

## Perception of Associates and Self Regarding Hearing Handicap Above Age 50.

SUKANYA AUDDY<sup>1</sup>, PALASH DUTTA<sup>2\*</sup>, PRINCE KUMAR<sup>3</sup>, ASHOK KUMAR SINHA<sup>4</sup> AND HIMANSHU KUMAR<sup>5</sup>

<sup>1</sup>Under graduate trainee in Audiology and Speech Pathology, ALI YAVAR JUNG NATIONAL INSTITUTE FOR THE HEARING HANDICAPPED, EASTERN REGIONAL CENTRE, B.T.ROAD, NIOH CAMPUS, BONHOOGHLY, Kolkata-90.

<sup>2</sup>Lecturer (speech and hearing), ALI YAVAR JUNG NATIONAL INSTITUTE FOR THE HEARING HANDICAPPED, EASTERN REGIONAL CENTRE, B.T.ROAD, NIOH CAMPUS, BONHOOGHLY, Kolkata-90.

<sup>3</sup>Under graduate trainee in Audiology and Speech Pathology, ALI YAVAR JUNG NATIONAL INSTITUTE FOR THE HEARING HANDICAPPED, EASTERN REGIONAL CENTRE, B.T.ROAD, NIOH CAMPUS, BONHOOGHLY, Kolkata-90

<sup>4</sup>Director, ALI YAVAR JUNG NATIONAL INSTITUTE FOR THE HEARING HANDICAPPED, MUMBAI

<sup>5</sup>Lecturer (speech and hearing), ALI YAVAR JUNG NATIONAL INSTITUTION FOR THE HEARING HANDICAP, B.T.Road, BON HOOGHLY, Kolkatta- 90

*\*Corresponding Author*

**ABSTRACT:** Individuals with deteriorating hearing due to presbycusis should understand the nature and extent of their handicap. One way to investigate this phenomenon is to compare an individual's assessment of his/her own hearing handicap with the assessment of that handicap by a spouse or close associate. Various scales were developed for this assessment such as Mc-Carthy-Alpiner Scale of Hearing Handicap (M-A Scale: Mc-Carthy & Alpiner, 1983), Self-Assessment of Communication (SAC: Schow & Nerbonne, 1982), Hearing Performance Inventory (HPI: Lamb, Owens, & Schubert, 1983), and Communication Profile for the Hearing Handicap (CPHI: Demorest & Erdman, 1987). The purpose of this study were to investigate the relationship between the self-report of hearing handicap by a group of older adults and by associates and also to compare the handicap based on pure tone threshold data. Adults over age 50 were selected for this study. The number of subjects selected for the study was 32 (male=19, female=13). The Hearing Handicap Scale (HHS) developed by High, (1964) was used as the questionnaire to assess perceptions of hearing handicap by the subjects & their associates. Statistical analysis of the obtained data was done where the perception of handicap in between male and female was compared through Hearing Handicap Scale. When the data were analysed by gender groups (male subject female associates and female subject male associates) significant difference in perception of hearing handicap was not evident. With the increasing degree of hearing loss the perception of handicap according to the score of the questionnaire also increases.

**KEY WORDS:** Hearing handicap, degree of hearing loss, gender differences, Hearing Handicap Scale (HHS).

### INTRODUCTION:

Hearing loss also known as hearing impairment, is a partial or total inability to hear. Hearing loss may occur in one or both ears. In some people, particularly older people, hearing loss can result in loneliness. Hearing loss can be temporary or permanent. Hearing loss may be caused by number of factors, including: genetics, ageing, exposure to noise, some infections, birth complications, trauma to the ear, and certain medications or toxins. A common condition that results in hearing loss is chronic ear infections. Certain infections during pregnancy such as rubella may also cause problems. Hearing loss can be categorised as mild, moderate, severe, or profound. Half of hearing loss is preventable. This includes by immunisation, proper care around pregnancy, avoiding loud noise, and avoiding certain medications. Hearing loss exists when there is diminished sensitivity to the sounds normally heard. The terms hearing impaired or hard of hearing are usually reserved for people who have relative insensitivity to sound in the speech frequencies. The severity of a hearing

loss is categorized according to the increase in volume above the usual level necessary before the listener can detect it. The degree of hearing loss are mainly categorised into mild, moderate, moderately severe, severe and profound. The type of hearing loss are mainly classified into three such as sensorineural, conductive and mixed hearing loss.

Another aspect of hearing involves the perceived clarity of a word rather than the amplitude of sound made by the word. In humans, that aspect is usually measured by tests of speech perception. These tests measure one's ability to understand speech, not to merely detect sound. There are very rare types of hearing loss which affect speech perception alone. Hearing loss is among the most prevalent conditions affecting older adults<sup>8, 11, 15</sup>. The reported prevalence rate for hearing loss in older listeners varies somewhat, depending on the adopted definition of hearing loss, including the selection of test frequencies that are included in the algorithm used to define hearing loss. Regardless of the hearing loss definition, however,

hearing impairment is a common problem for many older adults. In a most recent epidemiologic study of hearing loss in older adults, for example, it was<sup>8</sup> reported prevalence rates for hearing loss in adults ranging in age from 48 through 92 years. Across all ages, the prevalence of hearing loss approximated 46 percent; the prevalence of hearing loss increased with age and was greater for men than for women. Indeed, there is evidence suggesting that the prevalence of hearing loss in older adults (65 years of age and older) is on the rise.<sup>19</sup> Although we have considerable data, including recent findings from larger epidemiologic studies<sup>8, 11, 15</sup> documenting hearing loss or impairment across age and gender in older adults, there are considerably fewer data available regarding self-perceived hearing handicap or disability associated with the hearing loss in old age. This is an important issue because different measures are required for the evaluation of hearing impairment and hearing handicap or disability<sup>27, 28</sup>. Further, persons with hearing impairment may or may not report a significant self-perceived hearing handicap in their daily lives. The concept of hearing handicap or disability requires consideration of issues that extend beyond the audiogram used for classification of hearing impairment. As noted<sup>27, 28</sup>, "there is an imperfect relationship between hearing handicap (however measured) and hearing impairment."

There is a progressive loss of ability to hear high frequencies with ageing known as presbycusis. For men, this can start as early as 25 and women at 30. Although genetically variable it is a normal concomitant of ageing and is distinct from hearing losses caused by noise exposure, toxins or disease agents. While everyone loses hearing with age, the amount and type of hearing lost is variable. Individuals with deteriorating hearing due to presbycusis or other causes should understand the nature and extent of their handicap if they are able to take action to preserve optimal communicative effectiveness. However audiologists report that older people often come for hearing evaluation primarily at the request of a spouse or other family member and in answer to questions concerning hearing difficulties frequently reply, "My wife (husband /daughter) says I have a hearing problem." The reported prevalence rate for hearing loss in older listener varies somewhat, depending on the adopted definition of hearing loss including the selection of test frequencies that are included in the algorithm used to define hearing loss. Regardless of the hearing loss definition, however, hearing impairment is a common problem for many older adults. In a most recent epidemiologic study of hearing loss in older adults, for example,<sup>8</sup> reported prevalence rates for hearing loss in adults ranging in age from 48 through 92 years. Across all ages, the prevalence of hearing loss approximated 46 percent; the prevalence of hearing loss increased with age and was greater for men than for women. Indeed, there is evidence suggesting that the prevalence of hearing loss in older adults (65 years of age and older) is on the rise<sup>19</sup>.

It is possible that a hearing impairment is more apparent to close associates than to the person with the problem. The extent to which the individuals fail to recognize their own hearing handicaps, underestimate or deny their severity is valuable information for use in aural rehabilitation with hearing impaired patients and their families. One way to investigate extent of this phenomenon is to compare an individual's assessment of his/her own hearing handicap with the assessment of that handicap by a spouse or close associate. Self-efficiency is a key concept in<sup>5</sup> social cognitive theory. It is defined as the belief in one's ability to perform certain tasks, the willingness to initiate certain behaviours and preservice in spite of barriers and conflicts.<sup>5</sup> There are various personal factors such as level of motivation and preservice in the face of difficulties and setback, resilience to adversity, casual attributions for successes and failures, and vulnerability to stress and depression.

A number of different instruments for self-assessment of hearing handicap have been developed over the past 30 years<sup>21</sup>. Only a limited number of these instruments, however, have been designed and standardized exclusively for use with an older adult population. For the use of audiologists<sup>1, 12, 27, 28</sup> these instruments have been useful in investigating the relationship between individual's assessment of his/her handicap & various audiometric measures<sup>6, 7, 16, 27, 28</sup>. Self-assessment inventories can serve a variety of purposes. As a consequence, counselling of individuals with impaired hearing continuous to be based largely upon the degree of handicap experienced by individual with hearing impairment cannot be predicted from audiometric results alone.<sup>7, 27, 28</sup> Examples of such tests are Mc-Carthy-Alpiner Scale of Hearing Handicap (M-A Scale)<sup>14</sup>, the Self-Assessment of Communication (SAC)<sup>23</sup> and the Communication Profile for the Hearing Handicap Inventory (CPHI)<sup>10</sup>. A hearing handicap inventory for the elderly (HHIE), was developed<sup>27, 28</sup> to assess the social and emotional effects of hearing impairment on the non-institutionalised older person. It has excellent statistical characteristics and has been used widely to evaluate hearing aid use in older adults<sup>18</sup>. The emotional section assesses client's attitudes and emotional response to the hearing impairment. The social scale evaluates perceived effects of hearing loss in verities of situation. Other scales that have been developed for older adults include the Denver Scale of Communication Function for Senior Citizens Living in Retirement Centres (DSSC)<sup>1</sup>, the Nursing Home Hearing Handicap Index<sup>21</sup> and the Communication Assessment Procedure for seniors<sup>2</sup>. These three scales were designed for older adults who live in institutionalized settings. Many older adults with hearing loss are educationally and socioeconomically advantaged and live independently. Therefore, the appropriateness of these three scales for the larger group of older adults who live independently is not clear. Furthermore, because the scales have been neither standardized nor evaluated for

reliability, their use to evaluate change over time is questionable. The Communication Scales for Older Adults (CSOA) were developed at Gallaudet University as a tool to provide in-depth information about the effects of aural rehabilitation therapy on daily life. One of the scales evaluates communication strategies and the other evaluates how clients feel about having hearing loss, their adjustments to changed communication, and their perceptions of how others react to them as people with hearing loss. For example, significantly relationship have been consistently demonstrated between the hearing handicap scale<sup>13</sup> and measures of auditory sensitivity such as mid frequency (0.5, 1, 2 KHz), PTA & SRT.

Use of the Hearing Handicap Scale as a measure of hearing aid benefit was investigated. New hearing aid users with bilateral, sensorineural hearing losses ranging from 5 dB HL to 55 dB HL served as subjects. Changes in speech reception threshold, word identification, and Hearing Handicap Scale were derived by comparing data obtained prior to hearing aid use with that obtained following four weeks of hearing aid use. Results showed a significant improvement for all three measurements and indicated that improvement in word identification presented at conversational level was more related to self-reported hearing aid benefit than was improvement in speech reception threshold. Also, word identification ratings obtained with the stimuli presented at conversation speech level produced a significant correlation with Hearing Handicap Scale scores.

The relation between Hearing Handicap Scale (HHS) scores and selected measures of both sensitivity loss and speech discrimination loss was studied on 60 hearing-impaired patients (5 conductive, 6 mixed, and 49 sensorineural). Correlations of HHS with sensitivity indices were moderately high (about 0.65), in contrast to the low correlations (about 0.35) with measures of discrimination. Use of a new index that incorporates information about both sensitivity and discrimination yielded a correlation no higher than the sensitivity measures alone.

Gender difference in auditory function with age is well documented. However, little is known about the influence of interacting sensory, psycho-social, and economic variables on adjustment to hearing loss. Adjustment to acquired, mild-to-moderate hearing loss by advantaged older women and men was examined using the Communication Profile for the Hearing Impaired (CPHI)<sup>10</sup>. Correlational analyses revealed relationships between scales to be similar for women and men. Controlling for socio-demographic and hearing variables, group responses for the majority of CPHI scales did not differ significantly. Six scales differed significantly, and those results are discussed. When compared to men, women assigned greater importance to effective social communication, were more likely to use nonverbal communication strategies, reported greater anger and stress, and reported greater problem awareness and less denial associated

with hearing loss. The CPHI is a useful tool for specifying parameters of perceived communication handicap for both older men and women. Findings underscore the need to consider gender-specific self-assessment of communication and personal adjustment in clinical management of older adults with age-related hearing loss.

**The purpose of this study** were to investigate the relationship between the self-report of hearing handicap by a group of older adults and the assessment of their handicaps by associates and also to compare the handicap based on pure tone threshold data. The hearing handicap scale (HHS) was administered to adults over the age of 50 years. A spouse or other associate also assessed the subject's hearing handicap by completing the HHS for the subject.

## METHODOLOGY:

Adults over age 50 were selected for this study. The number of subjects selected for the study was 32 (male=19, female=13). All subjects were reasonably good health. No attempt was made to control the type, extent or onset of the subject hearing loss.

The Hearing Handicap Scale (HHS)<sup>13</sup> was used as the questionnaire to assess perceptions of hearing handicap by the subjects & their associates. The hearing handicap scale was converted into Bangla and was given to five audiologists. It was tested for its validity and reliability by cron bach alpha. The HHS contains 10 questions concentrated primarily on day to day communication experiences involving spoken language which is applied to male subjects with female associates and vice versa. The respondent indicates on a seven point scale how well he/she understands speech in a specific situation described in each question. Directions for completing the HHS were specific, and extra help was given when a participant had difficulty understanding a question. The HHS for each subject and associate was scored and the total score was converted into percentage of the respective select score.

## RESULT:

Statistical analysis of the obtained data was done where the perception of handicap in between male and female was compared where the p value was found to be <0.5 indicating no significant difference in between both the genders. The mean score for the pure tone thresholds and questionnaires for the moderate degree of hearing loss was found to be 52.2 and 17.3 and standard deviation was found to be 2.6 and 4.2 respectively.

For moderately severe degree of hearing loss the mean value for pure tone threshold and questionnaire was found to be 63.96 and 33.6 and standard deviation to be 4.5 and 6.2 respectively.

For severe degree of hearing loss the mean value for pure tone threshold and questionnaire was found to be 85.0 and 33 and standard deviation to be 4.7 and 4.1 respectively.

For profound degree of hearing loss the mean value for pure tone threshold and questionnaire was found to be 101.0 and 36 and standard deviation was found to be 9.6 and 6.9 respectively.

### DISCUSSION:

Based on the clinical audiologists, the older adults underestimate the extent of the hearing handicap compared to the estimate to those handicaps by close associates. Analysis of data in this study did not support this generalization. Perception hearing handicap of older person increases with increasing hearing loss has been also found<sup>19</sup> however, the difference between males and females cannot be explained on the basis of age because both groups were similar in that respect.

However, when the data were analysed by gender groups (male subject female associates and female subject male associates) significant difference in perception of hearing handicap was not evident. A study suggested<sup>9</sup> that a 40 years old working individual may find a mild hearing loss to be a significant handicap in his or her rigorous work environment and interactions.

With the increasing degree of hearing loss the perception of handicap according to the score of the questionnaire also increases. A drastic variation was observed in the mean value obtained for moderate and profound degree of hearing loss and a marked difference in hearing handicap index was observed in profound degree as compared to other degree of hearing loss such as moderate, moderately severe degree of hearing loss. The limitation of the study was less number of sample were taken.

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