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Original Research Article

Factors associated with delayed presentation for cataract surgery among patients with senile mature cataract in North Karnataka

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ABSTRACT

Background: Cataract remains one of the preventable causes of blindness in India. Early intervention is important, as delay in surgery can cause more complicated preoperative and postoperative problems. Identifying patients who present late for cataract treatment is a common occurrence in our outpatient department (OPD). Local data on the determinants of late presentation for cataract surgery is lacking.
Methods: This is a cross-sectional study conducted for a period of four months in 206 patients with senile mature or hypermature cataracts attending for treatment at a tertiary care centre in North Karnataka, India. Patients were interviewed with the help of a structured questionnaire, and their answers were evaluated.
Results: 76.69% of the 206 patients were illiterate. 65% of the patients were rural residents, and all the patients had access to transport. The most frequent reason for late presentation to the hospital was lack of an accompanying family member/caretaker (24.27%), followed by good vision in the other eye (22.33%). Other reasons were fear of surgery (16.02%) and possible loss of income (12.62%).
Conclusions: A multi-faceted approach is needed to tackle these problems, involving community health education programmes, patient support systems, psychological counselling services, reducing financial constraints, and improving accessibility in ophthalmic cares.

Keywords: Cataract, Blindness, Delayed presentation, Rural healthcare, Patient awareness

INTRODUCTION

Cataract remains the leading cause of reversible blindness globally. According to World Health Organization (WHO), only 17% of people with vision impairment or blindness due to cataracts have received access to quality surgery.[1] Based on a recent study on the ageing population in India, the overall prevalence of cataracts was 14.85.[2]

Despite its high prevalence, particularly in ageing populations, a significant number of individuals delay seeking medical care for cataracts, which can lead to worsened visual outcomes and an increased burden on healthcare systems. Delayed presentation refers to the extended time between the onset of symptoms and the decision to seek professional care. Despite many free or subsidised surgical programs and government-sponsored health schemes promoting cataract surgery in the region, the late presentation of patients with advanced-stage cataracts remains a frequent occurrence in our outpatient department.

Factors associated with delayed cataract presentation can be grouped into several categories: individual characteristics such as age, gender, and literacy; economic and social factors including income, education, and access to healthcare; and systemic issues within healthcare infrastructure like the availability of ophthalmic services and the role of primary care providers in early detection. Psychological factors, such as denial, fear, or lack of awareness about the severity of cataracts, further complicate timely presentation.

Only a few studies in the Indian context have explored region-specific challenges. Identifying these barriers to eye care utilization is essential for developing effective strategies to prevent blindness.

METHODS

This hospital-based cross-sectional study was conducted in the Department of Ophthalmology, Karnataka Medical College and Research Institute, Hubli, North Karnataka, India, over a period of 4 months from November 2024 to February 2025. The study included a total of 206 patients presenting with senile mature or hypermature cataract to the outpatient department (OPD) and emergency services.

Inclusion criteria

Patients aged more than 50 years who presented with visual acuity of hand movements perception or worse and who were clinically diagnosed with senile mature or hypermature cataract were included.

Exclusion criteria

Patients with congenital or developmental cataract, traumatic cataract, complicated cataract, presenile cataract (age less than 50 years) and low vision due to ocular pathology other than cataract were excluded.

Following consent, demographic and socioeconomic data were collected from each participant, including age, gender, residential address, level of education, occupation, family size, availability of transportation, and access to ophthalmic services in the locality. Patients were also interviewed using a structured questionnaire to assess awareness and knowledge of cataract and its complications, as well as to identify reasons for delayed presentation for cataract surgery.

Data was entered in Microsoft Excel (MS Excel) and later exported to statistical package for the social sciences (SPSS) and analysed using SPSS software. Categorical variables were expressed as frequencies and percentages, while continuous variables were presented as means with standard deviations.

RESULTS

A total of 206 patients were included in the study, comprising 132 females (64%) and 74 males (36%) as shown in (Figure 1). The mean age of the study population was 62.52±8.44 years.

With regard to educational status, 158 patients (76.69%) were illiterate, 45 patients (21.84%) had completed education up to secondary school (SSC), and only 3 patients (1.45%) were graduates as shown in (Figure 2).

Occupational data revealed that 102 patients (49.51%) were either unemployed or retired, 98 patients (47.57%) were engaged in farming or daily wage labour, and 6 patients (2.91%) were employed in highly skilled professions (Table 1).

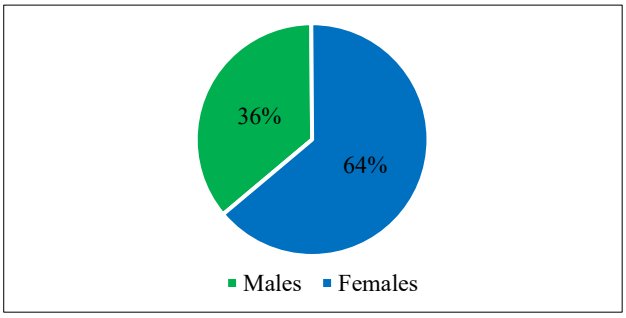

Figure 1: Distribution of patients by gender (in percentage).

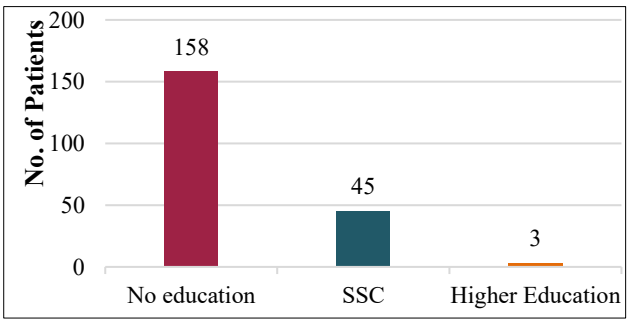

Figure 2: Distribution of patients by educational status.

Table 1: Distribution of patients by occupation.

Occupation	No. of patients (total: 206)	Percentage
Unemployed/retired	102	49.51
Farming/daily wage labour	98	47.57
Skilled professionals	6	2.91

In terms of household composition, 18 patients (8.73%) were living alone, 170 patients (82.52%) belonged to nuclear families, and 18 patients (8.73%) were part of joint families (Table 2).

Table 2: Distribution of patients by family status.

Household composition	No. of patients (total: 206)	Percentage
Living alone	18	8.73
Nuclear family	170	82.52
Joint family	18	8.73

The majority of the patients (n=134, 65%) resided in rural areas, whereas 23 patients (11.16%) were from semi-urban and 49 patients (23.78%) from urban areas (Table 3).

Table 3: Distribution of patients by area of residence.

Area	No. of patients (total: 206)	Percentage
Rural	134	65.05
Semi-urban	23	11.16
Urban	49	23.78

All patients (100%) reported having access to transportation facilities for hospital visits. Furthermore, 185 patients (89.80%) indicated the presence of nearby ophthalmic services, and 146 patients (70.87%) confirmed the regular organization of free ophthalmic camps in their localities (Table 4).

Table 4: Responses of patients to questions on healthcare accessibility.

Demographic factor	Yes	No	Yes (%)	No (%)
Availability of transport facility for hospital visit	206	0	100	0
Availability of nearby ophthalmic services	185	21	89.80	10.20
Regular organization of free ophthalmic camps in their locality	146	60	70.87	29.13

Among the 206 patients, 61 (29.61%) were unilateral pseudophakic with the contralateral eye exhibiting advanced-stage cataract. 21 patients (10.19%) presented with bilateral mature or hypermature cataract, with or without lens-induced glaucoma. The majority of the patients (n=124, 60.19%) had unilateral mature or hypermature cataract or lens-induced glaucoma, with the fellow eye showing immature cataract (Table 5).

Table 5: Distribution of patients by ocular condition.

Cataract condition	No. of patients (total: 206)	Percentage
Unilateral dense cataract with other eye pseudophakia	61	29.61
Bilateral dense cataract	21	10.19
Unilateral dense cataract with immature cataract in the other eye	124	60.19

Of the total study population, 113 patients (54.85%) reported a prior history of ophthalmic consultation, whereas 93 patients (45.15%) were visiting the ophthalmology outpatient department for the first time.

With respect to disease awareness, 122 patients (59.22%) were aware of their cataract diagnosis, while 84 patients (40.78%) were unaware of their condition. Notably, only 19 patients (9.22%) had any knowledge regarding potential complications associated with cataract.

Among the 206 patients, lack of an accompanying family member/caretaker was the most frequently reported reason, cited by 50 patients (24.27%). Good vision in the other eye was the second most common reason, reported by 46 patients (22.33%). Fear of surgery, including general anxiety and fear of losing vision, affected 33 patients (16.01%). Loss of income or daily wage concerns prevented 26 patients (12.62%) from seeking timely surgery. Waiting for free eye surgery through camps was the reason given by 18 patients (8.73%). Lack of awareness about the complications of postponing the cataract surgery affected 15 patients (7.28%). Systemic illness was cited by 10 patients (4.85%), and unavailability or inaccessibility of ophthalmic services was the least reported cause, noted by 8 patients (3.88%) (Table 6).

Table 6: Reasons for delayed presentation quoted by the patients.

Reason for late presentation	No. of patients (total: 206)	Percentage
Lack of an accompanying family member for hospital visit	50	24.27
Good vision in the other eye	46	22.33
Fear of surgery	33	16.01
Loss of income	26	12.62
Waited for free surgery under eye camps	18	8.73
Lack of awareness of complications	15	7.28
Due to systemic illness	10	4.85
Ophthalmic services - unavailable/inaccessible	8	3.88
Loss of income	26	12.62

DISCUSSION

Cataract can significantly affect an individual's mobility as well as quality of life and hence remains an important public health problem.[3] According to the World Health Organisation (WHO), approximately 94 million cases of distance vision impairment or blindness are attributed to cataracts.[1] The burden is particularly high in low- and middle-income countries, where access to timely surgical treatment is limited. Studies have shown that the prevalence of unoperated cataracts in individuals aged 60 and above is 58% in Northern India and 53% in Southern India.[4] The prevalence of bilateral cataract blindness was 0.84%, according to the National Blindness and Visual

Impairment Survey in India.[5] The prevalence is especially high among the elderly, and delays in treatment can significantly impact quality of life and economic productivity. It is well understood that the earlier the surgery for cataract, the better the visual prognosis.[6]

In our study, the most commonly observed reason for patients not accessing ophthalmic care was the absence of a companion to accompany them (24.27%). This highlights a significant social and practical challenge, particularly among elderly patients, as the mean age was 62.52 years. Gender distribution showed a higher proportion of females (64%) compared to males (36%), suggesting that women, possibly due to greater dependence on family members or cultural norms, might face more challenges in accessing healthcare independently. Educational status was notably low, with 76.69% of participants being illiterate, 21.84% having education up to SSC, and only 1.45% being graduates. This lack of education may contribute to poor awareness regarding the importance of eye care, the complications of delaying cataract surgery, and available services.

Although only 8.73% of participants lived alone, the majority (82.52%) resided in nuclear families. Despite having family members, many patients were still unable to visit the hospital, indicating that family support while physically present, may not always translate into practical help, such as accompanying the patient to medical appointments. This lack of active support may be due to family members being occupied with work or other responsibilities. Interestingly, 89.80% of participants reported that ophthalmic services were available nearby, yet a substantial number still did not access care. This evidence suggests that the barrier is not the physical availability of services but rather social or psychological factors, such as lack of motivation, fear, dependence on others, or absence of someone to assist them.

Another reason described by patients is that they have satisfactory vision in the fellow eye (22.33%). In this study, 19% of patients came to our outpatient department with blindness in both eyes due to dense cataracts, while the rest had dense cataracts in one eye and good vision in the other eye (29.61% were pseudophakic, and 60.19% had early stage of cataract with good vision). 54.85% of patients had previously visited an ophthalmologist for refractive error or cataract surgery in one eye, yet they still presented with dense cataract in the other eye. This situation correlates with their good vision in one eye and the absence of someone to accompany them until the affected eye became blind or developed a dense cataract.

48.78% were unaware about cataract and 59.22% were aware of their diagnosis of cataract, but only 9.22% had knowledge of complications related to cataract. Though patients were aware of cataract (59.22%), they did not approach the hospital in the early stages of cataract either because of the reason of no one to accompany them or good vision in the fellow eye; also, 16.02% of the patients gave the reason of fear of surgery (16.02%). Despite regularly organised camps (70.87%) and good transport facilities (100%), fear of surgery has made patients land up in dense cataract. To overcome this, we must take steps to raise awareness, provide psychological support, and bring motivation among them.

The other reasons patients faced were loss of income (12.62%) and waiting for free surgery under eye camps (8.73%). In our study population, 47.57% of participants are farmers or daily wage labourers, while 2.91% are employed workers; additionally, given the mean age of 62.52 years, 49.51% are unemployed or retired, which correlates with their reasons. This study noted that, according to patient responses, 70.87% of camps have been regularly organised in the North Karnataka area, and 100% of patients have access to transportation facilities. Maybe counselling patients regarding cataract, their complications and surgical importance may help these patients to access the available facilities in the early stages of cataract.

4.85% of people had a systemic illness like uncontrolled hypertension or uncontrolled diabetes or cardiac or neurological conditions that had made the patient unfit for surgery and made them postpone the surgery, which caused the patient to present with blindness due to dense cataract.

In the study done by Naik et al, the main reason observed was a good vision in the other eye (30.5%).[7] Similar results were reported by a study conducted in rural Andhra Pradesh.[8] In our study, good vision in the other eye (22.33%) was second major reason noted. Satisfactory vision in the fellow was also mentioned in similar studies conducted in different states of India, highlighting the importance of targeted counselling required for this set of patients neglecting worsening cataract in one eye because of good vision in the fellow eye. In a study by Karve and Pimprikar et al the commonest reason for late presentation was lack of awareness (26.1%) followed by poor financial condition (19.9%).[9] A higher prevalence of lack of awareness (48%) has been reported from a study from Nepal, while that from Ghaziabad was 29%.[10,11] In our study, 40.78% of the study population were unaware of cataract and its complications, highlighting the requirement of additional community-level work to create awareness. In a study carried out by Dharmadhikari et al in an urban centre in Maharashtra, the primary reason caused the delay was the cost of the cataract surgery (27%).[12] However, none of the patients in our study cited this reason. 89.80% of patients positively responded to the availability of nearby ophthalmic services; the rest (10.20%) of the people denied the availability of ophthalmic services in their locality, but only 3.88% of the study population mentioned lack of ophthalmic services nearby as the primary reason for their delay. Extending ophthalmic services or improving mobile vision centres will help provide ophthalmic care for such remote locations.

Limitations

The study may be conducted in a still large population to accurately specify the major reasons contributing to delayed presentation for cataract surgery. If we can include patients approaching private hospitals and other ophthalmic centres for the same reason in this region, we can get to know the exact barriers for the delayed presentation of patients in this region. These responses are specific to North Karnataka, India, and may not be generalisable to other regions with different socio-cultural or healthcare dynamics. We believe that various individual-specific challenges cause the delay in presenting to hospital for cataract surgery. These factors can be more precisely identified and quantified by a comprehensive questionnaire and analytical methodology, which includes assigning weighted values to various reasons stated by patients. Additional research is required to support this methodology and deepen comprehension of these obstacles.

CONCLUSION

This study identified the principal factors contributing to delayed presentation for cataract surgery as the lack of an accompanying individual or caretaker along with individual barriers, including adequate vision in the other eye and fear regarding the surgical procedure. Subsequently, financial limitations and a lack of awareness regarding the progression of disease follow. Addressing these challenges demands focused, evidence-based interventions, such as community health education to increase awareness of the progressive nature of cataracts; the establishment of patient escort systems or collaborations with community health workers and non-governmental organisations to assist individuals lacking familial support; the provision of psychological counselling to alleviate preoperative anxiety; and the formulation of strategies that lessen financial burdens while improving access to ophthalmic care.

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