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Self-reported satisfaction with digital hearing aids among older adults in Indian context

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Abstract
Literature from western countries showed many subjects provided with hearing aids are not satisfied and do not use it regularly. There is a dearth of literature regarding satisfaction from the hearing aids among older adults hearing aid users in India. The present study aimed to investigate satisfaction among older adults hearing aid users of India. The present study includes 164 older adults hearing aid users (50-70 years) using hearing aid from 1 to 8 years. Satisfaction with Amplification in Daily Living (SADL) questionnaire was used to evaluate the satisfaction that people feel with their current hearing aids. Finding of the present study revealed satisfaction among older adults hearing aid users. The present study also revealed that older adults hearing aid users are satisfied with cost and services of the hearing aid. From the present study, it was also observed that most of the older adults are concern about cosmetics appearance of the hearing aids.

Keywords: SADL, Satisfaction, Hearing Aid, Amplification Device.

Introduction
Hearing loss is one among the major chronic condition among older adults. According to a study done by Mahroof et al., 2017, reported 13.8% of the older adults has significant hearing loss in India.[1] Among amplification devices, hearing aids are the major management option used by those with permanent sensorineural hearing loss. Previous literature has also reported that hearing aids are known to reduce negative consequence of hearing impairment.[2] Earlier studies have also reported hearing impairment in older adults can cause negative consequences on emotional, cognitive and social function.[3,4] Even though, hearing impairment is highly prevalent in older adults and can be successfully managed by hearing aids, the acceptance and use of hearing aid is still poor. Previous researchers reported that a large portion of older adults who could benefit from hearing aid do not wear them.[5,6] Literature from western countries showed many subjects provided with hearing aids are not satisfied and do not use it regularly.[5] There is a dearth of literature regarding satisfaction from the hearing aids among older adults hearing aid users in India. The present study aimed to investigate satisfaction (positive effect, service and cost, negative features and personal image) among older adults hearing aid users of India.

Methods
The present study includes 164 older adults hearing aid users (50-70years) using hearing aid from 1 to 8 years. All the participants having hearing loss range between mild to severe sensorineural hearing loss were recruited from two audiology clinics at Gurgaon. All the participants were using digital hearing aids with advanced features either monoaurally or binaurally. Participants with any middle ear pathology and fluctuating hearing loss were excluded from the study. All the participants were capable of responding to questionnaire-verbal/written. Verbal and written consent were taken from all participants before administration of questionnaire.

Satisfaction with Amplification in Daily Living (SADL) questionnaire was used to evaluate the satisfaction that people feel with their current hearing aids.[7] SADL includes a total of 15 questions with 7-point rating scale (not at all to tremendously) i.e. not at all, a little, somewhat, medium, considerably, greatly and tremendously. The questions were based on 4 different categories i.e. positive effect, service and cost, negative features and personal image. The category "positive effect" includes 6 questions, "service and cost" includes 3 questions, "negative features" includes 3 questions and "personal image" includes 3 questions. The questions in "positive effect" includes 'Compared to using no hearing aid at all, do your hearing aids help you understand the people you speak with most frequently?', 'Are you convinced that obtaining your hearing aids was in your best interests?', 'Do your hearing aids reduce the number of times you have to ask people to repeat?', 'Do you think your hearing aids are worth the trouble?', 'Does wearing your hearing aids improve your self-confidence?'. The questions in "service and cost" includes 'How competent was the person who provided you with your hearing aids?', 'Does the cost of your hearing aids seem reasonable to you?', 'How pleased are you with the dependability (how often they need repairs) of your hearing aids?'. Question related to "negative features" includes 'Are you frustrated when your hearing aids pick up sounds that keep you from hearing what you want to hear?', Are you bothered by an inability to get enough loudness from your hearing aids without feedback (whistling)?,

'How helpful are your hearing aids on MOST telephones with NO amplifier or loudspeaker?'. Questions related to 'personal image' includes 'Do you think people notice your hearing loss more when you wear your hearing aids?', 'How content are you with the appearance of your hearing aids?', 'Do you think wearing your hearing aids makes you seem less capable?'. All the questions were translated in Hindi language and reverse translation was carried out make sure that the meaning of the content remains the same. These translated questions in Hindi were proofread by 10 native speaker of Hindi as well as having knowledge of English too. Later, the same questionnaire was used for the participants under close supervision of two audiologists having master degree in Audiology. The percentages and proportions of different categories of questionnaires was used to analyze the data. Spearman's correlation was used check any correlation between different questions. SPSS (Version 21) was used for data analysis.

Results

The percentages and proportions of different categories of questionnaires described under different headings are based on the rating scale.

Positive Effect: For the question 'Compared to using no hearing aid at all, do your hearing aids help you understand the people you speak with most frequently?', 76% of the subject responded as medium whereas 24% of the subject responded as greatly. Similarly, for the question 'Are you convinced that obtaining your hearing aids was in your best interests?', 63% of the subject responded as greatly whereas 37% of the subject responded as medium. For the question 'Do you think your hearing aids are worth the trouble?', 51% of the subject responded as greatly and 37% of the subject responded as medium. The response for the question 'Does wearing your hearing aids improve your self-confidence?', 54% of the subject responded it as greatly and 27% marked medium. Regarding naturalness of the sound from the hearing aid, mixed response was observed, where 32% and 34% rated it as greatly and medium respectively, whereas 34% rated it as not at all. From the above finding, it was observed that subjects were satisfied with the positive effect of hearing aid in daily life situations and most of the subjects are finding their hearing aid a useful device for their communication.

Service and Cost: Regarding competence of the service provider, 61% of the subjects rated greatly, whereas 29% of the subject rated it as medium, which shows that most of the respondents are satisfied with their audiologists. For the question regarding reasonable rate of hearing aid, 90% of the subject found to be satisfied with the cost of the hearing aid. For the question 'how often they need repairs', 95% people reported that their hearing aid require repairing frequently.

Negative Features: For the question "Are you frustrated when your hearing aids pick up sounds that keep you from hearing what you want to hear?" mixed response was observed where 46% rated it as not at all, whereas, 32% and 22% subject rated it as greatly and medium respectively. For the question related to bothersome due to whistling noise in hearing aid, 45% of the subject rated not at all, whereas, 55% of the subject were bother of whistling noise from their hearing aid. For the question regarding usefulness of hearing aid while using telephone/mobile, 86% of the subject was satisfied with the performance of hearing aid while using telephone/mobile. From the above results, it was found that a good percentage of subject are frustrated from unwanted sound picked by hearing aid, whereas, most of the subjects were satisfied with the use of their hearing aid during telephonic conversation.

Personal Image: The question "notice your hearing loss more when you wear your hearing aids" 24% of the subject rated it as greatly and 66% of the subject rated it as medium. For the question like 'How content are you with the appearance of your hearing aids?' 78% of the respondents found to be content with the appearance of their hearing aid. For a similar question 'Do you think wearing your hearing aids makes you seem less capable?', 49% of the population reported not at all, whereas, 27% and 24% reported it as greatly and medium respectively. Finding of the 'personal image' showed that most of the subject are concern with the cosmetic appearance of your hearing aids.

Correlation between Different Questions: Spearman correlation showed strong positive correlation found between questions related to positive effect, which shows use of hearing aid boosts confidence among users and improve naturalness of sounds. Similarly, strong positive correlation was observed between questions related service and cost shows patients are satisfied with their audiologists and cost-effectiveness of hearing aid. Moderate positive correlation was observed between questions related to negative features revealed subjects who were frustrated from the unwanted sound picked up by the hearing aid were also annoyed by whistling sound from the hearing aid.

Discussion

Positive Effect and Service and Cost: From overall finding of the present study, it was observed that subjects were satisfied with the positive effect of hearing aid in daily life situations and most of the subjects are finding their hearing aid a useful device for their communication. According to Kochkin (2005) eighty-five percent of consumers are satisfied with the ability of their instruments to improve their hearing, meaning they are deriving tremendous benefit.[8] In a similar line, Kochkin in 2010[9] demonstrated that customer satisfaction have increased 5.5% points to 78.6%. Whereas, in the current study, for few questions

negative response was also given by subjects i.e. most of the subjects were not much satisfied with the hearing aid in terms of understanding speech of others, as only 24% rated it as greatly and only half of the total number of subjects found that hearing aids were not effective in improving confidence, which shows poor positive effect. Regarding capability of the audiologist, 61% of the subjects rated greatly, whereas 29% of the subject rated it as medium, which shows that most of the subjects were satisfied with their audiologists. Present study showed that most of the subjects found to be satisfied with the cost of the hearing aid but they reported frequent repairing of the hearing aids.

Negative Features and Personal Image: Almost 50% of the subjects were frustrated from unwanted sounds, which is in consonance with previous literature.[10,11] According to present study most of the subjects were satisfied with the use of their hearing aid during telephonic conversation, which showed improvement in technology in hearing aid industry. Most of the subjects were annoyed of whistling sound (feedback) from the hearing aid. Almost all subjects reported that listeners noticed their hearing loss more when they wear hearing aids. A good percentage of subjects were content with the appearance of the hearing aid. Brooks in 1994 reported that primary factor both in terms of reason for purchase and perceived benefit was the greater cosmetic acceptability.

Conclusion

Finding of the present study revealed satisfaction among older adults hearing aid users. The present study also revealed that older adults hearing aid users are satisfied with cost and services of the hearing aid. From the present study, it was also observed that most of the older adults are concern about cosmetics appearance of the hearing aids.

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