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Community Medicine

# VISUAL DISABILITY AND ITS CORRELATES AMONG ELDERLY: AN OBSERVATIONAL STUDY

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**ABSTRACT** **Background:** In the context of rapid aging of the population, maintaining good vision in the elderly represents a promising prevention track, visual impairment being common in the elderly, largely undermanaged, and mostly reversible. **Methods:** A semi-structured interview schedule was administered to all the study subjects for obtaining socio-demographic details. Visual acuity of the study subjects was assessed by using Snellen's distance vision chart. Visual disability defined as presenting visual acuity of <6/60 in the better eye.[5] **Results:** The prevalence of visual disability was found to be 6.3% in the study population. Prevalence was less among elderly who were financially independent and with education of primary school and above as compared to those who were financially dependent either partially or fully and among illiterates. The association was found to be statistically significant. **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.

**KEYWORDS :** Visual disability, Elderly

## INTRODUCTION

Old age is not a disease in itself but makes the person more vulnerable to chronic diseases and may lead to visual, hearing impairments and affecting their ability to perform their routine daily activities making the person dependent on others.

From 5.6% in 1961, the proportion of elderly population has increased to 8.6% in 2011.[1] According to population census 2011, there are nearly 104 million elderly persons (aged 60 years or above) in India; 53 million females and 51 million males.[1]

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.

Health of the elderly people is further compounded by impairment of special sensory functions like vision and hearing leading to 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.[2]

In the context of rapid aging of the population, maintaining good vision in the elderly represents a promising prevention track, visual impairment being common in the elderly, largely under managed, and mostly reversible. Globally, uncorrected refractive errors are the main cause of visual impairment. Cataract remained the leading cause of blindness in middle and low income countries.[3]

People with disabilities have the same general health care needs as others but they are more likely to find health care services and facilities inadequate. Making all health care services accessible to people with disabilities is achievable and will reduce unacceptable health disparities in concerned field.

## 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 9% of visual disability[4], 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.

Visual acuity of the study subjects was assessed by using Snellen's distance vision chart. The vision was recorded at a distance of 6 meters separately for each eye with distant glasses if any, the participants were categorized as having vision <6/60 or ≥6/60. Visual disability defined as presenting visual acuity of <6/60 in the better eye.[5]

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)

**Working Definitions Used:-**

- **Elderly:-** 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.[6]
- **Educational level:-** It refers to the stage of educational attainment, the highest level person has completed successfully.
- **Financially Independent:-** A person was considered to be financially independent if his/her source of income from either source was perceived to be sufficient to maintain them.
- **Partially dependent:-** A person was considered to be partially dependent if his/her source of income from either source was not perceived to be sufficient to maintain them.
- **Fully dependent:-** A person was considered to be fully dependent

if he/she had no source of income from either source and was totally dependent on others to maintain them.

- **Visual Disability:-** Visual disability defined as presenting visual acuity of <6/60 in the better eye with or without corrective measures.[5]

## 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 | |
| **Age (in years)** | | | |
| 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) |
| **Religion** | | | |
| 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) |
| **Educational status** | | | |
| 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) |
| **Marital status** | | | |
| 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 ± 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: Prevalence And Distribution Of Visual Disability In Study Population**

| Age group | Distribution of visual disability | | | | | |
|---|---|---|---|---|---|---|
| | Male | | Female | | Total | |
| | n | Present | n | Present | N | Present |
| 60-69 | 107 | 7(6.5) | 124 | 0(0) | 231 | 7(3.0) |
| 70-79 | 44 | 6(13.6) | 44 | 2(4.5) | 88 | 8(9.1) |
| 80 & above | 15 | 3(20.0) | 16 | 4(25) | 31 | 7(22.6) |
| Total | 166 | 16(9.6) | 184 | 6(3.3) | 350 | 22(6.3) |

- The prevalence of visual disability was found to be 6.3% in the study population. This was found to be 9.6% in males and 3.3% in females.
- Among males, the prevalence was 6.5% in 60-69 yr age group, 13.6% in 70-79 yr age group and 20% in 80& above age group while among females it was 4.5% in 70-79 yr age group and 25% in 80 & above age group.

**Table 3: Prevalence Of Visual Disability In Relation To Educational Status**

| Educational status | Visual disability | | Total* |
|---|---|---|---|
| | Present | Absent | |
| Illiterate | 55(33.3) | 110(66.7) | 165(47.1) |
| Primary school & above** | 26(14.1) | 159(85.9) | 185(52.9) |
| Total | 81(23.1) | 269(76.9) | 350(100) |

*($\chi^2$= 18.225, df=1, p value < 0.05)

**For statistical purpose, the study population was grouped as illiterate and primary school & above on educational status basis.

- Prevalence of visual disability was found to be 33.3% among illiterates and 14.1% in elderly with education of primary school and above.
- The association of visual disability with educational status of the elderly was found to be statistically significant.

**Table 4: Prevalence Of Visual Disability In Relation To Financial Dependence**

| Financial Dependence | Visual disability | | Total* |
|---|---|---|---|
| | Present | Absent | |
| Independent | 18(13.1) | 119(86.9) | 137(39.1) |
| Partially dependent | 30(35.7) | 54(64.3) | 84(24) |
| Fully Dependent | 33(25.6) | 96(74.4) | 129(36.9) |
| Total | 81(23.1) | 269(76.9) | 350(100) |

*($\chi^2$= 15.60, df=2, p value < 0.05)

- Prevalence of visual disability was less among elderly who were financially independent as compared to those who were dependent either partially or fully and the association was found to be statistically significant

## DISCUSSION

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. The age and sex distribution of the study subjects in our study (table 1) was similar to the studies conducted by Gupta P et al (2011-12) among elderly persons in a rural area of Haryana,[4] Singh N et al (2009-10) in rural area of Patiala District,[7] Goswami A et al (1998-99) in Ballabhgarh district of Faridabad,Haryana as majority of the elderly population was in the 60-69 year age group and females were more than males.[8]

Nearly half of the study subjects (Table 1) were illiterate and illiteracy was more among females, similar to other studies done in India.[1,4,9]

Vision loss has a profound impact on daily functioning and is regarded as an important contributor to disability. In the present study, prevalence of visual disability as quoted by visual acquity <6/60 in the better eye was observed to be 6.3% and an increasing trend was observed with the increase in age (Table 2). Presenting vision <6/60 in the better eye was observed in 8.5% in a nationwide survey done by Murthy et al (1999-2001) among persons aged 50 years and above.[10] In a study done by Deepthi R et al (2011), 12.6% of the study subjects were reported to be blind and significant association was seen with increasing age.[11] Sanbaz and Tel (2006) reported in their study that a large portion of the elderly had problems in performing their activities due to loss of sight and hearing.[12] Most studies have shown people with higher level of visual impairment are more probable to report disability in activities of daily living.[13,14,15]

In the present study the prevalence of visual disability was found to be 6.3% in the study population. An increasing trend in prevalence was seen with increase in age and was found to be statistically significant. (Table 2) Similar pattern was seen in cross-sectional studies conducted by Deepthi R et al (2011) among rural elderly population in two villages of Bangalore district of Karnataka,[11] and in international studies done by Yoshida et al (2005-06) in Japan[16] and Abdulraheem et

al (2010) in Nigeria.[17] Gupta P et al (2011-12) reported higher prevalence of visual disability (9%), 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.[4]

Studies done by Ajayi et al (2011)[18] observed similar findings to our study that functional disability was more among illiterates and the association was found to be statistically significant ($p < 0.05$) as evident from table 3.

Similarly the prevalence was more in financially dependent group (partially/fully) as compared to financially independent group (Table 4) reaching the level of statistical significance ($p < 0.05$) consistent with the findings of cross-sectional study done by Fillenbaum et al (1995) in the state of Rio Grande do Sul, Brazil.[19]

## CONCLUSION

The health care system needs to be strengthened up in geriatric care with special emphasis towards disability management. 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. 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. Elderly in need of spectacles and surgical correction for vision impairment should be identified and should be provided with the required measure along with the help of non-government organizations like Help Age India, Agewell Foundation etc., to serve in the field of elderly care.

### Limitations

- The study was conducted in Palam area of West Delhi which is predominantly an urban area. Thus findings of the study cannot be generalized to other settings and are not representative of entire Delhi or India.
- Since it was a community based study and majority of the study subjects were staying with their families, they were therefore taken care of, leading to a relatively higher proportion of elderly receiving care, missing out those living in old age homes, shelter homes etc.

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**Conflict Of Interest:** None declared

**Ethical Approval:** The study was approved by the Institutional Ethics Committee

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