



## HEARING IMPAIRMENT: A MATTER OF CONCERN IN ELDERLY POPULATION

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### ABSTRACT

**Background:** Age-related hearing loss most often occurs in both ears, affecting them equally. Hearing loss can also make it hard to enjoy talking with family and friends, leading to feelings of isolation. **Methods:** For hearing assessment, all the participants were first administered the whisper test. Those who fail the whisper test were examined with Rinne's test and Weber's test for hearing status, using a 512 Hz tuning fork. Hearing impairment is defined as conductive and/or sensori-neural deafness of both ears as assessed by Whisper test, Weber's test and Rinne's test (using 512 Hz tuning fork). **Results:** The prevalence of hearing impairment was found to be **12.8%** in the study population more in males (15.1%) as compared to females (10.9%). Maximum prevalence of 46.6% was noted in males of 80 & above age group while it was 31.2% for females in the same age group. **Conclusion:** The Govt. should effectively plan health care services focussing on elderly and prepare a feasible implementation design which is relevant to country needs.

**KEYWORDS:** Hearing impairment, Elderly.

### INTRODUCTION

An elderly person is defined as a person who is of age 60 years or above as per the 'National Policy on Older Persons' adopted by the Government of India in 1999.<sup>[1]</sup> In India with majority of its population aged less than 30, the problems and issues of its grey population has not been given serious consideration and only a few studies on them have been attempted in our country.

Maintaining health of the elderly is very significant for any country and it holds special importance in India as many of them have to continue to work even when they becomes senior citizens, so good health is what can keep them and their families going on. However, paradoxically many poor old people have very limited access to the health services.

In India, the elderly people suffer from dual medical problems, i.e. both communicable as well as non communicable diseases. This is further compounded by impairment of special sensory functions like vision and hearing and difficulties in performing their routine daily activities. Very old people, due to their reduced mobility and debilitating disabilities, need other people to do

things for them. With the increasing trend of nuclear families in the society and with fewer children in the family, the care of older persons in the families gets increasingly difficult.<sup>[2]</sup>

Age-related hearing loss most often occurs in both ears, affecting them equally. Because the loss is gradual, if a person has age-related hearing loss he/she may not realize that they have lost some of their ability to hear. Hearing loss can also make it hard to enjoy talking with family and friends, leading to feelings of isolation.<sup>[12, 13]</sup>

Most of impairments can be prevented by strengthening the preventive and rehabilitative services. Since the consequences of disability can seriously affect the economic, social and psychological aspect of life of older people with disabilities and also their families and communities as well, it is found to be a major health concern among older people.

### MATERIALS AND METHODS

**STUDY TYPE:-** Observational study

**STUDY DESIGN:-** Community based cross-sectional

study.

### STUDY AREA & PERIOD

The Community based cross- sectional study was carried out in Palam area of west Delhi from January to December 2016 which is one of the field practice area of Community Medicine Department, Lady Hardinge Medical College, New Delhi.

### METHODOLOGY

A semi-structured interview schedule was administered to all the study subjects for obtaining socio-demographic details. Sample size was calculated using the prevalence of 24.7% of hearing impairment<sup>[2]</sup>, absolute error of 5%, (confidence interval=95%, power=80%). Taking design effect of 1.25 and response rate of 90%, the effective total sample size was 350. In Palam village, elderly population is around 960 of the total population which is around 10700, (2015). First house was selected randomly and subsequent houses were selected by systematic random sampling (every 2nd house was taken to choose the study subjects). People aged more than 60 years of both sexes in the study area and willing to participate

were included in the study. While people more than 60 years of age who are known case of psychiatric disorder and those who refuse to give informed consent were excluded from the study. To get the total sample size of 350 elderly, a total of 418 households were screened.

For hearing assessment, all the participants were first administered the whisper test. Those who fail the whisper test were examined with Rinne's test and Weber's test for hearing status, using a 512 Hz tuning fork. Based on these tests, it was determined if bilateral hearing impairment is present or not. Hearing impairment is defined as conductive and/or sensorineural deafness of both ears as assessed by Whisper test, Weber's test and Rinne's test (using 512 Hz tuning fork).<sup>[3]</sup>

Data entered in proforma subsequent to interview was checked for correctness manually before entering them into a spreadsheet database created and analysis which was done using Statistical Package for Social Sciences (SPSS version 19)

### OBSERVATIONS AND RESULTS

**Table 1: Socio-demographic characteristics of the study population.**

Characteristics	Sex of the subject		Total N=350
	Male n=166	Female n=184	
<b>Age (in years)</b>			
60-69	107(64.5)	124(67.4)	231(66.0)
70-79	44(26.5)	44(23.9)	88(25.1)
80 & above	15(9.0)	16(8.7)	31(8.9)
<b>Religion</b>			
Hindu	158(95.2)	174(94.6)	332(94.9)
Muslim	5(3.0)	8(4.3)	13(3.7)
Sikh	3(1.8)	2(1.1)	5(1.4)
<b>Educational status</b>			
Illiterate	37(22.3)	128(69.6)	165(47.1)
Primary school	38(22.9)	17(9.2)	55(15.7)
Middle school	15(9.0)	7(3.8)	22(6.3)
High school certificate	44(26.5)	20(10.9)	64(18.3)
Intermediate/ post high school diploma	16(9.6)	7(3.8)	23(6.6)
Graduate/ post graduate	14(8.4)	4(2.2)	18(5.1)
Professional	2(1.2)	1(0.5)	3(0.9)
<b>Marital status</b>			
Married	134(80.7)	106(57.6)	240(68.6)
Unmarried	1(0.6)	0(0.0)	1(0.3)
Widow/ Widower	31(18.7)	78(42.4)	109(31.1)

\*Figures in bracket represent column percentage

- The study population consisted of 166 (47.4%) males and 184 (52.6%) females. Among the males 64.5% were distributed in the age group 60-69 years and only 9% were in 80 & above age group. Whereas for females it was 67.4% and 8.7% for the same age group.
- Mean age of the study subjects was  $67.40 \pm 6.63$  years, Range is 60-93 years
- On the basis of religion, it was seen that majority of the study subjects (94.9%) were Hindu while 3.7% were Muslims and 1.4% were Sikhs.

- On the basis of educational status it was seen that majority of the study subjects (47.1%) were illiterate. Among males, 22.3% were illiterate and 22.9% had education up to primary school and 8.4% were having graduate / post graduate degree. Among females 69.6% were illiterate, only 9.2% had education up to primary school and 5.1% were having graduate / post graduate degree.
- There were 80.7% of currently married males compared to 57.6% of currently married females and 42.4% of females were widows compared to 18.7% males who were widowers. However there were 0.6% of never married males compared to none amongst females.

**Table 2: Distribution of hearing impairment in study population according to age and sex.**

Age group	Distribution of Hearing impairment					
	Male		Female		Total	
	n	Present	n	Present	N	Present
60-69	107	9(8.4)	124	10(8.1)	231	19(8.22)
70-79	44	9(20.5)	44	5(11.4)	88	14(15.9)
80 & above	15	7(46.6)	16	5(31.2)	31	12(38.7)
<b>Total</b>	166	25(15.1)	184	20(10.9)	350	45(12.8)

- The prevalence of hearing impairment was found to be 12.8% in the study population more in males (15.1%) as compared to females (10.9%).
- Maximum prevalence of 46.6% was noted in males of 80 & above age group while it was 31.2% for females in the same age group.

## DISCUSSION

The global demographic trend tells us that with the passage of time, the countries have experienced ageing of population which has profound social, economic and political implications for a country. The increasing number of older persons put a strain on health care and social care systems in the country as growing age leads to various disabilities and thereby increasing their health care needs also. To face the challenges of ageing population, the country needs to be well prepared.

The study population consisted of 350 elderly out of which 166 (47.4%) were males and 184 (52.6%) were females giving a sex ratio of 1108, in favour of females matching with the population census 2011 data in which the sex ratio among elderly people was found to be 1033.

As in present study and studies done by Gupta P et al (2011-12),<sup>[2]</sup> Konjengbam S et al (2003)<sup>[4]</sup> and Goswami A et al (1998-99),<sup>[5]</sup> similar findings were seen on the basis of marital status of the study subjects (Table 1). The very low percentage of never married elderly can be attributed to almost universal following of institution of marriage in India.

Nearly half of the study subjects (Table 1) were illiterate and illiteracy was more among females, similar to other studies done in India.<sup>[6,7,8]</sup> Majority of the study subjects were living with their families (Table 3) and similar findings were noted in the study conducted by Konjengbam S et al (2003)<sup>[4]</sup> and Venkatarao et al (1998-99).<sup>[9]</sup>

As regards working status, majority of the study subjects were unemployed. It is somehow reflecting the financial status of the elderly as majority of them were financially dependent (partially/fully). Similar findings were seen in National Sample Survey, Sixtieth Round (January - June 2004)<sup>[10]</sup> and in the study done by Venkatarao et al (1998-99).<sup>[9]</sup> It is to be noted that of the financially independent females, majority of them were receiving old age pension or widow pension.

An increasing trend in prevalence was seen with increase in age and was Gupta P et al (2011-12) reported higher prevalence of functional disability (24.7%) than our study using the same definition criteria for Hearing impairment. Since the study was conducted in rural area of Haryana, so lack of available health care facilities could be the reason behind higher prevalence found by them.<sup>[2]</sup>

Prevalence of hearing impairment as assessed by whisper voice test and Rinne's test and Weber's test was observed to be 12.8% in the present study. There is difference in the prevalence of hearing impairment in present study and other studies because of difference in the study instruments used to measure hearing impairment in the study subjects. In a study done by Lasisi et al (2010) prevalence of self reported hearing impairment was observed to be 6.1%.<sup>[11]</sup> Prevalence of hearing impairment was 33.5% in persons aged 60 years and above in Khandekar et al study using screening audiometer.<sup>[12]</sup> Deepthi R et al (2011) reported 24.6% of the elderly had disabling hearing impairment using pure tone audiometry.<sup>[13]</sup>

## CONCLUSION

The concerned health care providers need to recognize any kind of impairment as early as possible in order to halt its progression towards disability with special attention to those elderly living alone or with no caregivers for them. The Govt. should effectively plan

health care services focussing on elderly and prepare a feasible implementation design which is relevant to country needs.

### Recommendations

- Elderly living without families or under difficult conditions should be identified in the community and proper care should be provided to them with the help of health workers.
- Elderly in need of Hearing Aids should be identified and should be provided with them starting from the primary health centre level only.
- The health policies and programmes running for the welfare of the elderly must adopt a life cycle approach which tackle health problems from the beginning and enable people to grow older with minimum of disabilities.
- Although many Non Government Organizations like Help Age India, Agewell Foundation etc. are working but more NGO's should be encouraged to serve in the field of elderly care.

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