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ORIGINAL ARTICLE

Prevalence of hearing loss in patients visiting ENT OPD of Nepal APF Hospital

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Abstract

Introduction: Hearing loss (HL) is one of the major health concerns worldwide and is said to be present in a person who has a hearing threshold of more than 20 dB in one or both ears. This study aimed to find the prevalence and its different types and grades of hearing loss in adult patients visiting ENT OPD of Nepal APF Hospital.

Method: This is a retrospective cross-sectional study which reviews the data of the patients visiting ENT outpatient department of Nepal APF Hospital from April 15, 2020 to April 14, 2022. Ethical clearance was taken from the Nepal Health Research Council; Ref. No. 1109/2024. The total number of patients visiting ENT OPD during the study duration with age group more than 15 years of age was included for the study.

Result: Out of 3201 adult patients visited the ENT OPD over two years, 1697(53%) were and 1504(47%) were female, 148 were found to have hearing loss in one or both ears. Thus the prevalence in the adult population in this study group was found to be 4.62%. The prevalence was found to be higher in males 89(5.24%) than in female 59(3.92%) and also higher in the conductive type of hearing loss 68(2.12%).

Conclusion: Hearing loss is the one of the commonest presentation in ENT OPD. The prevalence of hearing loss found is 4.62% which is slightly lower than the previous similar studies. The commonest type of hearing loss is Conductive hearing loss with male predominance.

Keywords: Hearing Loss; Nepal; Prevalence

INTRODUCTION

Hearing loss (HL) is said to be present in a person who has a hearing threshold of more than 20 dB in one or both ears.[1] It leads to a significant deterioration in ones quality of life. Hearing loss can be broadly classified into Sensorineural hearing loss (SNHL) which is caused by dysfunction in the cochlea or spiral ganglion, Conductive hearing loss (CHL) which is caused by impairment of the outer or middle ear and Mixed Hearing loss that has both conductive and sensorineural components. Pure Tone Audiometry (PTA) is a useful hearing test that can be used to determine hearing threshold levels in an individual and for characterizing the degree, type and configuration of hearing loss. PTA is a subjective and behavioral measurement of the hearing threshold and it provides the basis for the diagnosis and management of hearing loss.[2]

Worldwide, over 1.5 billion people are affected by hearing loss out of which nearly 1 of 3 need hearing care.[1] Over 5% of the world's population require rehabilitation to address their disabling hearing loss (432 million adults and 34 million children).[3] The prevalence of hearing loss varies in different parts of the world. Hearing loss affects roughly 20.3% of the population above 12 years in the United States[4] and in Indian population prevalence of HL was found to be in between 6% and 26.9% and prevalence of disabling HL between 4.5% and 18.3%.[5] The prevalence of hearing impairment in school aged children in Nepal is found to be 5.73%.[6] A study done in a rural southern part of Nepal shows a prevalence of 6.1% among adults.[7]

In a developing country like Nepal, where basic needs are hardly fulfilled, otological problems are very much under looked. Many patients present late with complications requiring surgery and in few cases permanent hearing loss or nerve damage of some degree. The primary effect of adult hearing loss is impaired communication, which can adversely affect relationships with family and friends and create difficulties in the workplace.[8] This study aimed to find the prevalence and its different types and grades of hearing loss in adult patients visiting ENT OPD of Nepal APF Hospital. The prevalence studies help in estimating the burden in the community and to allocate the resources.

METHOD

This is a retrospective study which reviews the data from the medical record section and OPD register of the patients visiting ENT department of Nepal APF Hospital from April 15, 2020 to April 14, 2022. Ethical clearance was taken from the Nepal Health Research Council; Ref. No. 1109/2024. The total number of patients visiting ENT OPD during the study duration with age group more than 15 years of age was included in the study. The findings of PTA were taken from the PTA record book of ENT OPD.PTA was done using Interacousticad 229b audiometer by an experienced audiologist and the four frequency (0.5, 1, 2, 4Khz) average was taken to calculate the hearing thresholds for bone and air conduction. Hearing loss was defined as mild (> 25 dB through 40 dB), moderate (> 40 dB through 60 dB), severe (> 60 dB through 80 dB), or profound (> 80 dB). Study variables were age, sex, type of hearing loss, involvement of ear and grade of hearing loss. The data was entered and analyzed using Statistical Package for Social Sciences (SPSS) 16. Descriptive statistics were used for the analysis of the data.

RESULT

The total number of adult patients visiting ENT OPD during the study duration was 3201. Gender distribution of the population was 1697 (53%) male and 1504 (47%) female. PTA record book showed that total of 209 patients undergone PTA test for the conformation of suspected hearing loss. Among the patients who underwent PTA, 148(70.8%) were found to have hearing loss in one or both ears, out of which 73 had bilateral and 75 had unilateral hearing loss. This showed that the prevalence of hearing

Table 1. Prevalence of hearing loss according to the gender (N=3201)

Prevalence	Male	Female	Total
Total adult patient visiting ENT OPD	1697	1504	3201
Adult patient with clinically normal hearing	1657	1483	3140
Adult Patient with normal PTA	40	21	61
Patient with hearing loss	89	59	148
Prevalence of hearing loss	5.24%	3.92%	4.62%

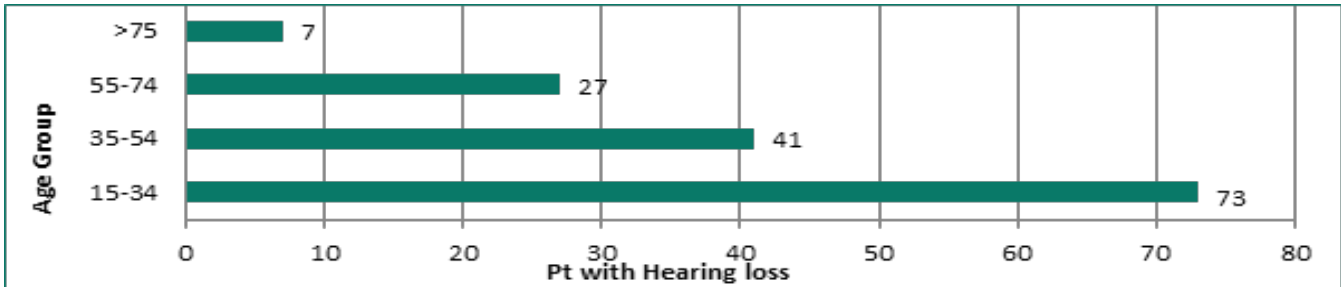

Figure 1. Hearing loss in different age group

Table 2. Prevalence of hearing loss according to types of hearing loss (N=148)

	Male		Female		Total	
	No. of patients	Prevalence of hearing loss	No. of patients	Prevalence of hearing loss	No. of patients	Prevalence of hearing loss
Conductive	44	2.59%	24	1.60%	68	2.12%
Sensorinueral	20	1.18%	15	1.00%	35	1.09%
Mixed	25	1.47%	20	1.32%	45	1.41%
Total	89	5.24%	59	3.92%	148	4.62%

Table 3. Prevalence of hearing loss according to grade of hearing Impairment (N=148)

Grade of Impairment	Average range	No. of patients	Prevalence of hearing loss
Mild	26dB-40dB	54	1.69%
Moderate	41dB-60dB	55	1.72%
Severe	61dB-80dB	19	0.59%
Profound	(≥80dB	20	0.62%

loss among all the adult patients who visited ENT OPD of this hospital was found to be 148(4.62%). The prevalence was found to be higher in males 89 (5.24%) than in females 59(3.92%) as shown in Table 1. It was also seen that among the patients who had undergone PTA, the hearing loss was significantly higher in the age group 15-34 as shown in Figure 1.

Conductive hearing loss was found to be the highest 68(2.12%) followed by Mixed 45(1.41%) and Sensorineural 35(1.09%) as shown in Table 2. Conductive HL in male population was found to the highest 44(2.59%) among all. It was found that the most common hearing loss was moderate type 55(1.72%) followed by mild 54(1.69 %,); profound 20(0.62%) and severe 19(0.59%) types. This is shown in the Table 3.

DISCUSSION

This is a hospital-based study which studied the prevalence of HL among patients visiting ENT OPD of Nepal APF Hospital which is a government hospital in the outskirt of Kathmandu. The beneficiaries are mostly the Armed Police Force staffs, retired staffs, their families and civilians mostly who cannot afford private institutes in the capital. Hence, we have patients from 77 districts from all over the country comprising largely of underprivileged communities. A total of 3201 patients visiting ENT OPD during the study duration with age group more than 15 years of age. The study cohort comprised of 1697(53%) male and 1504(47%) female patients which is similar to the cohort in a study done by Schmitz et al in the southern part of Nepal.[7] The population of the study comprised mostly from the age group of 20-50 years.

The prevalence of hearing loss among the study population was found to be 4.62% (n=3201). The prevalence is seen to be much lower than the figure of 16.6% found in a study done by Little et al. in 1991.[9] This might be because of the huge difference in the sample size as that study comprised of 15,845 subjects and also it was a community based study while our study is a hospital based one. Another reason could be that since 1990s there has been a remarkable improvement in the health care facilities and access to health care from all over Nepal. Another study done by Maharjan, et al. which covered a large number of children attending government school of Nepal showed that the prevalence of hearing loss was 5.73% which is also more than in the present study.[6] This might be due to the reason that they screened only school going children while we did PTA on adult patients with some sort of ear complaints seeking medical service.

In the present study, out of total patients sent for PTA, 70.8% had hearing loss in one or both ears. In a hospital based study similar to ours, out of total PTAs done in the ENT department, 1654(82.2%) had hearing loss in one or both ears.[10]

In the present study, HL was slightly more in male population than female. This is similar to a study done by Rajbhandari et al[11] and Abutan et al in two different regions.[12] This might be due to the higher occupational exposure in male, behavioral and more tendency to seek medical services as well. However, no gender preponderance was found in few other studies.[13-14] In the present study, Conductive HL was found to be the most prevalent. Similar results have been found in other studies.[5, 13-14] This could be attributed to causes like wax impaction, Choronic Otitis Media (COM), Otitis Media with Effusion (OME) and otosclerosis. The commonest cause of hearing loss was COM in a study done by Sharma et al[15].In the present study, moderate HL was the most prevalent, followed by mild, severe and then profound HL. Mild HL was the commonest as shown by many other studies.[14,16-17] Another study done in the UK has estimated the prevalence of severe and profound hearing loss as 6.7% of the clinical population which is much higher than in our population.[18] In the present study HL was most common in the age group 15-35. This is similar to the study by Verma, et al. which calculated prevalence of

HL in India, a slower rise in HL till the age of 45–50 years was noticed, beyond which there was a sharp increase in prevalence.[5] Similar results were found in a study by Asghari, et al. in Iran.[19]

The findings of this study broadly reveal the burden of hearing morbidity of Nepal. The major limitation of this study would be its retrospective nature leading to possibility of gaps in the information. Secondly, to include the whole population instead of only adults would be the measure of true prevalence among the patients visiting the ENT OPD. This study shows the prevalence among healthcare seekers. Although it represents only a minor portion of the whole community, it can still be taken as a reflection of the entire national scenario. A prospective study in the community would be more effective to depict the overall perspective

CONCLUSION

Hearing loss is the one of the commonest presentation in ENT OPD. The prevalence of hearing loss found is 4.62% which is slightly lower than the previous similar study. The commonest type of hearing loss is Conductive hearing loss with male predominance. The remarkable thing about hearing loss is that it is preventable. Thus, earliest detection and timely intervention is needed to prevent permanent hearing loss and which can improve the quality of life of the patients.

DECLARATIONS

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Conflict of Interest

None

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None

Ethical Clearance

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REFERENCES

1. World Health Organization. World Report on Hearing. 2021. [Accessed 14 Jun 2024] | Weblink |
2. Lin HY, Shih SC, Chuang CK, Lee KS, Chen MR, Lin HC, et al. Assessment of hearing loss by pure-tone audiometry in patients with mucopolysaccharidoses. Mol Genet Metab. 2014;111(4):533-8. |DOI |
3. World Health Organization. Deafness and hearing loss [Internet]. World Health Organization. Health topics. | Weblink | [Accessed 14 Jun 2024]
4. Lin FR, Niparko JK, Ferrucci L. Hearing loss prevalence in the United States. Arch Intern Med. 2011;171(20):1851-2.| DOI |
5. Verma RR, Konkimalla A, Thakar A, Sikka K, Singh AC, Khanna T. Prevalence of hearing loss in India. Natl Med J India. 2021;34(4):216-22. | DOI |
6. Maharjan M, Phuyal S, Shrestha M. Prevalence of hearing loss in school aged Nepalese children. Int J Pediatr Otorhinolaryngol. 2021;142:110658. | DOI |
7. Schmitz J, Pillion JP, LeClerq SC, Khatry SK, Wu LS, Prasad R, et al. Prevalence of hearing loss and ear morbidity among adolescents and young adults in rural southern Nepal. Int J Audiol. 2010;49(5):388–94. | DOI |
8. Cunningham LL, Tucci DL. Hearing adults. New Engl J Med. 2017;377(25):2465-73. | DOI |
9. Little P, Bridges A, Guragain R, Friedman D, Prasad R, Weir N. Hearing impairment and ear pathology in Nepal. J Laryngol Otol. 1993;107(5):395-400. | DOI |
10. Khanal P, Acharya S, Lageju N. Pattern of hearing loss among patients attending ENT department of a tertiary hospital in Nepal: a retrospective study. Indian J Otolaryngol Head Neck Surg. 2022;74(Suppl 1):559-62. | DOI |
11. Rajbhandari P, Shrestha BL, Pradhan A, Dhakal A. Pattern of hearing loss among patients attending otorhinolaryngology outpatient department at Kathmandu University Hospital. Otolaryngol Open Access J. 2017;2(2):000153. | DOI |
12. Abutan BB, Hoes AW, Van Dalsen CL, Verschuure J, Prins A. Prevalence of hearing impairment and hearing complaints in older adults: a study in general practice. Fam Pract. 1993;10(4):391-5. | DOI |
13. Rabbani SM, Chowdhury MA, Shumon AM, Yasmeen N, Rashid M, Nuruzzaman M, et al. Pattern and causes of hearing loss among the patients attending in an ENT OPD. Anwer Khan Modern Med Coll J. 2014;5(2):9-13.| DOI | Full Text |
14. Tarafder KH, Akhtar N, Zaman MM, Rasel MA, Bhuiyan MR, Datta PG. Disabling hearing impairment in the Bangladeshi population. J Laryngol Otol. 2015;129(2):126-35. | | DOI |
15. Sharma B, Dahal, MP, Khadka B. Hearing impairment in Nepal. In: Suzuki,JI, Kobayashi T, Koga K. (Eds) Hearing Impairment. Tokyo; Springer-Verlag, 2004. Tokyo. | DOI |
16. Kabir AL, Chowdhury SS, Rahim Z, Sarker MZ, Chakraborty MR. Degree and pattern of hearing impairment among patients attending in audiology department of a tertiary level hospital in Bangladesh. Bangladesh J Otorhinolaryngol. 2017;23(2):115-21.| DOI | Full Text |
17. Goman AM, Lin FR. Prevalence of hearing loss by severity in the United States. Am J Public Health. 2016;106(10):1820-2. | DOI |
18. Turton L, Smith P. Prevalence & characteristics of severe and profound hearing loss in adults in a UK National Health Service clinic. Int J Audiol. 2013;52(2):92-7. | DOI |
19. Asghari A, Farhadi M, Daneshi A, Khabazkhoob M, Mohazzab-Torabi S, Jalessi M, et al. The prevalence of hearing impairment by age and gender in a population-based study. Iran J Public Health. 2017;46(9):1237-46. | PMC