

Original Research Article

Study of preventable causes of blindness in a tertiary care institute in Lucknow

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ABSTRACT

Background: World Health Organization (WHO) in 2019, released the estimates which show that approximately 80% of the causes of blindness and severely reduced visual acuity are preventable and avoidable. The aim of the study was to assess the prevalence of preventable causes of blindness in an OPD setup in the city of Lucknow.

Methods: Descriptive cross-sectional study was done from January, 2019 to March, 2019 at the ophthalmology department OPD, Dr Ram Manohar Lohia hospital, Lucknow. Patient presenting with complains of Blurring of vision or blindness during the defined OPD days at the study place, sample size- 550. Convenience sampling, all the eligible patients who were attending the OPD on defined days during the study period.

Results: The current study found the prevalence of blindness in the OPD based patients to be 13.5% and 25% (WHO and NPCB standards) respectively which is higher than the other reported statistics and found cataract to be the single most contributor of cause of blindness in accordance with other literature.

Conclusions: The study demonstrates that even after the implementation of a national program (NPCB), the prevalence of blindness continues to be on the higher side and cataract remains to be the most common cause of preventable blindness.

Keywords: Blindness, Visual acuity, Preventable, Cataract, NPCB, WHO

INTRODUCTION

Vision impairment and blindness have huge socioeconomic consequences on the development of country and communities. World health organization (WHO) in 2019, released the estimates which show that approximately 80% of the causes of blindness and severely reduced visual acuity are preventable and avoidable.¹ A recent literature has estimated that worldwide around 36 million people are blind and 216 million people have moderate or severe visual impairment.^{1,2} There has been a significant improvement in the eye care services in India during the last few years.^{3,4} Nationwide studies have estimated the prevalence of blindness and causes of blindness but the variations within the district exist.⁵ None of the studies on

the above aspect have been conducted at our area. Further no study was found to be hospital based to assess the prevalence of preventable blindness. Hence the study was conducted with the aim of finding the prevalence of preventable causes of blindness in a tertiary care hospital setup.

METHODS

Descriptive cross-sectional study was done from January, 2019 to March, 2019 at ophthalmology department OPD, Dr. Ram Manohar Lohia hospital, Lucknow. Patient presenting with complains of Blurring of vision or blindness during the defined OPD days at the study place, sample size- 550. Convenience sampling, all the eligible patients who were attending the OPD on defined days

(two days in a week of a participating clinician) during the study period.

Inclusion criteria

All the consenting study subjects presenting with complains of blurring of vision or blindness within the study period.

Exclusion criteria

The non-consenting patients, or who were visiting the OPD for any other complain. Variables studied were the socio-demographic factors (age, sex, educational status etc.) and causes of blindness. All the eligible subjects were interviewed using a pretested pre-formed questionnaire for data collection followed by a comprehensive bilateral eye examination which included measurement of visual activity, examination of ocular adnexa and anterior chamber with slit lamp, fundus examination (direct and indirect with pupil dilation (0.8% tropicamide and phenylephrine 5%) as appropriate. As per the WHO international statistical classification of diseases, injuries and causes of death, ‘blindness’ is defined as visual acuity of less than 3/60, or a corresponding visual field loss to less than 10°, in the better eye with the best possible correction.¹ Blindness and visual impairment as per NPCB- visually blind: a person is visually blind if the presenting visual acuity is less than 6/60 in the better eye.⁶

Research approval

The research and ethical approval were taken from the institutional research and ethical committee and the privacy and confidentiality of the study subjects was thoroughly maintained.

Data analysis

The data was compiled and analyzed on a MS excel sheet. Frequencies and proportions were used to present qualitative variables.

Limitations of the study

A hospital-based study with resource constraints. Being hospital based cannot be extrapolated to general community.

Strength of the study

Shows the pattern of blindness in the local area where no such study has been conducted. It further strengthens the existing base of knowledge.

RESULTS

A total of 572 subjects were found eligible for the study out of which only 550 consented to be the part of the

study, response rate being 96%. Table 1, shows the socio-demographic characteristics of the study subjects in which it was observed that the majority (83%) of study subjects were in the 51-70 years age group, with almost equal male female ratio but rural predominance (three fourth).

Table 1: The socio-demographic profile of the study subjects (n=550).

	Total (no.)	Percent (%)
Age group (in years)		
51-60	272	49.5
61-70	186	33.8
71-80	74	13.4
> 80	18	3.3
Total	550	100
Sex		
Male	285	52
Female	265	48
Residence		
Rural	411	74
Urban	139	26

Table 2: The prevalence of blindness (both criteria) in the study subjects.

	Blind (WHO standards) (BCVA in the better eye <3/60) (n=74)	Blind (NPCB standards) (BCVA in the better eye <6/60) (n=139)
Age (in years)		
51-60	17	20
61-70	26	52
71-80	21	46
>80	10	21
Total N (%)	74 (13.5)	139 (25)
Sex N (%)		
Male	44 (60)	63 (46)
Female	30 (40)	76 (54)
Residence N (%)		
Rural	67 (90)	125 (90)
Urban	7 (10)	14 (10)

Table 2, which shows the frequency of study subjects who were blind as per WHO and Indian Standards observed that amongst those examined (550 subjects), 74 (13.5%) and 139 (25%) were blind according to the WHO and NPCB-India Standards respectively. The male female blind ratio according to WHO standards was 3:2 while as per Indian NPCB standards, it was almost reverse (2:3). Among those found blind according to both the standards, a large majority (90%) were from rural areas.

The major cause of blindness in both the standards (WHO and NPCB) was cataract accounting for nearly

three-fourth of the blind study subjects, the next major cause being corneal opacities or scar (Table 3).

Table 4 shows the barriers or reasons for not seeking cataract surgery among the NPCB standard blind study subjects. Many respondents have more than one reason for not undergoing cataract surgery chief among them being ‘told to mature’ and ‘have to travel far’.

Table 3: The causes of blindness (by both criteria) in the study subjects.

Causes	Blind (WHO standards) (BCVA<3/60) (n=74)	Blind (NPCB standards) (BCVA<6/60) (n=139)
	N (%)	N (%)
Cataract	54 (73)	102 (74)
Corneal opacities/ scar/ pathology	13 (18)	23 (17)
Glaucoma	5 (6)	9 (6.5)
Diabetic retinopathy	1 (1.5)	2 (1)
Others (phthisis, uveitis, RD etc.)	1 (1.5)	3 (1.5)

Table 4: Shows the barriers to cataract surgery from NPCB blind study subjects due to cataract (n=102)*.

Barriers	No.	%
Told to mature	98	97
Cannot afford surgery	5	5
No one to accompany	11	10
Have to travel far	35	34
Unaware of cataract	7	7
Fear of surgery	3	3
Others	7	7

*Multiple response

DISCUSSION

Various community-based surveys have been conducted globally which have shown the prevalence of blindness ranging from 1% to 8%.⁵⁻¹⁵ An Indian survey done on a large scale, the prevalence was found to be 3.6% and 8% as per WHO and NPCB standards respectively.⁵ The current study found the prevalence of blindness in the OPD based patients to be 13.5% and 25% (WHO and NPCB standards) respectively which is higher than the other reported statistics. The reason may be that the current study being conducted in the OPD hospital based set up rather than a community-based set up.¹⁶

The current study observed that the cataract remains the major cause of preventable blindness and the finding is in

concordance with other studies conducted globally and locally.^{5,17-19}

Literature available about the pattern of blindness according to the gender shows the prevalence of blindness to be higher among females in comparison to males.^{5,20} while one Indian study have shown pattern of blindness similar in both the genders.²¹ In our study, the pattern of blindness was different for WHO and NPCB standards and needs more research into the matter.

In our study, the major barrier for not undergoing cataract surgery was that the study subjects were being ‘told to get the cataract mature’ and next major reason was ‘have to travel far’. In other studies, unawareness and unable to afford cataract surgery remain the major hurdles for surgical uptake. The discrepancy may be due to the fact that the current study set-up is a tertiary care set up situated in the heart of capital city of Uttar Pradesh.^{19,22}

CONCLUSION

The study demonstrates that even after the implementation of a national program (NPCB), the prevalence of blindness continues to be on the higher side and cataract remains to the most common cause of preventable blindness.

Recommendations

More intensive and geographically accessible surgical focus on preventable causes of blindness like cataract needs to be implemented. IEC activities focusing on cataract and other preventable causes of blindness need to be strengthened.

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Conflict of interest: None declared

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