being in this profession? (yes/no)
Q15. Have you ever experienced vertigo/ dizziness/ nausea after the race? (yes/no)
Phase II: Participants
A total of 20 participants including riders and automobile enthusiastic in the age range of 18-30 with more than 1 year experience and who were far from neurogenic disorders or any other psychological illness.
2.2 Stimulus used: A closed set of 15 questions prepared was used for sampling purpose.
2.3 Procedure: The list of validated questions was distributed to the automobile racers and enthusiastic. The participants' job was to read and comprehend the questions and correctly respond by checking Yes or No.
2.4 Analysis: The responses from the survey was analyzed further and scored as "1" for "Yes" and "0" for "No" response. Statistical analysis was carried out to for

3. RESULT

The aim of the present study was to access the knowledge of hearing loss among automobile racers and automobile enthusiastic. The obtained results are discussed below.
Table 1:
Showing the awareness and non -awareness knowledge among automobile racers and automobile enthusiastic

	Aware		Not aware	
	Frequency	%	Frequency	%
Have you ever experienced any hearing loss due to exposure to loud sounds?	12	48	13	52
Are you aware that exposure to loud sounds can affect your hearing?	22	88	3	12
Have you ever experienced any ringing or buzzling sounds in the ear?	3	12	22	88
Are you aware of ear protection devices?	21	84	4	16
Have you done any audiological evaluation after being an automobile racer?	6	24	19	76
Do you have difficulty in hearing when someone whispers?	2	8	23	92
The loud sounds from the exhaust of the bikes or cars are being adversely affecting the population of riders or not?	22	88	3	12
Do you frequently ask others to speak more clearly, slowly and loudly?	3	12	22	88
Do you feel discomfort to certain sounds?	3	12	22	88
Do you feel any problem in discriminating sounds?	3	12	22	88
In a day, do you work above 8 hours?	2	8	23	92
Soon each and every race, do you feel sudden hearing loss?	3	12	22	88
Are you aware that being in this profession will cause hearing loss?	23	92	2	8
Have you undergone any kind of audiological evaluation after being in this profession?	7	28	18	72
Have you ever experienced vertigo/ dizziness/ nausea after the race?	2	8	23	92

Fig 1: Showing the response of automobile racers and automobile enthusiastic for each hearing loss knowledge questions. Green bars showing the frequency range of automobile racers and automobile enthusiastic.

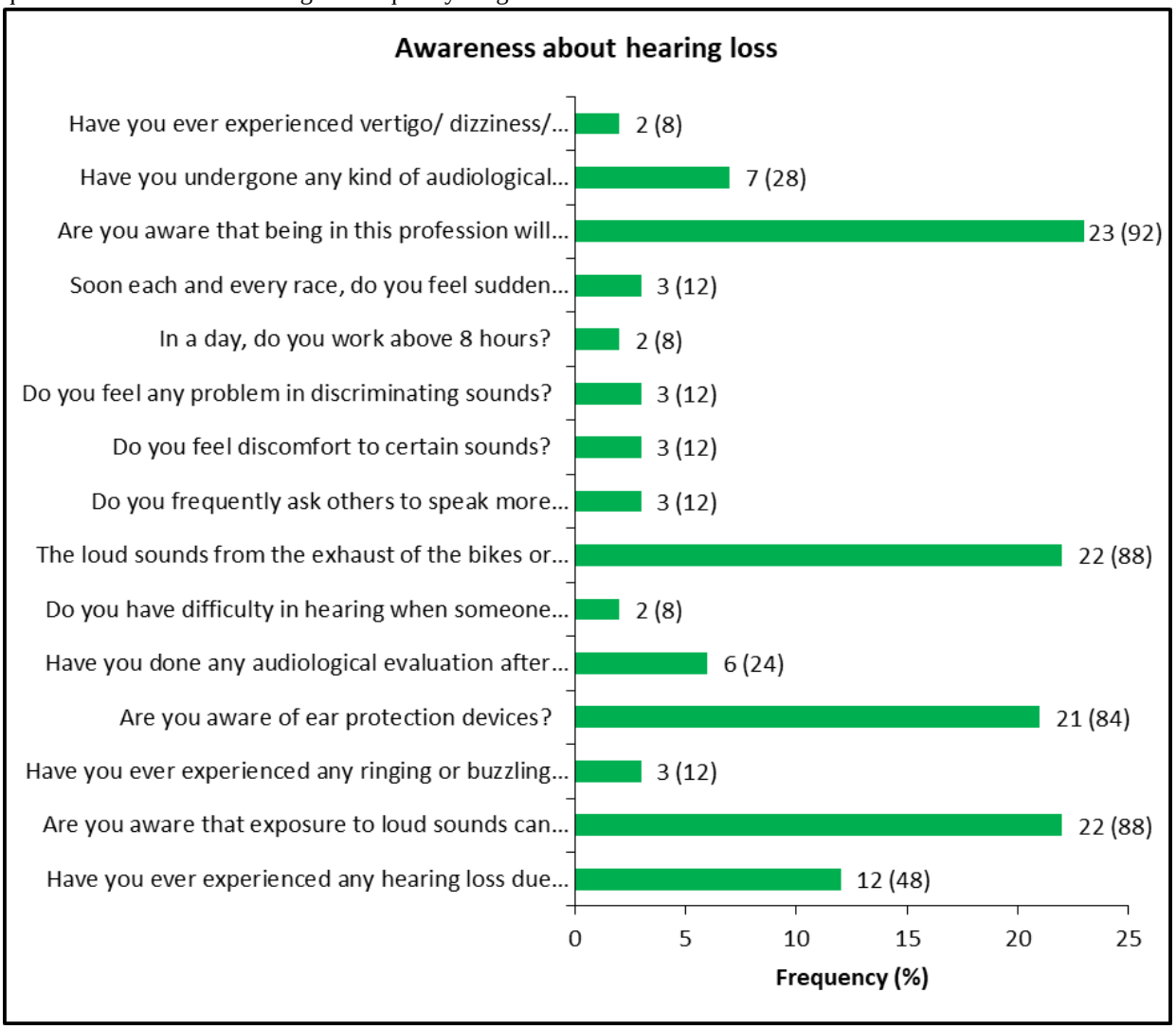
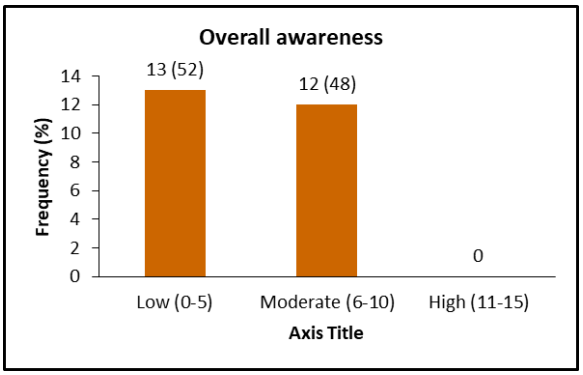


Table 2: Shows the standard deviation of knowledge of hearing loss among automobile racers and automobile enthusiastic.

	Minimum	Maximum	Mean	S.D.
Overall awareness	3	8	5.36	1.19

Figure 2: Showing the overall percentage of knowledge of hearing loss among automobile racers and automobile enthusiastic.



The result from the above graph states that, 48% participants had reported with moderate awareness whereas 52% participants had reported with low hearing loss awareness on automobile racers and automobile enthusiastic.

4. DISCUSSION

The present study aimed to find the knowledge of hearing loss among automobile racers & automobile enthusiastic and it was assessed with the help of questionnaire

Based on the response it can be seen that, (92%) participants are aware that being in this profession will cause hearing loss, whereas remaining (8%) of them are not agreeing with this. It shows that most of the respondents are aware on it.

Majority of the people (88%) are aware on the loud sounds from the exhaust of the bikes or cars are being adversely affecting the population of riders and also they aware that exposure to loud sounds can affect your hearing and (12%) of participants are not agreeing with this.

Mostly (84%) are aware of ear protection devices and rest (16%) are not aware with this.

The (48%) of the participants are aware on any hearing loss due to exposure to loud sounds and (52%) are not being aware on it.

Less participants (28%) are aware that they undergone any kind of audiological evaluation after being in this profession and majority of the participants (72%) are not agreeing on this.

Less respondents (24%) are aware that any audiological evaluation is done after being an automobile racer whereas most of the (76%) are not aware on this.

From the above graph it can be found that least participants (12%) are aware about sudden hearing loss, discomfortable sounds, sound discrimination. However, majority of the participants are not agree on it.

Least number of participants (8%) are working more than 8 hours in a day and rest of the participants are working less than 8 hours in a day. Majority of the people are experiencing vertigo, dizziness and nausea after the race and also, they are experiencing difficulty in hearing when someone whispers whereas least of the participants (92%) are not experiencing it.

5.CONCLUSION

The aim of the present study was knowledge of hearing loss among automobile racers and automobile enthusiastic. From the above result it can be concluded that automobile racers and automobile enthusiastic they have less awareness about hearing loss. Their hearing may be affected mostly by noise-induced hearing loss, but other factors such as loud exhaust noises and some crashes may also contribute to this.

REFERENCE

[1] National Research Council (US) Committee on Disability Determination for Individuals with Hearing Impairments; Dobie RA, Van Hemel S, editors.

[2] Washington (DC): National Academies Press (US); 2004. Ramage-Morin, P. L., Banks, R., Pineault, D., & Atrach, M. (2019). Unperceived hearing loss among Canadians aged 40 to 79. Health Rep, 30(08), 11-20. Girard, S. A., Leroux, T., Courteau, M., Picard, M., Turcotte, F., & Richer, O. (2015). Occupational noise exposure and noise-induced hearing loss are associated with work-related injuries leading to admission to hospital. Injury prevention, 21(e1), e88-e92.

[3] Nandi, S. S., & Dhatrak, S. V. (2008). Occupational noise-induced hearing loss in India. Indian journal of occupational and environmental medicine, 12(2), 53.

[4] Zungu, L. I., Edwards, A. L., Milanzi, L. A., Khoza, N. N., & Letsoalo, M. S. (2015). Evaluation of the current practices of noise-induced hearing loss (NIHL) awareness training in the South African mining industry. Occupational Health Southern Africa, 21(1), 11-17.

[5] Dow, J., Boucher, L., Carr, D., Charlton, J., Hill, L., Koppel, S., ... & Rader, T. (2022). Does hearing loss affect the risk of involvement in a motor vehicle crash?. Journal of Transport & Health, 101387.

[6] Golbabaei Pasandi, H., Mahdavi, S., Solmaz Talebi, S., Jahanfar, S., Shayestefar, M., & Hossein Ebrahimi, M. (2021). Investigating the prevalence of hearing loss and its related factors in professional drivers in Shahroud city, Iran. International journal of occupational safety and ergonomics, 1-6.