

## A STUDY OF MEDICO-SOCIAL PROBLEMS IN VISUALLY IMPAIRED INDIVIDUALS IN TWO INSTITUTES IN PUNE

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### Abstract

**Background:** To be visually impaired is a real tragedy, for without sight, the world around us is a closed book. No other sense organ plays a more vital role in a person's life than, perhaps the eyes. Hence, eyes are the most treasured sense organs of the body. To study the various causes of visual impairment and to relate the causes of visual impairment to certain epidemiological variables among the members of the study group. **Materials and Methods:** The present study was carried out among the trainees at Technical Training Institute belong to both sexes and are aged between 18 – 40 years and The inmates of the Pune School and Home for the Blind Boys are aged between 5 – 18 years. **Result:** Age of the study subjects ranged from under 5 to 35 years with male: female ratio of 3.8:1. Majority of the subjects were Hindus. Only 1 percent of subjects were illiterate. 87.6 percent of the study population belonged to upper lower socioeconomic class IV. In the present study 62.4 percent inmates were having blindness since birth. Corneal blindness was the second most common cause of blindness (31.0 percent) and the major preventable cause identified. Hereditary factors were identified in 30.0 percent blind. Two third of study population was blind at the time of birth and among the remaining most of them acquired blindness before the age of 15 years. **Conclusion:** Psychological assessment and psychotherapy should form the part of management of the visually impaired in early stages to prevent subsequent psychiatric morbidity in later years, which has been neglected hitherto.

## INTRODUCTION

Generally speaking, the term blind means a person who has totally lost his eye sight or whose vision is of no functional value for the purpose of education or in the general activities of living.<sup>[1]</sup> The problem of visual impairment is as old as the history of mankind. The visually impaired were considered, for centuries together, useless to themselves and to the society and hence they were deprived of social status. Visual impairment represents a serious public health, social and economic problem for most of the countries. It is especially true for the developing countries, where 9 out of 10 of the world are visually impaired live. WHO She also states that up to 80% of global blindness is avoidable which either results from the conditions that could have been prevented or can be successfully treated with the sight restored.

Today, there is an estimated 180 million people worldwide who are visually disabled. Of these, between 40 and 45 million persons are blind and by

definition cannot walk about unaided. Around 60% of the world's blind reside in sub-Saharan Africa, China and India.<sup>[2]</sup> About 80% of blindness is either treatable or potentially preventable. The prevalence varies from 0.2% or less in developed countries to more than 1% in some sub-Saharan countries. About 32% of worlds blind are in the age bracket of 45-59years but a big majority i.e. about 58% are over 60 years of age.<sup>[3]</sup> Five conditions have been identified as immediate priorities within the framework of VISION 2020. These are cataract, trachoma, onchocerciasis, childhood blindness and refractory errors.<sup>[4]</sup>

Visual impairment has been recognised as an important public health problem in India (8-15). A country that is now home to a billion inhabitants.<sup>[5]</sup> In India, there are about 12 million blind people and about 45 million visually handicapped. The prevalence of blindness in India is estimated to be 0.6 percent.<sup>[1]</sup> Amongst developing countries, India has the problem of blindness which is further compounded by the combined effects of poverty,

illiteracy and lack of primary medical facilities. The fact that two thirds of the blind suffer from preventable/ curable blindness, makes the tragedy even more poignant.<sup>[1]</sup> The clinicians in primary care settings play a critical role in reducing visual disability by managing systemic diseases with ocular consequences and ensuring that patients receive timely specialist eye care. They may be the only health care professionals to recognize the need for an eye examination because of a new onset visual disability. The clinicians can educate patients about their need for eye care services and can advocate for their patients in obtaining access to such care. There appears to have been little organized efforts in this direction in India. A few studies conducted so far, concerns mainly to medical aspects of blindness. It is with this medico-social aspect of blindness in India that this study of blind individuals in two institutes for the blind in Pune was undertaken. This, being the study of institutionalized blind individuals, may not reveal the exact magnitude of the problem in general population. Yet it should help us to understand the complex medico-social aspects of blindness and should serve as a guide to ameliorate the miseries of blind population.<sup>[6,7]</sup>

## MATERIALS AND METHODS

The present study was carried out among the trainees at Technical Training Institute belong to both sexes and are aged between 18 – 40 years and the inmates of the Pune School and Home for the Blind Boys are aged between 5 – 18 years. The investigator could study 150 blind individuals of 150 trainees of Technical Training Institute and at Pune School and home for the Blind Boys, 140 inmates of 150 boys could be examined. Duration of study was 01 Aug 2004 to 31 July 2005. The administrative authorities of both the institutes were contacted personally by the investigator and were requested, through formal application, to grant permission to carry out the study at both the places. A standard WHO proforma was modified and used as questionnaire to record the findings of interview and examination of the subjects. The questionnaire was modified in consultation with the Ophthalmologist and Psychologist of Armed Forces Medical College, Pune.

### The following instruments and drugs were used during the examination of the subjects:

- a) Snellen's E chart for distant vision recording.
- b) Snellen's near vision chart.
- c) Torch.
- d) Ophthalmoscope.
- e) Drosyn eye drops.

The examination was carried out personally by the investigator. Each individual was examined individually and separately. The investigator was provided with a separate room with adequate

privacy at both the places of study. The rooms were adequately lighted. The anterior segment was examined using a torch and loupe and/or handheld slit lamp. The posterior segment was examined by direct and indirect ophthalmoscopy, after dilating the pupil. The WHO eye examination record for blindness was used to categorize the causes of blindness and to record findings, using the definitions in the coding instructions.<sup>[8]</sup> They were assured that the information furnished by them would be kept confidential.

In case of children, the school authorities help was taken for information's. Socioeconomic status of the subjects was assessed by the Kuppaswamy scale.<sup>[9]</sup> In case of the blind children and adult blind who were dependent on their parents, socioeconomic status of the head of the family was taken into account.

For eyes examination, congenital anomalies followed by lids, sac, conjunctiva, cornea, anterior chamber and lens examination was carried out followed by assessment of intraocular tension in each eye by digital method. Subsequently the ocular movements were tested for each eye separately followed by testing of vision using Snellen's vision chart. Care was taken to provide sufficient light on the chart, avoiding the dazzle at the same time.

Ophthalmoscopy was carried out only if indicated i.e. if cornea, lens and anterior chamber were clear and the diagnosis could not be arrived at by external examination of the eyes. Before undertaking ophthalmoscopic examination, care was taken to exclude raised intraocular tension.

The HADS (Snaith & Zigmond) is a self-report questionnaire developed to detect adverse anxiety and depressive states. The score is added by adding the "A" and "D". The norms below will give you an idea of the level of Anxiety and Depression.<sup>[10]</sup>

0-7	Normal
8-10	Mild
11-14	Moderate
15-21	Severe

Statistical analysis: Analysis of collected data was done with the help of epi info and PEPI Programs version - 4.

## RESULTS

Age of the study subjects ranged from under 5 to 35 years with male: female ratio of 3.8:1. 91.4 percent of the subjects were Hindus, 5.9 percent of the subjects were Buddhist, 2.4 percent were Muslims and 0.3 percent were Christians. Only 1 percent of subjects were illiterate. 87.6 percent of the study population belonged to upper lower socioeconomic class (IV).

Undetermined causes constituted 32.4 percent of visual impairment, acquired childhood conditions were responsible in 37.6% {infections (29.3%), vitamin A deficiency (4.8%), and trauma (3.5%)} and hereditary factors were identified in 30.0%

cases. In the present study 62.4 percent inmates were having blindness since birth.

Corneal blindness was the second most common cause of blindness (31.0 percent) and the major preventable cause identified. Although it is difficult to specifically ascertain the aetiology of corneal scarring several years after the original pathology, infections (measles, trachoma, and conjunctivitis) appear to be the major cause followed by vitamin A deficiency and traumas. These findings suggest the importance of primary prevention e.g., high measles immunization coverage, promotion of breast feeding, health and nutrition education, and continued programmes for the control of vitamin A deficiency.

Hereditary factors were identified in 30.0 percent blind. Reduction in blindness due to genetic diseases will prove more challenging as there are few medical geneticists in India, and advice given will need to be sensitive to the complex social, economic, and cultural factors influencing marriage and child rearing. There is a need to expand specialist paediatric ophthalmic services in India, and it has been recommended that there should be one well equipped child eye care centre for every 10 million total population.<sup>[11]</sup>

Two third of study population was blind at the time of birth and among the remaining most of them acquired blindness before the age of 15 years.

**Table 1: Causes of visual impairment in relation to age of onset**

Age of onset in yrs	Hereditary (%)	Infection (%)	Trauma (%)	VitA deficiency (%)	Undetermined (%)	Total (%)
Birth	87(44.6)	14(7.1)	0(0.0)	0(0.0)	94(48.2)	195(100)
1-5	0(0.0)	49(72.0)	7(10.3)	12(17.7)	0(0.0)	68(100)
6-10	0(0.0)	17(81.0)	2(9.5)	2(9.5)	0(0.0)	21(100)
11-15	0(0.0)	3(75.0)	1(25.0)	0(0.0)	0(0.0)	4(100)
16-20	0(0.0)	2(100.0)	0(0.0)	0(0.0)	0(0.0)	2(100)
Total (%)	87(30.0)	85(29.3)	10(3.5)	14(4.8)	94(32.4)	290(100)

**Table 2: Causes of visual impairment in relation to Gender**

Gender	Hereditary (%)	Infection (%)	Trauma (%)	VitA deficiency (%)	Undetermined (%)	Total (%)
Male	77(33.7)	59(25.8)	7(3.0)	4(1.7)	82(35.8)	229(100)
Female	10(16.4)	26(42.6)	3(4.9)	10(16.4)	12(19.6)	61(100)
Total (%)	87(30.0)	85(29.3)	10(3.5)	14(4.8)	94(32.4)	290(100)

It is seen from table that 33.7 percent of the male subjects in contrast to about 16.4 percent female subjects suffered from hereditary causes of blindness in the study population.

**Table 3: Causes of visual impairment in relation to religion**

Religion	Hereditary (%)	Infection (%)	Trauma (%)	VitA deficiency (%)	Undetermined (%)	Total (%)
Hindu	83(31.4)	76(28.7)	8(3.0)	9(3.3)	89(33.6)	265(100)
Buddhist	2(11.8)	6(35.3)	1(5.9)	3(17.6)	5(29.4)	17(100)
Muslims	2(28.6)	2(28.6)	1(14.2)	2(28.6)	0(0.0)	7(100)
Christian	0(0.0)	1(100.0)	1(0.0)	0(0.0)	0(0.0)	1(100)
Total (%)	87(30.0)	85(29.3)	10(3.5)	14(4.8)	94(32.4)	290(100)

Amongst Hindu subjects 33.6 percent of visual impairment was due to undetermined causes, 31.4 percent due to hereditary causes, 28.7 percent due to infections, 3.3 percent due to nutritional causes and 3 percent due to trauma. Amongst Buddhist subjects 35.3 percent of visual impairment was due to infectious causes, 29.4 percent had undetermined causes, 17.6 percent had nutritional causes, 11.8 percent had hereditary causes and 5.9 percent had traumatic causes. Amongst Muslim subjects, 28.6 percent of visual impairment was due to hereditary causes, 28.6 percent had infectious causes, 28.6 percent had nutritional causes, and 14.2 percent had traumatic causes. Amongst Christian subjects 100 percent had infectious cause of visual impairment.

**Table 4: Causes of visual impairment in relation to literacy**

Literacy	Hereditary (%)	Infection (%)	Trauma (%)	VitA deficiency (%)	Undetermined (%)	Total (%)
Illiterate	0(0.0)	2(66.7)	0(0.0)	0(0.0)	1(33.3)	3(100)
Literate	87(30.3)	83(29.0)	10(3.4)	14(4.9)	93(32.4)	287(100)
Total (%)	87(30.0)	85(29.3)	10(3.5)	14(4.8)	94(32.4)	290(100)

Amongst literate subjects 32.4 percent of visual impairment was due to undetermined causes, 30.3 percent due to hereditary causes, 29 percent was due to infections, 4.9 percent was due to nutritional

causes and 3.4 percent was due to trauma. Whereas among Illiterates subjects Infections accounted for 66.7 percent of causes of visual impairment and nutritional causes were only 33.3 percent.

## DISCUSSION

A similar age distribution of study population was noticed by Shashi Mehta in her study of the institutionalized blind in Maharashtra. Majority of subjects in her study were also below 35 years of age; 84 percent being in the age group 6 to 25 years.<sup>[12]</sup>

However the age distribution in the present study may not be representative of that of the blind in general population. Sharma and Prasad, in their epidemiological study, reported maximum blindness in the age group 60-65 years. Blindness in the age group 40-49 years was three-fold more than in the age group 0-39 years, which was the total range of age distribution in the present study (5-40).<sup>[13]</sup> Similarly Chakrabarti et al,<sup>[14]</sup> and Gupta et al,<sup>[15]</sup> observed higher proportion of blindness in the older age groups.

The study population of Shashi Mehta's institutionalized blind was also predominantly male which is comparable to the present study. However in general population in India, a higher prevalence of blindness is found in females than in males. This has been attributed to higher prevalence of trachoma, conjunctivitis and cataract among females than in males.<sup>[6]</sup> Preponderance of male subjects in the present study may be attributed to the fact that out of the two institutes where the present study was conducted, the Pune School and home for the blind is entirely for boys. The other institute, Technical Training Institute, though admits the blind from both sexes, had only 61 females out of 150 blind persons examined. This could be attributed to reluctance on the part of the parents of the female blind to send their blind daughters away from home for education and training.

Studies of the blind by Sushma Batra and Usha Bhalerao also show that majority of the cases in their study population were Hindus, being a predominant religion in India.<sup>[16,17]</sup>

Sharma and Prasad studied blindness in relation to religion in their epidemiological study in U.P. and found no significant difference in the prevalence rates amongst various religions.<sup>[13]</sup>

Usha Bhalerao's study population was of the educated blind where 19 percent were educated upto high school and the rest 81 percent beyond high school. The population in study did not have illiterates because only the educated blind persons were surveyed by her.<sup>[17]</sup> Similarly the subjects in the study by Sushma Batra consisted of no illiterates, about 23 percent who had studied upto high school, and about 38 percent had studied beyond high school and the rest had not entered high school at all.<sup>[16]</sup>

It is well established fact that people of upper lower socioeconomic status have higher prevalence of blindness.<sup>[6]</sup> Sharma and Prasad, in their epidemiological study, also observed gradual rise in prevalence of blindness with lowering of

socioeconomic status in general population.<sup>[13]</sup> Shashi Mehta, in her study among the institutionalized blind, found that higher proportion of her subjects belonged to lower group of socioeconomic status.<sup>[12]</sup> Findings of the present study are consistent with the observations of Sharma and Prasad and also of Shashi Mehta.<sup>[12,13]</sup>

In a WHO study of children in schools for the blind in India, where 1318 children in nine states were examined, the underlying cause of visual loss was undetermined in 42%, childhood disorders were responsible in 29% and hereditary factors were identified in 26%.<sup>[18]</sup>

A survey was conducted on children in schools for the blind in Tehran (from 2002 to 2003) in which treatable aetiologies and positive family history of blindness was seen in 25.7% and 36% of the patients, respectively.<sup>[19,20]</sup>

Findings of this study are comparable with those of study by Shashi Mehta.<sup>20</sup> As in the present study, Usha Bhalerao also reported 92 percent of her study population who had onset of their blindness before the age of 15 years; majority of them even before 5 years.<sup>[17]</sup>

Sharma and Prasad in their epidemiological study observed about 25 percent of the blind in their study population with onset of disability before 15 years and 55 percent beyond 39 years.<sup>[13]</sup> This difference could be due to the fact that the study was conducted in general population where majority of the blindness was caused by senile cataract and glaucoma.

Infections as cause of blindness accounted for higher proportion of visual disability among female subjects compared to male counterparts. These findings are consistent with the findings of Sharma and Prasad.<sup>[13]</sup> These workers reported higher prevalence of infections and nutritional causes among females as compared to males. Application of kajal/surma and smoke in the kitchen may be attributed to the higher proportion of blindness due to infections among female subjects. Malnutrition is more prevalent among females in India; hence the occurrence of higher proportion of blindness in females as compared to males is probably due to nutritional deficiency.<sup>[6]</sup>

Sharma and Prasad studied causes of blindness in relation to religion and observed that prevalence of infections like trachoma and mucopurulent conjunctivitis were highest among Harijans Hindus as compared to Muslims and other castes of Hindus. This was attributed to poor socio-economic conditions, overcrowding, and unhygienic mode of living. Ignorance and superstitions prevalent among Harijans.<sup>[13]</sup>

The investigator came across very few studies of visual impairment in relation to education. Usha Bhalerao's study population was of the educated blind where 19 percent were educated upto high school and the rest 81 percent beyond high school. The population in study did not have illiterates because only the educated blind persons were

surveyed by her.<sup>[17]</sup> Similarly the subjects in the study by Sushma Batra consisted of no illiterates, about 23 percent who had studied upto high school, and about 38 percent had studied beyond high school and the rest had not entered high school at all.<sup>[16]</sup>

## CONCLUSION

From the present study, it can be inferred that the visually impaired had become more acceptable to their families and friends and had learnt to accept the handicap realistically. They had less anxiety and more confidence in themselves as a result of education/ vocational training in the institutes.

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