

# Cataract Times

AN UPDATE ON CATARACT SURGERY



## Environmental risk factors for cataract in India

(Source: Vashist P, Tandon R, Murthy GVS, et al; ICMR-EYE SEE Study Group. Association of cataract and sun exposure in geographically diverse populations of India: The CASE study. First Report of the ICMR-EYE SEE Study Group. PLoS One. 2020;15(1). doi: 10.1371/journal.pone.0227868)

Cataract is a major cause of blindness. Hence, a thorough understanding of the epidemiological risk factors, including the modifiable ones, is a prerequisite for its prevention. Although several studies have investigated the role of potential environmental and behavioral risk factors in the development of cataract, their results have been inconsistent. The Indian Council of Medical Research - Eye, Sun Exposure, & Environment study demonstrated an association of cataract with increasing level of sun exposure, smoking, and exposure to indoor kitchen smoke. This was a cross-sectional study in populations (n = 12,021; mean age 54.5 years; 45.5% males) from three geographically distinct regions of India (hills, plains, and coastal areas). The key findings are presented in this report.

**Cataract HEADLINES**

### Prevalence and pattern of cataract

- With an overall prevalence of 33.3%, the occurrence of cataract increased with age (peaking at 90.1% in those aged >70 years) & was comparable among males & females.
- The most frequent subtype was nuclear cataract (94.7% of eyes), followed by cortical cataract (28.2% of eyes) & posterior subcapsular cataract (PSC; 16.7% of eyes).

### FAST FACTS ON CATARACT

Cataract, a major cause of blindness worldwide, occurs a decade earlier among Indians compared to the western population.

### Risk factors for cataract and its subtypes

- Sun exposure in the 3<sup>rd</sup>, 4<sup>th</sup>, & 5<sup>th</sup> quintiles were strongly associated with cataract. Smokers & exposure to indoor kitchen smoke also had a significant association with cataract (Table 1).
- There was a positive association of nuclear cataract with increasing sun exposure in the 3<sup>rd</sup>, 4<sup>th</sup>, & 5<sup>th</sup> quintiles, smoking, & indoor kitchen smoke exposure (Table 1).
- While a positive association was noted between cortical cataract and sun exposure in the 5<sup>th</sup> quintile, no significant risk factor for PSC was identified (Table 1).

Table 1: Cataract and its subtypes – Association with risk factors

Factor	Any cataract (OR*)	Cataract subtype (β coefficient**)		
		Nuclear cataract	Cortical cataract	PSC
Lifetime cumulative effective sun exposure				
1st quintile	1	1	1	1
2nd quintile	1.1	0.1	1.3	0.2
3rd quintile	1.6 <sup>‡</sup>	0.5 <sup>§</sup>	1.0	0.1
4th quintile	2.6 <sup>‡</sup>	0.9 <sup>§</sup>	1.3	0.5
5th quintile	9.4 <sup>‡</sup>	2.1 <sup>§</sup>	2.6 <sup>§</sup>	0.7
Smoking				
No	1	1	1	1
Yes	1.4 <sup>‡</sup>	0.4 <sup>§</sup>	0.1	0.4
Indoor kitchen smoke exposure				
No	1	1	1	1
Yes	1.2 <sup>‡</sup>	0.3 <sup>§</sup>	0.1	0.4

Participants with no cataract were included as controls in all the analyses. \*Only participants with any cataract assessed on clinical evaluation (including pseudophakia and aphakia) were included as cases. \*\*Adjusted for participants' level of education; Only participants with specific types of cataract were included as cases. <sup>‡</sup>p < 0.05. <sup>§</sup>p < 0.001. OR: Odds ratio; PSC: Posterior subcapsular cataract; Ref.: Reference.

**Cataract was found to be associated with increasing level of sun exposure, smoking, & exposure to indoor kitchen smoke.**

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