

ORIGINAL ARTICLE

A Cross Sectional Study on Visual Health among Women aged 18-59 years residing in a Slum of Kolkata, West Bengal

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Citation

Sembiah S, Paul B, Dasgupta A, Biswas B, Ghosh A, Manjula M. A Cross Sectional Study on Visual Health among Women aged 18-59 years residing in a Slum of Kolkata, West Bengal. Indian J Comm Health. 2017; 29, 4: 363-368.

Source of Funding: Nil **Conflict of Interest:** None declared

Article Cycle

Received: 15/09/2017; **Revision:** 05/10/2017; **Accepted:** 11/11/2017; **Published:** 31/12/2017

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Abstract

Introduction: Visual impairment has a silent chronic course which has a significant impact on the quality of life but is often a preventable community problem. Comprehensive assessment of ophthalmic outcomes should include not only the objective measurement but also the subjective perception of vision loss on vision function.

Aim: To estimate the proportion of visual impairment and perceived visual functioning and also to find out the factors, if any associated with it, among women aged 18-59 years in a slum of Kolkata. **Methodology:** It was a community-based cross-sectional study conducted among 153 women aged 18-59 years residing in a slum of Chetla, which is under the urban field practice area of All India Institute of Hygiene & Public Health, Kolkata within 3 months of duration (Mar - May 2017). **Results:** In the present study, 49(32%) study subjects were visually impaired among which 3(2%) were blind. 42.4% of study subjects' perceived poor visual function. Logistic regression showed aged 40 years and above, below and primary educational level, non-working, who had eye checkup and diabetic had higher odds of visual impairment and perceived poor visual function whereas after adjustment, diabetic status lost its significance. **Conclusion:** Eye care programmes in our country still have curative approach; it must shift towards preventive approach.

Keywords

Visual impairment; visual functioning.

Introduction

Visual impairment has a silent chronic course which has a significant impact on the quality of life but is often a preventable community problem. According

to WHO (2014), 285 million people were visually impaired globally among which 39 million people were blind. About 90% of the world's visually impaired live in low-income settings. (1) Globally, uncorrected refractive error is the main cause of

moderate and severe visual impairment; where, 80% of visual impairment is either preventable or curable.

(1)

India with 62 million visually impaired and 8 million blind people; is amongst one of the high burdened countries. (2) In India, blindness is defined as the inability to count fingers from a distance of 3 metres (<3/60) with the best eye correction. In 2017, National programme for control of blindness was changed to the National Programme for Control of Blindness and Visual Impairment (NPCBVI) with the goal of reducing the prevalence of blindness in India to 0.3% of total population by 2020 and expected outcome to reduce the population of blind people in India from 12 million to 8 million.

World Health Organization (WHO) emphasized on assessment of visual functioning as an integral part of defining health. (3) Visual impairment has a significant impact on functional status, reporting more difficulty with vision-specific tasks. (4) Comprehensive assessment of ophthalmic outcomes should include not only the objective measurement but also the subjective perception of vision loss on vision function. (5-8)

A recent meta-analysis reported that nearly two thirds (64.5%) of the blind population of the world was female. (9) Gender is an important factor associated with health seeking behaviour, particularly in a slum based area. Women of slums are considered vulnerable as their social and health needs are unique and distinctive.

Vision is an important sensual function if it is degraded; it impairs the quality of life – socially and economically thus affecting the whole family. As minimal timely intervention prevents disastrous complications – there is an immediate need to elicit visual impairment. People aged less than 18 years are covered under school health program but beyond that age practically no measures are taken for effective screening of visual impairment and more so among the women of the society.

Therefore this study has been conducted with the hypothesis that illiteracy and poor educational status, poor housing and environmental condition, poverty, food insecurity all work together; to ignore, overlook and or even spurn the suffering, ill health and the misery of these poor marginalized women living in a slum of Kolkata of course visual Impairment always gets the least importance therefore very few such community based studies

have been done previously in this part of the country.

Aims & Objectives

1. To elicit the magnitude of visual impairment among women aged 18-59 years residing in a slum of Kolkata, West Bengal.
2. To assess the perceived vision function and its associated determinants among women aged 18-59 years residing in a slum of Kolkata, West Bengal.

Material & Methods

It was a community-based cross sectional study conducted among women aged 18-59 years residing in a slum of Chetla, which is under the urban field practice area of All India Institute of Hygiene & Public Health, Kolkata within 3 months of duration (Jan – Mar 2017). The paucity of studies on women aged 18-59 years regarding visual impairment in a slum setting led the researcher to conduct a pilot study among 30 adult women residing in an adjacent slum of health centre, and the prevalence of visual impairment was estimated around 11.2%. With this prevalence and by taking the absolute error as 5%, the sample size was calculated to be 152.7. So the data was collected from 153 women aged 18-59 years. There were 4 health administrative units (A, B, C, D) in Chetla, by simple random sampling, one unit (B) was chosen. Line listing of all women aged 18-59 residing in that selected unit was done and by simple random sampling (SRS), 153 women were selected for this study.

A pre-designed, pre-tested, structured, interview schedule was prepared which included questions regarding

- Socio-demographic profile.
- Eye complaints, history of eye injury and surgery
- Usage of spectacles and frequency of eye checkup.
- History of other disease like Diabetes, Hypertension.
- Visual functioning questionnaire (VFQ): A questionnaire adapted from a validated questionnaire, VFQ-25 (10) which assess the self-perception of vision targeted health status. VF instruments are designed to measure patients' perceptions, which objective clinical outcomes such as visual acuity (VA) cannot capture or measure. Internal consistency was checked by Cronbach's alpha – 0.78 for the Bengali version of this questionnaire.

According to the local context and the objectives of the study, the measure was modified, and face and content validity of the instrument were checked by experts of All India Institute of Hygiene and Public Health, Kolkata. The tool was translated into local language (Bengali) maintaining semantic equivalence. It was revised based on the responses obtained in pilot testing and finalized for use in this study. For each eye, the participant's presenting distance visual acuity was ascertained using Snellen's chart with participants wearing their habitual optical correction (spectacles or contact lenses). The study was conducted in accordance with the Declaration of Helsinki for ethical consideration. Every participant selected by SRS for study purpose had given written informed consent for participation in the study, after explaining them the pure academic nature of the study and ensuring confidentiality.

Operational definitions:

- Visual impairment: assessed by Distance Visual Acuity (with best possible correction in the better eye). It was classified as normal vision ($\geq 6/18$) and visually impaired ($< 6/18$).
- Perceived visual functioning status: assessed using 8 questions; 1 question for the perception of general eye health status and 4 questions regarding visual function - near, distance, colour and peripheral vision and remaining 3 questions on dependency, role limitation and psychosocial - depressed or irritated.
- The attainable score ranges from 0 to 9. Higher the score, poorer the perceived visual function. Median was taken as cut off to label good and poor visual function; \leq median – good visual function; $>$ median score – poor visual function.

Data analysis

Data were analysed using the SPSS (version 16.0. Chicago, SPSS Inc.) The outcome variables considered were Visual impairment and Visual function. Appropriate descriptive statistics, univariate and multivariable logistic regression analysis was performed to identify those factors associated with visual impairment and self-perceived vision function among study subjects with a confidence interval of 95%, P value < 0.05 .

Results

The study was conducted among 153 women revealed that the mean age of study participants was 36.46 years and age ranges from 18 to 59. 80.4% of study subjects were Hindus. 28.1% were illiterates

and median year of schooling was 5 years. 60.8% of study participants were home makers and 10.5% were students. 43.1% belonged to class 5 Socio Economic Status according to Modified B G Prasad scale Jan 2017. 26.1% and 10.5% had diabetes and hypertension respectively.

The most common eye complaint was blurring of vision (43.1%) was followed by eye irritation. Cataract (13.1%) and conjunctivitis (11.8%) was common eye morbidities found among study participants. 11 study participants (7.2%) had undergone eye surgery for cataract. 42.4% of study subjects perceived poor visual function. (Table 1)

32% of study subjects were visually impaired among which 2% were blind. (Table 2) 64.7% of participants had never undergone an eye checkup. Lack of money was the main reason for non-usage of spectacles. (Table 3)

Aged 40 years and above (OR(C.I.)- 24.4(9.8-60.9)), below and primary educational level (OR - 9.5(3.4-25)), non-working (OR-2.2(1.1-4.7)), who had eye checkup (14.8(6.3-34.8)) and diabetic (14.8(6.3-34.8)) had higher odds of visual impairment in bivariate analysis whereas after adjustment, occupation and diabetic status lost their significance with nagelkarke R2 (0.661). Aged 40 years and above (OR- 16.5(7.3-37.3)), below and primary educational level (OR - 4.3(2.1-9.1)), who had eye checkup (17.6(7.8-39.6)) and diabetic (19.7(7-55.4)) were significantly associated with perceived poor visual function in bivariate analysis whereas after adjustment, diabetic status lost its significance with nagelkarke R2 (0.622). (Table-4)

Discussion

In this study, 49 (32%) study subjects were visually impaired which is quite alarming as study population were women aged 18-59 who may be considered as the backbone of the family. As there were no previous studies done on adult women population, discussion was done with studies on elderly population.

A hospital-based study done in Nepal (11) showed similar results, but that was done in elderly people, whereas this study was urban slum based and in the adult population. Another study done in the rural area of Kolkata (12), showed 38.2% prevalence of visual impairment in elderly, similar to this study but being done in adult women, the prevalence was high to be concerned. A study done in fishing population in south India (13) showed 30% were visually

impaired, which was less compared to this study, maybe due to better socio-economic status. A study in Tamil Nadu (14) showed female with odds of 1.31 and illiterate with odds of 2.74 were more prone to be visually impaired.

Studies done in South India (15-18) showed that the age, education and occupational status were significantly associated with visual function scores similar to this study except for socio economic status. Visual function scores declined with age and were higher in those with literates and working population.

Conclusion

Eye care programmes in our country still have curative approach; it must shift towards preventive approach that is more interactive with community for understanding how people perceive eye health, assess their demands and barriers to eye care thereby enabling development of strategies at community level such as educational activities and awareness campaigns, to effectively control blindness in the long run. Free supply of spectacles and corrective measures should be provided to ease the burden. Regular screening at the community level is required for early detection of visual impairment and related co-morbidities to offer early treatment of affected persons and visual rehabilitation to improve their quality of life.

Recommendation

It was a community-based study which was conducted among women aged 18-59 years of age in a slum based area, so it is first of its kind. Both physical examination and perception of visual function were assessed.

Limitation of the study

Detailed eye examination could not be done in a community setting and as the researcher was not trained in ophthalmology

Authors Contribution

All authors have contributed equally in this study.

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Tables

TABLE 1: DISTRIBUTION OF STUDY PARTICIPANTS ACCORDING TO THEIR EYE COMPLAINTS AND PERCEIVED VISUAL FUNCTIONING STATUS (N=153)

Eye complaints* (within past 2 months)	No. (%)
Blurring of vision	66(43.1)
Headache	35(22.9)
Eye irritation	57(37.3)
Dry eyes	24(15.7)
Watering of eyes	30(19.6)
Perceived vision functioning	
No. (%)	
Perceived Eye Health status:	
Good	83(54.2)
Fair	49(32.0)
Poor	21(13.7)
Difficulty in reading small prints /fixing things at home/sewing	70 (45.8)
Difficulty in reading traffic signs / seeing stairs	34 (22.2)
Difficulty in noticing objects off to the side while walking	27 (17.6)
Difficulty in matching your own clothes	0
Difficulty in going out of home	29 (19)
Role limitation	53 (34.6)
Feel irritable/frustrated/ worried	35 (22.9)

*Multiple responses

TABLE 2: DISTRIBUTION OF STUDY PARTICIPANTS ACCORDING TO THEIR DISTANCE VISUAL ACUITY (N=153)

Distance visual acuity	No. (%)
>=6/18 (Normal)	104 (68)
<6/18- 6/60 (Moderate visual impairment)	26 (16.9)
<6/60 – 3/60 (Severe visual impairment)	20 (13.1)
<3/60 – 1/60 (Blindness)	3 (2)

TABLE 3: DISTRIBUTION OF STUDY PARTICIPANTS ACCORDING TO THEIR EYE CARE SERVICE (N=153)

Variables	Frequency (%)
Eye checkup status:	
Nil	99 (64.7)
<=6 months	16 (10.5)
>6 months	38 (26.8)
Spectacles usage:	
Yes	22 (14.4)
No	131 (85.6)
If no, were you recommended? (n=131)	
Yes	32 (24.4)
No	99 (75.6)

Reason for not using specs (n=32)	
(Predominant)	
No money	20 (62.5)
broken	6 (18.7)
Not important	4 (12.5)
No specific reason	2 (6.3)

TABLE 4: MULTIVARIABLE LOGISTIC REGRESSION OF FACTORS ASSOCIATED WITH VISUAL IMPAIRMENT AND PERCEIVED VISUAL FUNCTION: (N=153)

Variables	Visually impaired No. (%)	AOR# (95% C.I.)	Poor visual function No. (%)	AOR# (95% C.I.)
Age (>40 Years)	41(69.5)	8.2(2.7-24.3)*	47(79.7)	3.8(1.1-12.4)*
Education (<= primary level)	44 (46.8)	10.6(2.7-41.6)*	52(55.3)	4.4(1.2-16.1)*
Eye checkup (No)	40(40.4)	18.5(5.7-60.0)*	50(50.5)	13.1(4.8-60)*
History of diabetes/ hypertension (yes)	31(77.5)	2.7(0.6-10.9)	35(87.5)	2.7(0.6-10.9)
Nagelkarke R2	0.661		0.622	

#adjusted with occupation status

*significant at p<0.05

Hosmer lemeshow test: Non-significant