



Knowledge and Awareness about Cataract and factors affecting cataract surgery among rural versus urban population in Eastern India: An Observational study

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Abstract

Aim/Purpose: The purpose of this study is to compare & assess the knowledge and awareness about cataract and factors affecting cataract surgery among rural and urban population in Eastern India (Kolkata).

Methodology: A cross-sectional descriptive study was conducted among rural and urban population. A total of 345 (mean age: 47±2.53 years) participants- male=192 & female=153, married=267, unmarried=78, were enrolled in this study. A modified questionnaire was used to collect data from the participants through a survey camp. All the collected data was processed and analysed by Chi-square test in SPSS version 21.

Results: It was found that out of 345 subjects, [173 rural & 172 urban subjects], 88 (50.8%) and 107 (62.2%) were

know about cataract in rural and urban population respectively. Awareness camp (49.8%) was the foremost source of information. However 89.0% (rural) & 95.3% (urban) participants know blurred vision is a commonest symptom, while 22.5% & 36.6% participants aware about cataract can cause blindness in rural and urban respectively. Individuals 63.0% rural and 65% urban participants even know about risk factors of cataract and 72.8% (rural) and 87.2% (urban) participants know about surgical treatment and extraction of cataractous lens. All factors mentioned were found to be statistically significant ($p < 0.05$) with the Pearson Chi-square in SPSS version 21.

Conclusion: Although awareness levels about cataract are satisfactory among the rural and urban population in

Eastern India (rural<urban), while there was lack of sources or economical support more in rural populations than the urban. There is a high need for focussed information, education, and communication campaigns as well as economical support to prevent avoidable blindness due to cataract in rural populations.

Keywords: Optometry, Eye-care services, Education, Cataract, Avoidable blindness.

Introduction

Globally, at least 2.2 billion people have a near or distance vision impairment. In at least 1 billion – or almost half – of these cases, vision impairment could have been prevented or has yet to be addressed.¹

The leading causes of vision impairment and blindness are cataracts.

The majority of people with vision impairment and blindness are over the age of 50 years, however, vision loss can affect people of all ages.

According to Murthy G et al², the absolute number of cataract blind would increase from 7.75 million in 2001 to 8.25 million in 2020 due to a substantial increase in the population above 50 years in India over this period.

Cataract has been documented to be the most significant cause of bilateral blindness in India where vision < 20/200 in the better eye on presentation is defined as blindness. In India cataract has been reported to be responsible for 50-80% of the bilaterally blind in the country.³⁻⁸

According to World Health Organization (WHO) cataract is clouding of the lens of the eye, which initially prevents clear vision and eventually progresses to blindness if left untreated.⁹ It causes increased light sensitivity, decreased vision at night, seeing double images and leads to total blindness.¹⁰⁻¹¹ Although the commonest causes of cataract are related to the aging process, occasionally

children can be born with the condition, or a cataract may develop after eye injuries, inflammation, and some other eye diseases.¹²⁻¹⁴

A cataract is any clouding or opacity of the eye's lens, which can result in increased scattering of light. Lens opacity can result from the separation of protein process, the aggregation of proteins, or the disruption of the fiber cells' regular alignment or packing.¹⁵

If cataract is left unmanaged and untreated, it can lead to blindness.¹⁶⁻¹⁷ Few of the common factors are advancing age, sunlight exposure, trauma, steroid use, smoking and genetics.¹⁸

Cataract commonly affects both eyes but generally develop in one eye before the other.¹⁹ The visual significance of cataract cannot be underemphasized. Left untreated, cataract can lead to blindness.²⁰⁻²¹

Currently, the standard treatment for cataract is surgical extraction of the opacified lens with an implantation of an artificial lens.²²⁻²⁴

Studies have shown that like other eye care services, even when cataract surgery options are available, they are generally underutilized.²⁵⁻²⁶ One of the factors reported to contribute to underutilization of cataract surgical services is the lack of awareness of cataract and the surgical treatment option.²⁷⁻²⁸

Methodology

Research design: This study was a cross-sectional survey-based study among rural and urban population in Eastern India. The study included all the profession (worker, business-man, tailor, house wife, barber, service man, students, nurse, fisher, teachers, sales man), who agreed to participate in this study. The study was conducted in Eastern India (Kolkata, West Bengal).

Time frame: It was conducted between September to November month of 2021.

Sample size: It was included 345 participants including rural and urban area participants.

Sampling procedure

This study was included clustered-sampling methods to collect the data by adopted a validated questionnaire previously used in a related study in India and Abroad.²⁹⁻

³⁵ The questionnaire was modified according to objective of this study, it was entitled as a Google form questionnaire to delivered electronically in eastern zone of India by an awareness camp, who agreed (rural & urban population) to participate in this study.

It comprised 16 close-ended questions that explored demographic data, knowledge and awareness about cataract and factors/barriers affecting cataract surgery.

Inclusion criteria: It was included only rural and urban populations, age 20 years to 70 years, who agreed to participate in this study.

Exclusion criteria: It was excluded population, age <20 years or >70 years and who not agreed to participate in this study.

Data Analysis

Data were captured and analysed with the Statistical Programme of Social Sciences (SPSS) version 21. Descriptive statistics were used to analyse values such as frequencies, mean, standard deviation, cross tabulation and percentage of collected data. Chi-square test was used to analyse association between relevant variables. A p-value of <0.05 was considered statistically significant.

Characteristics	Rural		Urban	
	N=173	%	N=172	%
Age				
20-30	40	23.1	43	25.0
31-40	36	20.8	38	22.1
41-50	39	22.5	51	29.7
51-60	38	22.0	25	14.5

>60	20	11.6	15	8.7
Gender				
Male	96	55.5	96	55.8
Female	77	44.5	76	44.2
Marital status				
Married	137	79.2	130	75.6
Unmarried	36	20.8	42	24.4
Literacy				
Literate	45	26.0	132	76.7
Illiterate	128	74.0	40	23.3
Occupation				
House wife	50	29.0	36	21.0
Business-man	48	27.6	64	37.2
Worker	27	15.6	14	8.1
Students	22	12.7	28	16.3
Tailor	5	2.9	2	1.2
Barber	4	2.3	2	1.2
Service man	11	6.4	15	8.7
Nurse	0	0	2	1.2
Fisher	3	1.7	0	0
Teacher	2	1.2	5	2.8
Sales man	1	0.6	4	2.3

Table 1: Demographic data of Rural & Urban participants (N=345).

Results

It was found that out of 345 subjects, [173 rural & 172 urban subjects], 88 (50.8%) and 107 (62.2%) were know about cataract in rural and urban population respectively. Awareness camp (49.8%) was the foremost source of information. However 89.0% (rural) & 95.3% (urban) participants know blurred vision is a commonest symptom, while 22.5% & 36.6% participants aware about cataract can cause blindness in rural and urban respectively. Individuals 63.0% rural and 65% urban participants even know about risk factors of cataract and

72.8% (rural) and 88.3% (urban) participants know about surgical treatment and extraction of cataractous lens.

The commonest symptoms including; Blurred vision (89% & 95.3%), Cloudy vision (4.0% & 2.5%), don't know (5.8% & 3.4%), & the treatment options for mature cataract including; surgical option (72.8% & 87.2%), medication (7.0% & 6.4%), glasses (18.5% & 6.4%), & the risk factors including; diabetes (19.6% & 19.7%), smoking (63.0% & 65.0%), sunlight (UV) exposure (15.6% & 23.3%), others (25.4% & 32.6%) were observed in rural and urban subjects respectively. All factors mentioned were found to be statistically significant ($p < 0.05$) with the Pearson Chi-square test in SPSS version 21.

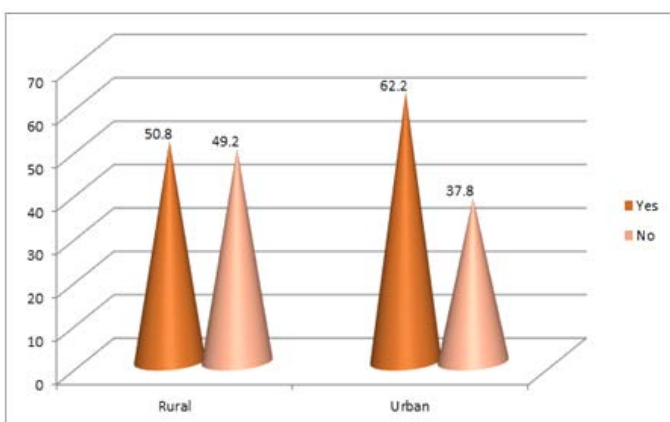


Figure 1: Rural & Urban participant's knowledge about cataract.

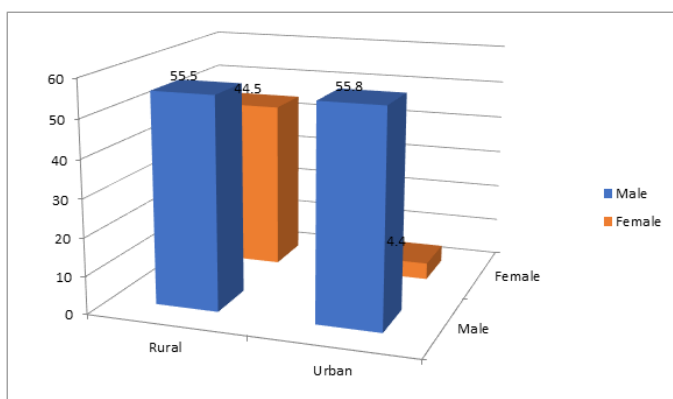


Figure 2: Gender distribution (rural & urban).

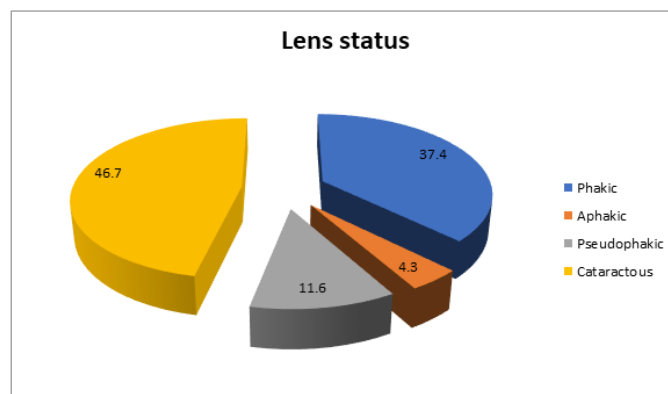


Figure 3: Frequency distribution of lens status among participants.

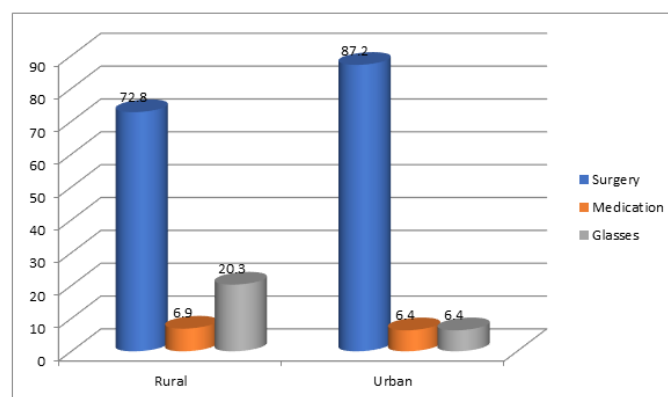


Figure 4: Rural & Urban participant's knowledge about treatment options for cataract.

Risk Factors	Rural		Urban		P-value
	N	%	N	%	
Aging	132	76.3	118	68.6	<0.05
Diabetes	34	19.6	34	19.7	<0.05
Smoking	109	63.0	100	58.1	<0.05
Trauma	24	13.9	49	28.5	<0.05
Heredity	2	1.1	14	8.1	<0.05
Sunlight (UV) exposure	27	15.6	40	23.2	<0.05
Steroid use	5	2.9	26	15.1	<0.05
Others	44	25.4	56	32.6	<0.05

Table 2: Participants responses on risk factors of cataract.

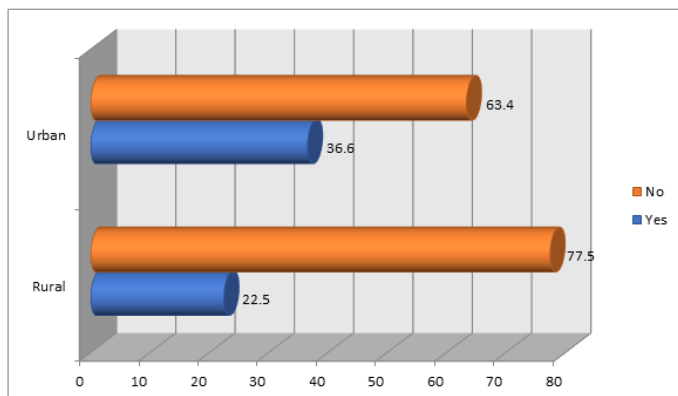


Figure 5: Participants responses on 'can cataract lead to blindness'

Participants	Grading of cataract					
	Low (%)		Moderate (%)		High (%)	
	Yes	No	Yes	No	Yes	No
Rural	12.1	87.9	52.1	47.9	35.8	64.2
Urban	11.6	88.4	54.7	45.3	33.7	66.3

Table 3: Participants knowledge on grading of cataract.

Discussion

Cataract is one of the commonest causes of blindness around the world, and most of the cataracts are related to age.³⁶ In developing countries like Australia cataract surgery is the most frequently performed ophthalmic procedure.³⁷ With regard to increasing population and advancing age the burden of cataract is increasing on the societies especially in the developing nations as it occurs at an earlier age and healthcare services are limited.³⁸ Even if cataract Surgeries are frequently performed and are an effective cure, studies to establish the causative factors and pathophysiology to delay or avert the progress of cataract is a prime challenge in the 21st century.³⁹ Studies determining the risk factors for cataract development are widely performed to illuminate the risk factors.⁴⁰⁻⁴⁶ These studies have found some modifiable and preventable risk factors that when targeted can reduce the occurrence of the condition.

Present study	Puri SK et al. ³³
1. Study conducted in Kolkata (Eastern India).	1. Study conducted in Kanchipuram, India.
2. Cross-sectional survey-based study (Sep-Nov.2021).	2. Cross-sectional survey-based study (Feb-March. 2016).
3. 345 participants responded to the questionnaire.	3. 430 non-medical students responded to the questionnaire.
4. 88 (50.8%) and 107 (62.2%) were know about cataract in rural and urban population respectively.	4. 65.81% students have heard about cataract.
5. However 89.0% (rural) & 95.3% (urban) participants know blurred vision is a commonest symptom, while 22.5% & 36.6% participants aware about cataract can cause blindness in rural and urban respectively. Individuals 63.0% rural and 65% urban participants even know about risk factors of cataract and 72.8% (rural) and 88.3% (urban) participants know about surgical treatment and extraction of cataractous lens.	5. 50 students out of 283 students were aware about the basic facts about cataract. The rest 233 students did not know that it was a commonest cause of blindness and it can be easily removed and full vision restored. Overall, only 11.62% were aware about the basic facts about cataract. 34.10% was not aware about cataract.
6. Data analysis was performed using Chi	6. Data analysis was performed using Chi square

square test by SPSS version 21.	test by SPSS version 21.
7. A 'p' value of < 0.05 was considered as significant.	7. A 'p' value of < 0.05 was considered as significant.

Table 4: Discussion.

Anant Vir Jain et al. ³⁴	Fikrie et al. ³⁵
1. Study conducted in Uttar Pradesh, India.	1. Study conducted in Yirgalem Town, Southern Ethiopia.
2. Cross-sectional survey-based study (July-August, 2015).	2. Cross-sectional survey-based study (May 2020).
3. 200 subjects responded to the questionnaire.	3. 599 subjects responded to the questionnaire.
4. There were 62% subjects who thought that lens opacities lead to cataract.	4. There was 379 (64.7%), of them had good knowledge about cataract.
5. Blurred vision was the most frequently associated symptom as per 50% subjects. Pain was a symptom according to 38% subjects. Cataract could lead to blindness as per 74% subjects. According to 44% subjects only surgical treatment option was available for cataract and as per 56% non-surgical management therapy was also there	5. Elementary school, High school &, governmental and non-governmental employed, Merchant, were positively significantly associated with knowledge about cataract. Whereas, rural residence was negatively associated with knowledge about cataract.
6. Data analysis was	6. Data analysis was

performed using Chi square test by SPSS version 21.	performed by Bi-variable and multivariable logistic regression test by SPSS version 21.
7. A 'p' value of < 0.05 was considered as significant.	7. A 'p' value of < 0.05 was considered as significant.

Table 5: Discussion

Conclusion

The awareness of one of the leading cause of treatable blindness like cataract is low among rural populations. Steps should be taken to increase the awareness about cataract and also about the various treatment options available for cataract. More focus should be on cataract in health education programmes.

There is a high need for focussed information, education, and communication campaigns as well as economical support to prevent avoidable blindness due to cataract in rural populations.

It is also recommended for researchers to conduct further similar studies in rural districts and consider different methods to include street adults and adults in firms to get more generalizable result.

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and edited the manuscript, study design, gathering relevant research papers, conceptualisations, read and approved the final manuscript.

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