

# Prevalence of Cataract and Major Obstacles to Uptake Cataract Surgery in Rural Regions of Ganjam (Odisha, India)

Tapasi Upadhyaya<sup>1</sup>, Nandini Pattanaik<sup>2</sup>, Jayashree Samal<sup>2</sup>,  
Bidyut Prava Nayak<sup>2</sup>, Prabhu Kaibalya Das<sup>1</sup>

<sup>1</sup>Khallikote University, Berhampur,

<sup>2</sup>Nimapara Autonomous College, Nimapara.

Corresponding Author: Prabhu Kaibalya Das

## ABSTRACT

**Purpose:** At present “Cataract” is a major health issue in case of adults over 40 years. It was a cross sectional survey to determine the prevalence of cataract in rural areas of Ganjam in Odisha state of India.

**Methods:** Two villages of Ganjam district were selected for the survey. Total 765 participants were interviewed, from which 436 were male, and 329 were female.

**Results:** Prevalence of cataract was 24.71%. Among the sample population 13 people were bilaterally blind and 161 were suffering from low vision. The main obstacle to uptake cataract surgery was “poverty”. “Lack of awareness” was another noticeable factor which was affecting the prevalence of cataract.

**Conclusion:** It was concluded that “prevalence of cataract is directly proportional to the increasing age and it is still a major health issue in these rural populations”.

**Key words:** Cataract, Ganjam, Surgery, Obstacle, Poverty, Awareness.

## INTRODUCTION

According to the WHO, cataract blindness will reach 40 million in 2025 due to aging population and longer life expectancies. [1] Cataract is the phenomenon of opacification of lens leading to optical disability. [2] Cataract is the cause of 40% of all blindness in India. [3] It is the cause of blindness in 27 million persons in one or both eyes, [4] and prevalence of cataract is about 7%. [5] The estimated cataract blindness is about 9 million in India. [6] About 1.8 to 3.8 million new cases is added to the backlog every year. [7] Prevalence of blindness is exceeding in rural communities of developing countries. [8] It was estimated that 20% of all cataract-blind individuals

receive surgery in India. [9] According to a study in Karnataka State in India 53% of persons and 35% of all eyes blind due to cataract have been operated. [10] As per previous studies major barriers to uptake cataract surgery are “poverty”, “no transportation”, “need not felt”, etc. [11,12] Around half to three fourths of the world's blindness is either curable or preventable. [13,14] Accessibility of eye care facilities in these populations may interpret into proper utilisation. A rapid form of cataract blindness in such populations has evolved. [15]

### Purpose of the study

- Cataract is a major health hazard in the present world.

- People of remote rural areas are not careful about the minor health problems, like low vision, small increase in glycemic level, etc. but these can be converted into severe diseases.
- Hence this study suggests that regular health monitoring in these areas is essential.

#### Aims & Objectives

- This study is focused on the prevalence of cataract in rural areas.
- Association of cataract with increasing age.
- The major obstacles to uptake cataract surgery.

#### Significance

- This study revealed that, Prevalence of cataract is directly proportional to increasing age.
- Major obstacles to uptake surgery are “poverty” and “lack of awareness”.

#### METHODS

It was a population based cross-sectional survey of people aged 40 years or above in Ganjam district in the state of Odisha, India. There are hundreds of villages in various blocks of Ganjam where lots of people are affected by cataract. The study was carried out for a period of one month from November 2016 to December 2016. It was only an oral (interview) survey to estimate the prevalence of cataract and cataract blindness in these remote rural areas.

#### Procedure of data collection

A house-to-house survey was carried out in the two selected villages (Alipur and Babanapur) of Aska block to estimate the population density and the effected people. One day advance information was provided to the residents of this area in order to ensure better coverage of the effected persons. If the eligible person was not available at the time of house visit, a second visit was made after fixing a suitable time and date with other inmates or neighbours. If on the second visit also the eligible person was not available, the person was excluded from the study.

After taking informed consent, the effected persons were interviewed regarding various risk factors namely age, sex, literacy status, socioeconomic status, family history, hypertension & Diabetes Mellitus using a pre-designed questionnaire.

#### Statistical analysis

The data collected was then tabulated. The data was statistically analysed using appropriate statistical techniques, which included percentages and Chi-square test (at 0.10 level of significance) to find out the prevalence of cataract and its association with the increasing age.

#### RESULTS AND DISCUSSION

Inhabitants of rural areas in India do not use eye care services recurrently. [9,16] According to census data (2011), population of Alipur was 1346, including 691 males and 655 females. Population of Babanapur was 4286, including 2239 males and 2047 females. In the two villages about 1700 people were eligible for the study as they were aged above 40. A total of 765 people were interviewed out of the total eligible members. The participation rate was 45%.

#### Age-sex distribution

The sample of 765 people was comprised of 436(57%) males and 329(43%) females. Age-sex distribution of the sampled population is presented in figure 1.

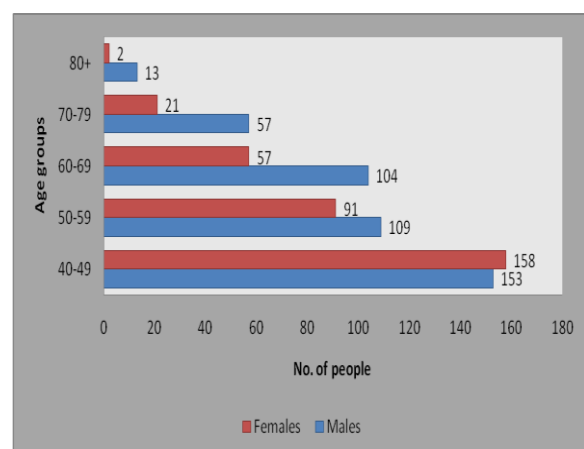


Fig.1 Age-sex distribution of sampled population

#### Association of cataract with age

Cataract is the foremost reason of avoidable sightlessness. [17] Visual impairment is maximum in people those are above 50 years of age. [18] From the comparison of association of age with cataract (table 1), it was found that more numbers of people were affected by cataract in age group 70-79 (70.51%) and 80+ (80%). But in group 40-49 (5.14%) and 50-59 (22.5%) these numbers were relatively less. Hence it was clear that “with increasing age prevalence of cataract is increasing”. According to the Chi-square test, ( $\chi^2 = 192.13$ ) increasing age had significant relationship with development of cataract.

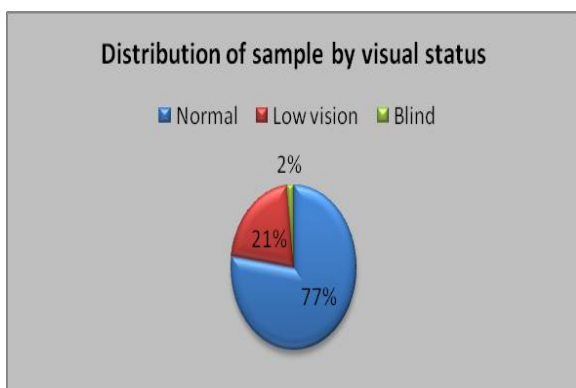
**Table 1: Association of cataract with age**

Age groups (years)	Subjects with cataract	Subjects without cataract	Total
40-49	16 (5.14%)	295 (94.86%)	311
50-59	45 (22.5%)	155 (77.5%)	200
60-69	61 (37.89%)	100 (62.11%)	161
70-79	55 (70.51%)	23 (29.49%)	78
80+	12 (80%)	3 (20%)	15
Total	189 (24.71%)	576 (75.29%)	765

$\chi^2 = 192.13$ , Degrees of freedom=4, At 0.10 level of significance.

**Frequency of blindness**

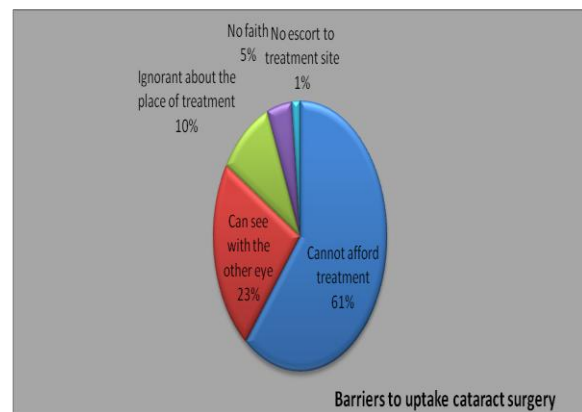
Cataract is the universal and considerable reason of blindness. [19] Cataract associated sightlessness remain untreated in rural regions of developing countries, due to lack of access to eye care. [20] Total 13 participants among the sample were almost blind. The frequency of blindness was 1.69% among the sampled population. In figure 2, the distribution of sample by visual status was presented.



**Fig.2 Distribution of sample by visual status**

**Obstacles to uptake cataract surgery**

Worldwide monetary burden is the foremost obstruction for cataract surgery. [21,22] In the current survey, major obstacle for the cataract surgery was poverty. About 60.76% of participants were unable to afford the expenditure of treatment and 10% of participants were ignorant about the place of treatment even some of them could afford treatment. 23.07% of participants with unilateral cataract were able to see with the other eye. 4.61% of participants were not having faith on surgery and 1.53% of participants were unable to reach the treatment site even they were aware of the treatment site. These data are interpreted in figure 3.



**Fig.3 Barriers to uptake cataract surgery**

The number of interviewed participants was 765, which was 45% of the people who were eligible for study as they were above 40 years of age and 13.58% of the total population of those two villages. The cause of this small sample size was that the people of these areas are moving to different nearest cities for earning their bread and butter. Some people also did not cooperate due to lack of faith. Among the studied sample prevalence of blindness (1.69%) may not be an astonishing fact but still it is a burden on the people of these rural areas of a developing country. Mohadi block of Bhandara district of Maharashtra State, India has a blindness prevalence of 6.8% among 40 years and above. [23] In Nepal a survey of those aged 45 years and above reported a blindness prevalence of 3.77%. [24]

Cataract is most frequent in remote, rural, underdeveloped areas. [25] In the current study the objective was to determine the prevalence of cataract in rural areas of Ganjam district of Odisha state, India, which was 24.71%. Male participants (57%) are more than that of females (43%) in the observed sample (figure 1). Association of cataract with age is very much significant (table 1) as the  $\chi^2$  value is 192.13 i.e. much more than the table value. Prevalence of blindness (1.69%) may not be surprising but a notable part of the sample (21.04%) is affected by low vision.

Proper treatment is the only way to reduce this health crisis. But there are some obstacles due to which these people are not getting the appropriate treatment. As most of the people in these rural areas are below poverty line, they are incapable to afford treatment. Therefore most (60.76%) of the affected participants mentioned financial problem most frequently as a barrier to surgery. Above 80% of patients suffering from cataract blindness in India did not take the surgery due to financial obstructions. [11] Some (10%) participants mentioned that even they could afford the treatment expenditure; they were ignorant of the treatment site. This may be due to the improper function of the primary healthcare. Due to poor visual outcome after surgery in one eye, some (4.61%) participants are not having any faith on surgery.

Government agencies should spread awareness in these rural areas. More cataract operations should be performed. But only the increasing number of operations is not enough if not combined with good case selection.

## CONCLUSION

This study concluded that a major part of the population of these rural areas was affected by cataract. These are the results of lack of awareness and incapability of the poor people to afford treatment. These are the issues which should be considered by the government agencies. More awareness programmes should be

conducted. Free surgery services for cataract should be available for the people under poverty line. At last it is concluded that large scale monitoring of cataract is necessary in these remote rural areas.

## REFERENCES

1. Pascolini D, Mariotti SP. Global estimates of visual impairment: 2010. *Br J Ophthalmol.* 2012; 96:614-618.
2. American Optometric Association. Optometric clinical practice guideline: care of the adult patient with cataract. 2004. Available from: <http://www.aoa.org/documents/optometrists/CPG-8.pdf>. Accessed January 22, 2017.
3. Spector A. Report on National Eye Institute cataract workshop. *Invest Ophthalmol Vis Sci.* 1974; 13:325-332.
4. Liu HS, McGannon WJ, Tolentino FI, Schepens CL. Massive Cataract relief in eye camps. *Ann Ophthalmol.* 1977; 9:503-508.
5. Venkataswamy G. Massive eye relief project in India. *Am J Ophthalmol.* 1975;79: 135-140.
6. Thylefors B, Négrel AD, Pararajasegaram R, Dadzie KY. Global data on blindness. *Bull World Health Organ.* 1995; 73: 115-121.
7. Minassian DC, Mehra V. 3.8. million blinded by cataract each Year-projections from first epidemiological study of incidence of cataract blindness in India. *Br J Ophthalmol.* 1990; 74: 341-343.
8. World Health Organization. (1997) Blindness and visual disability. Part IV of VII.WHO fact sheet. Geneva: Feb, No145:2.
9. Brilliant GE, Lepkowski JM, Zurita B, Thulasiraj RD. Social determinants of cataract surgery utilization in south India. *Arch Ophthalmol.* 1991; 109: 584-589.
10. Danish Assistance to National Programme for Control of Blindness. (1997) Rapid assessment of cataract blindness, Karnataka - report of survey design, methodology and results.
11. Venkataswamy PG, Brilliant G. Social and economic barriers to cataract surgery in rural south India: a preliminary report. *J Vis Impair Blind.* 1981; 75: 405-408.
12. Courtright P, Kanjaloti S, Lewallen S. Barriers to acceptance of cataract surgery among patients presenting to district

- hospitals in rural Malawi. *Tropical and geographical medicine* .1995; 47(1): 15-18.
13. Kupfer C. Worldwide prevention of blindness. *Am J Ophthalmol*.1983; 96:543-545.
  14. Methods of assessment of avoidable blindness. *WHO Offset Publ*.1980; 54: 1-42.
  15. Limburg H, Kumar R, Indravan A, Sundaram KR. Rapid assessment of prevalence of cataract blindness at district level. *Int J Epidemiol*. 1997; 26:1049-1054.
  16. Brilliant GE, Brilliant LB. Using social epidemiology to understand who stays blind and who gets operated for cataract in a rural setting. *Soc Sci Med*. 1985;21:553–558.
  17. Dandona L, Dandona R, Srinivas M, Giridhar P, Vilas K, Prasad MN, et al. Blindness in the Indian state of Andhra Pradesh. *Invest Ophthalmol Vis Sci*. 2001;42:908–916.
  18. Bourne RRA, Flaxman SR, Braithwaite T, et al. Magnitude, temporal trends, and projections of the global prevalence of blindness and distance and near vision impairment: a systematic review and metaanalysis. *Lancet Glob Health*. 2017;5:e888–897.
  19. World Health Organization. Visual impairment and blindness. 2014. Available from: <http://www.who.int/mediacentre/factsheets/fs282/en>. Accessed November 14, 2016.
  20. Lansingh VC, Carter MJ, Martens M. Global cost-effectiveness of cataract surgery. *Ophthalmology*. 2007;114:1670–1678.
  21. Fattore G, Torbica A. Cost and reimbursement of cataract surgery in Europe: a cross-country comparison. *Health Econ*. 2008;17(1 Suppl):S71–S82.
  22. Busbee BG, Brown MM, Brown GC, Sharma S. Incremental cost-effectiveness of initial cataract surgery. *Ophthalmology*. 2002;109:606–613.
  23. Limburg H, Vaidyanathan K, Pampattiwar KN. Cataract blindness on the rise? Results of a door-to-door examination in Mohadi. *Indian J Ophthalmol*. 1996; 44:241-244.
  24. Pokharel GP, Regmi G, Shrestha SK, Négre AD, Ellwein LB. Prevalence of blindness and cataract surgery in Nepal. *Br J Ophthalmol*.1998; 82:600-605.
  25. Thylefors B. A simplified methodology for the assessment of blindness and its main causes. *World Health Stat Q*. 1987;40:129–41.

How to cite this article: Upadhyaya T, Pattanaik N, Samal J et.al. Prevalence of cataract and major obstacles to uptake cataract surgery in rural regions of ganjam (Odisha, India). *Int J Health Sci Res*. 2018; 8(10):228-232.

\*\*\*\*\*