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Regional Burden of Cataract in Adult Population in Punjab

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ABSTRACT

Introduction: Cataract is a major public health concern in India, especially among older people. There is an increase in backlog of blind eyes due to cataract especially in North India.

Methodology: A prospective cross-sectional study was conducted in rural and urban areas in Punjab region from August 2023 to July 2024 at Sankara eye hospital Ludhiana. The study included male and female participants aged above 40 years with cataract. Patients with severe redness, some other pathological conditions, and also were unwilling to participate, and pediatric patients were excluded. The examination included demographic data, visual acuity measurement, refraction, and anterior segment examination. Cataract was graded by type and severity of opacity using the Lens Opacity Classification System III (LOCS III).

Results: Total of 3003 individuals was screened in various camps, out of which 385 individuals were included in the study. Out of subjects, 20.11% were diagnosed to have cataract. Out of the 385 patients, 196 (51%) are male and 189 (49%) are female. Immature cataract was found to be most common (51%). The prevalence of cataract increased for aged 60 years and above. 40 individuals (10%) working indoor were diagnosed with cataract and around 152(40%) individuals were working in outdoor conditions. Univariate analysis of selected socioeconomic, demographic, dietary, and other variables suggested that a higher prevalence was associated with low education, working outdoors and non-vegetarian diet.

Conclusion: The study found significant difference in cataract under intense UV radiation and a strong positive correlation between UV radiation and cataract. Workers exposed to bright light should have regular eye check up to prevent ocular problems. Geriatric population, outdoor workplace, low socio-economic status was major risk factor for cataract.

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Introduction

A cataract is a progressive ocular condition characterized by the opacification of the crystalline lens. This opacification disrupts the transmission of light to the retina, leading to a gradual deterioration of visual function [1,2]. Cataracts are a leading cause of blindness globally [3]. While refractive glasses may offer some benefit in the early stages, surgical intervention is a highly effective procedure is often recommended when cataracts progress to the point of interfering with an individual's ability to perform daily activities. This study aimed to determine the regional burden of cataract in the adult population in Punjab and contribute to efforts aimed at eliminating preventable and curable blindness.

Methodology

This study employed a prospective, cross-sectional design to investigate cataract prevalence and risk factors in Punjab, India, spanning from August 2023 to July 2024. Individuals aged 40 years and above were recruited from community-based eye screening camps at Sankara Eye Hospital, Ludhiana. A sample size of 385 was determined, and participants were selected using convenient sampling. Data collection involved informed consent, structured interviews for demographic details, Snellen chart visual acuity measurements, refraction, anterior segment examinations, and LOCS III cataract grading. Detailed histories were also taken, including occupational and environmental exposure information. Statistical analysis, including descriptive statistics

Results

Total of 3003 individuals was screened in various camps, out of which 385 individuals were included in the study. The study population ranged in age from 40 to over 80 years, with the highest frequency of cataract observed in the 60-69-year age group (Figure 1). Of the 385 participants, 196 (51%) were male, and 189 (49%) were female. A majority of the participants (n=259) reported a vegetarian diet, while 33% (n=126) were non-vegetarians. The level of education was categorized as "educated" and "uneducated," with 68% (n=260) of participants being uneducated and 32% (n=125) being educated. Regarding workplace, 50% (n=192) of the participants were unemployed, 40% (n=152) worked outdoors, and 10% (n=40) worked indoors. Most participants (76%) reported

no history of smoking or drinking, while 11% were smokers, 12% were drinkers, and 1% reported both. Immature cataract was the most common type, accounting for 51% of cases. The prevalence of systemic diseases among participants was as follows: 64% reported no systemic illness, 20% had diabetes mellitus, 10% had hypertension, and 6% had other systemic illnesses. The most frequent presenting visual acuity was 6/60 or 1.0 (Figure 2).

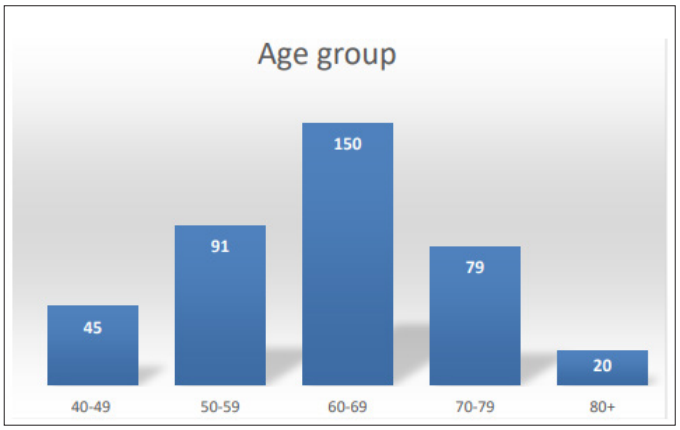

Figure 1: Frequency Distribution of Age

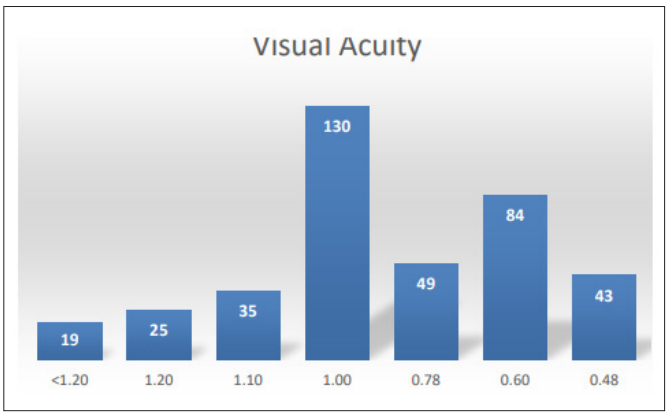

Figure 2: Frequency Distribution of Visual Acuity

Discussion

This study, conducted across screening camps, aimed to assess the prevalence of cataracts among adult population. The findings yielded several key insights into the participants' demographic profiles, dietary habits, educational status, employment situations, social history, and systemic health conditions, all factors relevant to cataract development.

The study found that older age was a significant factor in cataract prevalence, aligning with existing literature that establishes the increased likelihood of cataracts in older populations [4]. A slightly higher occurrence of cataracts was observed in males compared to females, a finding consistent with some studies that have reported a higher incidence of cataracts in men [5].

Interestingly, a greater proportion of individuals with cataracts reported being vegetarians. This result contrasts with the common belief that diets rich in antioxidants, typically associated with non-vegetarian food choices, may offer protection against cataract formation [6]. It is important to note, however, that vegetarian diets can also be rich in antioxidants and other nutrients that promote eye health.

Educational status also played a significant role, with individuals who had less formal education generally demonstrating lower awareness of cataracts compared to their more educated counterparts. This finding underscores the necessity for targeted educational interventions to improve awareness of eye health and cataracts within populations with lower levels of education.

Employment status was another noteworthy factor. A substantial proportion of those with cataracts were unemployed, suggesting that the condition may significantly impact the ability to work. The study also indicated a potential link between outdoor work and an increased risk of developing cataracts, possibly due to greater exposure to Ultraviolet (UV) radiation [7].

In terms of social history, the majority of participants with cataracts reported no history of smoking or drinking. This suggests that while these are known risk factors for various health conditions, they may not be the primary contributors to cataract development in this particular study population. A considerable portion of the cataract cases were classified as immature, implying that early detection and intervention could be beneficial in managing the condition.

The study also identified an association between certain systemic illnesses, namely hypertension and diabetes, and cataract development. These findings are consistent with previous research that has linked these conditions to an elevated risk of cataract development [8-10]. Additionally, a significant portion of the population demonstrated notably impaired vision, highlighting the importance of timely cataract detection and treatment to prevent vision loss [11].

In summary, this study offers valuable insights into the prevalence and characteristics of cataracts within the studied age group. The findings emphasize the need for targeted interventions, including education, awareness campaigns, and accessible screening programs, to effectively address the burden of cataracts in this population.

Conclusion

In conclusion, this study provides evidence of the significant regional burden of cataract in the adult population of Punjab. The results emphasize the importance of proactive measures to reduce the incidence and impact of cataracts in this high-prevalence region. Public health strategies should focus on early detection, prevention, and management of cataracts to improve the visual health and quality of life of the adult population in Punjab.

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