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Original Research Article

Profile and perspectives of patients with hearing impairment: experience of a hearing camp conducted in rural Assam

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ABSTRACT

Background: Hearing aid non-compliance and rejection despite possessing the hearing aid, is widespread among hearing impairment, influenced by diverse factors. There is limited literature on perspectives of patient before enrolling them in hearing aid programmes at health camps. This cross-sectional study explored the socio-demographic profiles and perspectives of patients with hearing impairment towards their hearing problems and hearing aids, who attended a hearing camp in rural Assam.
Methods: A community based cross sectional study was performed among patients attending hearing camp in the rural area of Kamrup district of Assam. Demographic details along with findings of ear, nose and throat examination and audiometry and perspectives of the patients on use of hearing aid were recorded in pre-validated questionnaire.
Results: Out of 96 patients, 56 (62.9%) had hearing difficulties causing communication issues, social inactivity, and irritation among family members. Most attended the camp for free checkups and hearing aids. High treatment costs significantly delayed care for hearing-impaired patients compared to those with normal hearing.
Conclusions: High treatment cost is barrier to use of hearing aid in rural Guwahati, provision of free hearing aid in hearing camps can serve to address this gap. Understanding these barriers and challenges faced by hearing impaired population of the rural population of India is essential to design the implementation of hearing screening and rehabilitation at the community level.

Keywords: Deafness, Hearing aid, Hearing impairment, Hearing loss, Perception

INTRODUCTION

Hearing loss (HL) is a major chronic health problem of concern globally affecting billions worldwide and severely affecting children under 5 years and those older than 70 years.[1,2] WHO data reported that over 5% of world's population are living with hearing loss greater than 35dB i.e., (disabling hearing loss (DHL) that requires rehabilitation.[1] In India, as per census 2011,19% of Indian population had hearing disability affecting elderly age group (more than 60 years) and those belonging to rural area in majority.[3-6]

Despite hearing impairment being a major cause of sensory disability, studies have shown low usage (3-30%) of hearing aids (HA) by affected hearing impaired individuals both in developing and developed countries.[7,8] Factors that influence the usage of HA include age,

education, socio-economic and financial status, knowledge, and awareness about treatment of hearing loss.[8] It also depends on degree of hearing loss, and individuals' belief, attitude and perception towards hearing aid. There are several barriers to use of HA including geographical limited access to hearing care, large family size, lack of family support, stigma of society towards HA, and high cost of HA with varying insurance policy.[9,10]

Most of the studies on the factors and barriers affecting the acquisition of hearing aids were on western population.[7-10] As very limited studies have been found on usage of hearing aid among north eastern population of India and moreover this study will help in understanding the perspectives of people towards hearing aid and the associated stigma. Considering these factors, we reviewed the data recorded on the days of camp and this study has been planned with following objectives:

Primary objective

To describe the socio-demographic profile of patients attending free hearing checkup and hearing aid distribution camp in rural area of Kamrup district of Assam.

Secondary objectives

To describe the difficulties faced by patients and review the recorded perception of patients with hearing impairment towards hearing problem and hearing aids who attended ear and hearing checkup-camp.

METHODS

This study was cross-sectional type with retrospective review of data collected on patients who attended two days community-based hearing camp conducted at peripheral health center in the rural area in Kamrup district of Assam on 15th and 16th November 2022.

Written informed consent was obtained from the participants and patients who provided written informed consent were included in the study, others were excluded. An institutional ethics committee (IEC) approval was obtained.

Perception of the patients on use of hearing aid was recorded in pre-validated questionnaire. Information regarding hearing camp was spread to the villagers with the help of village headman (Gram Pradhan), schoolteachers, ASHA workers (accredited social health activist), and primary health center (PHC) staff. Efforts to spread the message through WhatsApp groups and individual messages were made. Pamphlets on the hearing camp printed in English and local Assamese language were distributed to public prior to conducting the camp. Content of pamphlets included date, venue, eligibility criteria for getting free hearing aid (HA) under assistance to disabled persons for purchase/fitting of aids/appliances (ADIP) scheme. Under revised ADIP scheme, hearing aid were given to Indian citizen of any age holding 40% disability certificate and with monthly income from all sources not exceeding Rs.30,000/- per month.[11]

Demographic details collected included the age, gender, occupation, qualification, type of family, family income, socioeconomic status and source of information about the camp. Educational qualification of patients was noted as per Indian standard classification of education issued by Ministry of Human Resource Development, Government of India.[12] Socioeconomic status of patients was noted as per modified Kuppuswamy socioeconomic scale.[13] Detailed clinical history of patients, ear nose throat (ENT) examination and audiometry findings were recorded. Difficulties due to hearing problems faced by patients and their family members, reason of coming to camp and reasons for the delay in treatment was enquired and noted. Patient views about hearing aids were also noted. The perceptions of patients were recorded including the challenges faced by patients and family members owing to hearing difficulty. Reasons for attending camp, reason for delay in treatment, views about hearing aid and hearing impairment were compared between those detected to have hearing impairment and those without hearing impairment.

Data were entered into Excel sheet and imported to SPSS (29.0 version) software for data analysis. Categorical data were represented as numbers and proportions. Continuous data were presented either in the form of mean (SD) or median (IQR, range). Difficulties faced by patients and their family members of those with and without hearing loss was compared using Chi square test or student t-test. $P<0.05$ was considered significant.

RESULTS

A total of 96 patients attended the camp. The demographic (Table 1) and clinical profile (Table 2) of enrolled patients is outlined. The median (IQR) age of patient was 46 (16.25,60.75) years. Majority (41.7%) had qualification up to upper primary and major proportion (76%) belonged to lower socioeconomic status (Table 1).

Of the 96 patients, 56 (62.9%) had hearing difficulty and 53 (55.2%) of them had documented audiometrically. Out of those audiometrically documented hearing impairment, 11.5% had conductive hearing loss, 36.4% had sensorineural hearing loss and 7.3% had mixed hearing loss. Chronic otitis media (COM) and ear wax were the most common causes of conductive hearing loss and presbycusis was the most common cause of sensorineural hearing loss (Table 2). A statistically significant association was observed among patients having hearing difficulty with respect to their difficulties faced in day-to-day life and communication (Table 3). Also, a statistically significant association was observed among the family members of patients in their day-to-day communication with hearing impaired family member (Table 3).

Table 1: Socio-demographic profile of patients who attended hearing camp.

Demographic data	Number (%)
Total number of patients	96 (100)
Gender	
Male	47 (49)
Female	49 (51)
Age, in years [median (IQR)]	46 (16.25,60.75)
Family type	
Nuclear	34 (35.4)
Joint	58 (60.4)
Orphanage	4 (4.2)
Qualification	
Illiterate	8 (8.3)
Upper primary	40 (41.7)
Secondary	23 (23.9)
Senior secondary	17 (17.7)
Graduate	8 (8.3)
Family income	
Upto Rs 10,000/per month	37 (38.5)
Rs 10,000-20,000	41 (42.8)
Rs 20,000-30,000	13 (13.5)
Rs 30,000-40,000	05 (5.2)
Family income	
<20K/month	53 (55.2)
20-40K/month	8 (8.4)
Not known	35 (36.5)
Occupation	
Professional	03 (3.1)
Shopkeeper/ farmer	6 (6.3)
Skilled worker	8 (8.3)
Semiskilled worker	12 (12.5)
Unskilled worker	21 (21.9)
Unemployed	46 (47.9)
Socio-economic class	
Upper(I)	0
Upper middle (II)	0
Lower middle (III)	3 (3.1)
Upper lower (IV)	20 (20.8)
Lower (V)	73 (76)
Source of information regarding camp	
Social media, pamphlets and banner	8 (8.4)
friends and relatives	38 (39.6)
ASHA workers	20 (20.8)
School teachers, health workers of primary health centre, gram Pradhan of village	30 (31.3)

High cost of treatment was the statistically significant reason for delay in treatment in hearing impaired patients compared to patients with normal hearing (Table 4). Majority of them came to the camp for free ear check-up and for getting free hearing aid.

Our study documented the common perception regarding the usage of hearing aids among hearing impaired, that were cosmetically and socially unacceptable and few of them also had view of difficulty in managing hearing aid. No significant difference was observed regarding views on hearing aid between the two groups (Table 4).

Age, gender and socioeconomic status were found to be the major confounding factors which can be considered as a limitation in our study.

Table 2: Clinical characteristics of patients attending hearing camp (n=96).

Chief complaints for attending the camp	N (%)
Ear and hearing related	89 (92.7)
Nose and throat related	6 (6.3)
Non- ENT complaints	1 (1)
Provisional diagnosis	
Tubotympanic chronic otitis media	24 (25)
Presbycusis	24 (25)
Ear wax	11 (11.5)
Tinnitus with hearing loss	3 (3.1)
Otalgia	7 (7.3)
Sensorineural hearing loss (unilateral/ asymmetrical)	10 (10.4)
Hearing complaint with normal hearing	3 (3.1)
Acute otitis media and other middle ear disease	4 (4.2)
Tonsillo-pharyngeal infections and viral URTI	10 (10.4)
Subtype of ear related complaints	
Hearing difficulty	56 (62.9)
Other ear complaints (earache, discharge, itching, tinnitus)	33 (37.1)
Number of patients with audiometrically documented hearing impairment	53 (55.2)
Pattern of hearing loss on audiometry	
Conductive hearing loss	11 (11.5)
Sensorineural hearing loss	35 (36.4)
Mixed hearing loss	7 (7.3)
Normal hearing and test not required	43 (44.8)
Number of patients who received hearing aid in camp	31 (32.3)

Table 3: Challenges faced by patients, family members and hearing difficulty.

Characteristics	Patients with hearing difficulty complaints (n=56)	Patients with other ear complaints (n=33)	P value
Difficulties faced by patients due to hearing loss			
Difficulty in communication	44	3	<0.001
Social inactivity	19	3	0.01
Loss of work	02	1	0.692
Feeling of embarrassment	11	0	0.006
Difficulties faced by family members			
Repetition of conversation	32	4	<0.001
Irritation	22	5	0.001
Financial burden	05	0	0.06
Disturbance of all family members due to decreased hearing	49	14	<0.001

Table 4: Reasons for attending camp, reason for delay in treatment, views about hearing aid and hearing impairment.

Characteristics	Hearing impaired patients	Normal hearing patients	P value
Reason for attending camp			
For availing free check-up	16	26	<0.001
For availing free hearing aid	29	2	
Consultation with doctors from institute	6	14	
Reason of treatment delay			
High cost of treatment	15	4	0.03
Long queue in hospital	2	1	1
Hospital far away	2	0	0.50

Continued.

Characteristics	Hearing impaired patients	Normal hearing patients	P value
Non-availability of health service	4	1	0.37
Family cannot afford	9	7	0.96
Unaware of treatment	1	0	0.37
Views on hearing aid			
Cosmetically unacceptable	49	40	0.27
Socially unacceptable	3	2	0.61
Difficult to manage	3	2	0.61
Increases hearing problem	1	2	0.41
Improves hearing	1	2	0.41
No idea about hearing aid	8	12	0.11

DISCUSSION

In the present study, majority of patients attending hearing camp presented with complaints related to ear and hearing (92.7%), and two third of them (62.9%) had hearing difficulty of whom half were eligible for hearing aid. Low socioeconomic status and high cost of hearing aid was found to be major limiting factor in our study. Studies by several authors on western population have found low rate of usage of hearing aid ranging from 10-20%.[7] Lower degree of hearing loss, high cost of hearing aid, low socioeconomic status, stigma, low financial support were some important barriers towards low usage of hearing aid, some findings of which matches with findings of our study.[7-9]

Motivating the possible beneficiaries to attend the hearing camp was a major challenge in rural area and in the present experience, information was shared with the help of school teachers, primary health workers, and village headman (Gram Pradhan). They still serve as an important contact in rural India as most of the villagers are still not accustomed to electronic gadget. ASHAs are female community health workers that play vital role in promotive, preventive, curative and rehabilitative healthcare services health care in India under National Health Mission.[14-16] There is no published data on the role of ASHA in providing information related to the hearing related health camp in India.

COM and presbycusis were the commonest cause of hearing impairment in our patients. The common cause of hearing impairment differs among populations of developed and developing countries. Studies on population from developing countries have found COM and ear wax as common cause of hearing loss in children and presbycusis in elderly and also in rural population. But noise induced and aging related hearing loss remains common cause of hearing loss in developed countries.[4,5,17]

In our study, we found that patient with hearing impairment faced problems not only in communication, but also had negative effect on their social and personal life with impact on their family members. Findings of our study corroborate with those of Govender et al and Ciorba et al.[18,19] In study by Govender et al, 74% of the hearing-impaired participants reported reduced quality of life and negative impact on social, psychological and communication aspect due to hearing impairment.[18] 29% of participants in his study demonstrated depression, anxiousness and sense of grief and also caused frustration and anger among their family members. Reduced quality of life (QoL) in people with hearing loss and improvement in QoL was reported after using hearing aid in study by Ciorba et al.[19]

Majority found HA socially acceptable and most patients with hearing loss attended camp for receiving HA. Cosmetic effect of HA was not a barrier to its use, but high cost and low socioeconomic status was the barrier in our study. Population based studies have shown that old age, poor financial status, high cost of hearing aids, rural location, non-availability of health services, negative attitude was some of the main reasons for delay in seeking treatment for hearing impairment.[20-24] But unlike the findings of these studies, our study population even though belonged to rural region, patients and their family members showed positive attitude and views toward HA.

As data on views of rural population of India on hearing loss and aids is limited, findings of our study are unique and important. Moreover, we found a significant impact of community health workers in motivating rural population for specialty health camps in rural part of India. Our study has its own limitations due to small sample size, participants from one geographical region with similar demographic profile and limited information gathered during health camp and results may not be generalizable to another region.

CONCLUSION

Our study brings to light the difficulties and perceptions of hearing-impaired patients from rural part of north-eastern India and the crucial role of community health workers for community-based screening of diseases. Further research is needed in India to gain a better understanding of the factors that influence the approach of the population to seeking hearing health care services and to identify the barriers that deter the use of hearing aids. Early detection through screening of children in

schools and in elderly population and providing rehabilitation for individuals with disabling hearing loss may help to bridge the gaps in treatment.

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