

## Evaluation of Risk Factors of Cataract in Adults

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### ABSTRACT

**Background:** Cataract is one of the most common causes of visual impairment in the world. The present study was conducted to assess risk factors of cataract in adults. **Methods:** The present study was conducted on 76 patients of cataract of both genders. A through eye examination was performed by expert eye specialist. Lens opacity was graded according to the Lens Opacity Classification System III (LOCS III). **Results:** Out of 76 patients, males were 46 and females were 30. Common risk factors of cataract were positive family history in 48, low SES in 52, age >50 years in 54, diabetes in 53 and hypertension in 47. The difference was significant ( $P < 0.05$ ). **Conclusion:** Risk factors of cataract was positive family history, low SES, age >50 years, diabetes and hypertension.

**Keywords:** Cataract, Diabetes, Socio- economic status

### INTRODUCTION

Cataract is one of the most common causes of visual impairment in the world. According to the World Health Organisation (WHO), cataract is the leading cause of blindness all over the world, responsible for 47.8% of blindness and accounting for 17.7 million blind people. In India, 80% of the blindness is due to cataract.<sup>[1]</sup> Various modifiable risk factors associated with cataract include UV exposure, diabetes, hypertension, body mass index (BMI), drug usage, smoking and socioeconomic factors; but advancing age is the single most important risk factor for cataract.<sup>[2]</sup>

There remain significant challenges in both delivery and utilization of cataract surgical services, especially by the most disadvantaged groups in the population. Identification of major risk factors for cataract in the Indian setting will be crucial in planning strategies to reduce or delay the development of this condition. The knowledge of epidemiological situation and its trend is a vital requisite for planning and subsequent review of strategies for the prevention or control of any disease or health-related event in any particular area.<sup>[3]</sup>

Cataract develops from a variety of reasons. Human cataract formation is mostly considered to be a multifactorial disease. Genetically determined

cataract is due to an anomaly in the chromosomal pattern of the individual. About one third of all congenital cataracts are hereditary. Malnutrition during pregnancy or in early infancy has been associated with non-familial zonular cataract.<sup>[4]</sup> Maternal infections like rubella, toxoplasmosis, and cytomegalo-inclusion etc., are also associated with congenital cataracts. Women have a higher incidence and risk for most types of cataracts than men. Age-related (or senile) cataract is defined as cataract occurring in people >50 years of age, unrelated to known mechanical, chemical, or radiation trauma.<sup>[5]</sup> The present study was conducted to assess risk factors of cataract in adults.

### MATERIALS AND METHODS

The present study was conducted in the department of Ophthalmology. It comprised of 76 patients of cataract of both genders. All patients were informed regarding the study and written consent was obtained. The study protocol was approved from institutional ethical committee.

Data such as name, age, gender etc. was recorded. A through eye examination was performed by expert eye specialist. Lens opacity was graded according to the Lens Opacity Classification System III (LOCS III). Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

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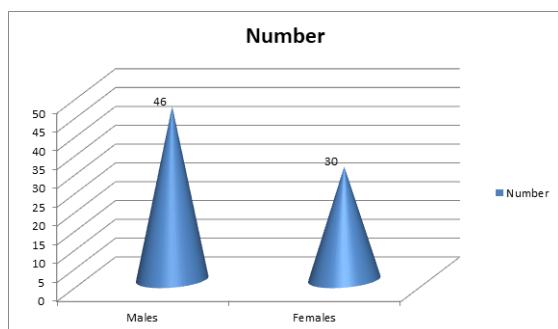
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## RESULTS

**Table 1: Distribution of patients**

Gender	Males	Females
Number	46	30

[Table 1 & Figure 1] shows that out of 76 patients, males were 46 and females were 30.

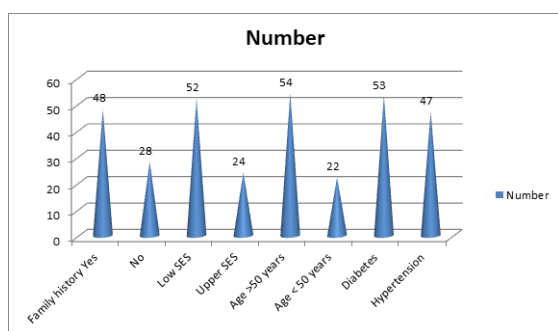


**Figure 1: Distribution of patients**

**Table 2: Risk factors of cataract**

Risk factors	Number	P value
Family history Yes	48	0.05
No	28	
Low SES	52	0.01
Upper SES	24	0.001
Age >50 years	54	
Age < 50 years	22	0.84
Diabetes	53	
Hypertension	47	

[Table 2 & Figure 2] shows that common risk factors of cataract were positive family history in 48, low SES in 52, age >50 years in 54, diabetes in 53 and hypertension in 47. The difference was significant ( $P < 0.05$ ).



**Figure 2: Risk factors of cataract**

## DISCUSSION

Blindness causes human suffering is economically devastating, and many early deaths. According to WHO, one-third of the world's 45 million blind and half of the world's 1.5 million blind children live in South-East Asia region. The blind persons are often leading a miserable life and are disenfranchised. Three national surveys in India have extrapolated the survey result to project that number of people affected with cataract will reach to 8.25 million by

2020.6 Vashist et al,<sup>[7]</sup> reported prevalences of 58% in North India and 53% in South India in the older age group (>60 years) with nuclear cataract being the most common type of cataract in both parts of the country. In India, a very few population based studies have been undertaken to explore the risk factors for cataract in older age group, especially since the proportion of the elderly has been significantly increasing in the country; the 60 + population which stood at 56 million in 1991 is now estimated to have doubled in 2016. The present study was conducted to assess risk factors of cataract in adults.

In this study, out of 76 patients, males were 46 and females were 30. Xu et al,<sup>[8]</sup> found that a total of 6617 subjects were recruited from both rural and urban areas. Cataract was present in 1094 of the rural and 649 subjects in the urban population. Monotype subtype cataracts were found in 32% and 25% in rural and urban population and 12.68% and 18.6% were mixed cataracts in the rural and urban groups. In baseline characteristics history of diabetes, alcohol intake and presence of age-related macular degeneration were the risk factors in urban group. On multivariate analysis, the only significant risk factors for any cataract in subjects  $\geq 60$  years were increasing age in both rural and urban population, and HbA1c in rural population. Overweight was found to be a protective factor, and lower social economic status a risk factor for cataract in urban population. A significant urban-rural difference was found in the prevalence of cataract and its subtypes ( $P \leq 0.05$ ).

We found that common risk factors of cataract were positive family history in 48, low SES in 52, age >50 years in 54, diabetes in 53 and hypertension in 47. Sobti et al,<sup>[9]</sup> found that out of 594 persons enumerated as eligible for the study, only 547 were examined with an overall response rate of 92.09%. Data analysis revealed a cataract prevalence of 24.86% which increased significantly with age. A significant association of cataract was also seen with low literacy status, outdoor occupation, family history of cataract and lower BMI; whereas no association was observed with other factors viz. sex, socio-economic status, diabetes mellitus and hypertension.

Early clinical studies of cataract formation in diabetes mellitus noted a high prevalence of arterial hypertension. The role of smoking in cataractogenesis has been highlighted in various studies. These studies have shown 2-3 fold increased risk of cataract in smokers. The increase in smoking dose was associated with increasing severity of nuclear opacities. A cataract can form after blunt or penetrating injuries to the eye and entry of a difficult-to-remove foreign object, leads to physical damage and discontinuation of the eye lens capsule. When the outer lens capsule breaks, the inner lens

swells with water and turns white due to denaturation of lens proteins. Concussion of the lens without rupture of the capsule may result in a cataract that is initially sub-capsular and commonly has a star-shaped appearance.<sup>[10]</sup>

### CONCLUSION

Authors found that risk factors of cataract was positive family history, low SES, age >50 years, diabetes and hypertension.

### REFERENCES

1. Raizada IN, Mathur A, Narang SK. A study of prevalence and risk factors of senile cataract in rural areas of Western U.P. *Indian Journal of Ophthalmology* 1984;32(5):339-42.
2. Bachani D, Murthy GVS, Sanjeev KG. Rapid Assessment of cataract blindness in India. *Indian Journal of Public Health* 2000;44(3):82-88.
3. Tabbara KF, Degnan DR. Blindness in Saudi Arabia. *JAMA* 1986;255 (24):3378-84. 4. Limburg H, Vaidyathan K, Pampativar KN. Cataract blindness on the rise? Results of a door-to-door examination in Mohadi. *Indian J Ophthalmology* 1996;44(4):241-4.
4. Leske MC, Connell MS, Wu SY, Hyman L, Schachat A. Prevalence of Lens Opacities in the Barbados Eye Study. *Archives of Ophthalmology* 1997;115(1):105-11.
5. Rabi MM. Cataract blindness and barriers to uptake of cataract surgery in a rural community of Northern Nigeria. *British Journal of Ophthalmology* 2001;85(7):776-780.
6. Nathan Congdon. Prevalence of Cataract and Pseudophakia/Aphakia among adults in the United States. *Archives of Ophthalmology* 2004;122(4):487-494.
7. Vashist P, Talwar B, Gogoi M, Maraini G, Camparini M, Ravindran RD, et al. Prevalence of cataract in an older population in India: The India study of age-related eye disease. *Ophthalmology* 2011;118:272-8.
8. Xu L, Cui T, Zhang S, Sun B, Zheng Y, Hu A et al. Prevalence & risk factors of lens opacities in urban & rural Chinese in Beijing. *Ophthalmology* 2006;113(5):747-55.
9. Sobti S, Sahni B. Cataract among adults aged 40 years and above in a rural area of Jammu district in India: Prevalence and Risk-factors. *International J. of Healthcare & Biomedical Research*. 2013 Jul;1(4):284-96.
10. Chatterjee A, Milton RC, Thyle S. Prevalence and aetiology of cataract in Punjab. *British Journal of Ophthalmology* 1982;66(1):35-42.

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