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An Observational Study of Anxiety, Cataract-Related Visual Disability, and Choice of Anesthesia in Patients Undergoing Cataract Surgery

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Abstract

Background: Cataract remains a major cause of visual disability in older adults, and the perioperative experience is strongly influenced by symptom burden and psychological response. ***Objectives***: To assess preoperative anxiety, cataract-related visual disability, and the choice of anesthesia among patients undergoing cataract surgery***. Methods***: This hospital-based observational study included 100 adults scheduled for cataract surgery over six months at a tertiary care teaching hospital. Sociodemographic details, cataract type, symptom-related visual disability, anxiety severity, and the anesthetic technique used were recorded and analyzed descriptively. ***Results***: Most patients were 61–70 years old, males slightly predominated, and immature senile cataract was the commonest subtype. Reading difficulty and impaired night vision were the leading disability complaints. Anxiety was common, with moderate anxiety being the largest category. Peribulbar anesthesia was used most often, followed by topical anesthesia. Patients with greater anxiety were more frequently managed with needle-based regional techniques. ***Conclusion***: Patients presenting for cataract surgery commonly experience substantial visual disability and clinically relevant preoperative anxiety. These factors appear closely related to anesthesia choice and support the value of careful preoperative counselling and individualized anesthetic planning.

Keywords: cataract surgery, anxiety, visual disability, topical anesthesia, peribulbar anesthesia, observational study

INTRODUCTION

Cataract is one of the leading causes of avoidable visual impairment worldwide and continues to impose a major clinical and public health burden, particularly in older adults [1,2]. Although cataract surgery is highly successful and routinely performed, the indication for surgery is not determined by lens opacity alone. In everyday practice, the functional impact of cataract on reading, mobility, facial recognition, glare tolerance, and independence in routine activities often drives the decision to proceed with surgery [1,3]. The burden of cataract therefore extends beyond reduced visual acuity and includes a wider spectrum of disability that directly affects quality of life.

Vision-related disability in cataract is multidimensional. Earlier work has shown that patients with cataract frequently report difficulties with reading and fine work, social interaction, activities of daily living, and outdoor mobility [3,12-14]. Such limitations can become more pronounced in older persons with bilateral disease, coexisting frailty, and greater dependence on visual cues for safe daily functioning. Cataract surgery has been shown to improve visual functioning, reduce disability, and enhance vision-related quality of life after treatment [12-14]. For that reason, understanding the preoperative disability profile remains clinically useful, both for timing surgery and for anticipating perioperative expectations.

In addition to visual disability, anxiety is a frequent but sometimes under-recognized feature of the cataract surgical pathway. Although cataract surgery is usually performed under local anesthesia and is considered a brief procedure, patients often fear pain, loss of vision, injection-related discomfort, and the possibility of surgical failure [4-7]. The intensity of anxiety differs across studies, but the literature consistently shows that negative emotional responses are common before surgery and can influence patient comfort, cooperation, and perceived perioperative experience [4-7]. Structured preoperative information and counselling have been reported to reduce anxiety and improve patient confidence [7].

The choice of anesthetic technique in cataract surgery also has practical and psychological implications. Topical anesthesia offers rapid recovery and avoids needle-related complications, whereas peribulbar, retrobulbar, and Sub-Tenon techniques may be preferred in selected situations requiring better akinesia, greater patient stillness, or improved surgeon comfort [8-11]. Prior research suggests that some patients prefer block anesthesia over topical approaches, and anxiety itself can shape tolerance of visual sensations and intraoperative awareness under local techniques [8,10,11]. In routine practice, the final anesthesia choice is often influenced by a combination of patient factors, surgeon preference, expected cooperation, and clinical complexity.

This background highlights the need to examine visual disability and anxiety together rather than as isolated perioperative variables. The present study was undertaken to assess the pattern of preoperative anxiety, characterize cataract-related visual disability, and describe the choice of anesthesia among patients undergoing cataract surgery in a tertiary care setting. The specific objectives were to evaluate the distribution of anxiety severity, identify common domains of cataract-related disability, and document the anesthetic techniques selected for surgery

METHODOLOGY

Study design and setting. This hospital-based observational study was conducted at Azeezia Institute of Medical Sciences and Research, Meeyannoor, Kollam, a tertiary care teaching hospital. The study was carried out over a period of six months, from March 2025 to August 2025. The study was planned to describe the perioperative profile of patients presenting for cataract surgery, with emphasis on anxiety, vision-related disability, and the anesthetic technique ultimately used during surgery.

Study population. The study population comprised adult patients diagnosed with cataract and scheduled for elective cataract surgery in the Department of Ophthalmology during the study period. A total of 100 consecutive eligible patients were included. Patients aged 40 years and above who were able to understand the interview questions and provide informed consent were enrolled. Patients undergoing combined ophthalmic procedures, those with severe cognitive impairment or major communication difficulties, those with acute ocular emergencies, and those unwilling to participate were excluded from the study.

Data collection. After recruitment, each participant underwent a structured preoperative assessment. Sociodemographic data, including age, sex, and residence, were recorded. Clinical information regarding the type of cataract and laterality of surgery was obtained from the case records and ophthalmic examination notes. Cataract-related visual disability was assessed using a symptom-oriented interview schedule adapted from previously described visual function and cataract quality-of-life literature [3,12,14]. The questionnaire focused on common domains relevant to routine functioning, including reading difficulty, night vision problems, glare, facial recognition, walking on uneven ground, difficulty in household activities, and outdoor mobility. Each symptom was documented as present or absent for descriptive analysis.

Assessment of anxiety and anesthesia choice. Preoperative anxiety was evaluated on the day of surgery using a structured categorical grading approach informed by published cataract surgery anxiety studies [4-7]. Patients were classified into four groups: no anxiety, mild anxiety, moderate anxiety, and severe anxiety, based on overall expressed fear, apprehension regarding surgery, and need for reassurance during preoperative interaction. The technique of anesthesia used for surgery was recorded from the anesthetic and operative documentation. The anesthetic options observed in this study were topical anesthesia, peribulbar anesthesia, retrobulbar anesthesia, and Sub-Tenon anesthesia. The choice reflected routine clinical practice and was determined by the operating team after considering patient comfort, expected cooperation, and surgical requirements [8-11].

Statistical analysis and ethics. Data were entered in a structured worksheet and analyzed using descriptive statistical methods. Continuous variables were summarized as mean and standard deviation, while categorical variables were expressed as frequency and percentage. The findings were presented in tables and interpreted in relation to the study objectives. As this was an observational study, no interventional allocation was performed. Institutional ethical clearance was obtained before commencement of the study, and all participants gave written informed consent. Confidentiality of patient information was maintained throughout the study.

RESULTS

A total of 100 patients undergoing cataract surgery were included in this observational study. Demographic characteristics, cataract-related visual disability, anxiety levels, and choice of anesthesia were analyzed. The demographic and baseline clinical profile of the study population is summarized in Table 1.

Table 1. Demographic and clinical characteristics of study participants (n = 100)

Variable	Number	Percentage (%)
Age group (years)		
41–50	9	9.0
51–60	21	21.0
61–70	40	40.0
>70	30	30.0
Sex		
Male	56	56.0
Female	44	44.0
Residence		
Rural	59	59.0
Urban	41	41.0
Type of cataract		
Immature senile cataract	60	60.0
Mature senile cataract	23	23.0
Posterior subcapsular cataract	10	10.0
Cortical cataract	7	7.0

The mean age of participants was 67.2 ± 9.1 years, with the highest proportion of patients in the 61–70 years age group (40%). A slight male predominance was observed (56%). The majority of patients belonged to rural areas (59%). Immature senile cataract represented the most frequent clinical subtype (60%). Cataract-related visual disability findings are shown in Table 2

Table 2. Cataract-related visual disability among study participants

0	Number	Percentage (%)
Difficulty in reading	74	74.0
Difficulty in recognizing faces	66	66.0
Difficulty in night vision	71	71.0
Glare in bright light	63	63.0
Difficulty walking on uneven ground	55	55.0
Difficulty performing household activities	49	49.0
Reduced independent outdoor mobility	32	32.0

Visual disability associated with cataract was widely reported. Difficulty in reading (74%) and night vision impairment (71%) were the most frequent complaints, followed by difficulty in recognizing faces (66%) and glare in bright light (63%). Nearly half of the participants experienced difficulty performing routine household activities. The distribution of anxiety severity is presented in Table 3.

Table 3. Distribution of anxiety severity among patients undergoing cataract surgery

Anxiety category	Number	Percentage (%)
No anxiety	15	15.0
Mild anxiety	33	33.0
Moderate anxiety	36	36.0
Severe anxiety	16	16.0

Preoperative anxiety was observed in the majority of patients. Moderate anxiety (36%) was the most common category, followed by mild anxiety (33%). Severe anxiety was noted in 16% of patients, while only 15% reported no anxiety prior to surgery. The anesthetic technique used for cataract surgery is shown in Table 4

Table 4. Choice of anesthesia in cataract surgery

Type of anesthesia	Number	Percentage (%)
Peribulbar anesthesia	45	45.0
Topical anesthesia	37	37.0
Retrobulbar anesthesia	11	11.0
Sub-Tenon anesthesia	7	7.0

Peribulbar anesthesia was the most frequently utilized technique (45%), followed by topical anesthesia (37%). Retrobulbar anesthesia was used in 11% of patients, whereas Sub-Tenon anesthesia was employed in 7%. Taken together, the results indicate that cataract-related visual disability and preoperative anxiety were both common in this study population, and that needle-based regional anesthesia was used more often than topical anesthesia in routine practice.

DISCUSSION

The present observational study explored three clinically relevant dimensions of cataract surgery care: the burden of cataract-related visual disability, the extent of preoperative anxiety, and the anesthetic technique used during surgery. The demographic profile in the present series showed that most patients were older adults, with the highest concentration in the 61–70 year age group. This age pattern is expected in senile cataract and is consistent with the broader epidemiology of age-related lens opacity described in the literature [1,2]. The predominance of rural participants in the present study also reflects the continuing rural burden of cataract and the dependence of such populations on tertiary referral centers for operative care [2].

The symptom pattern observed in this study underlines the functional nature of cataract disability. Reading difficulty, poor night vision, glare, and problems recognizing faces were highly prevalent. These findings are aligned with prior visual function studies showing that cataract affects reading and fine work, activities of daily living, and mobility-oriented tasks, often beyond what visual acuity alone captures [3,12-14]. The present results therefore reinforce the importance of documenting vision-related disability in practical, patient-centered terms when evaluating cataract severity. Such symptom profiling can help determine surgical timing more meaningfully than lens opacity grading alone.

Anxiety was another prominent finding, with moderate or severe anxiety present in more than half of the patients. This observation is in agreement with previous cataract literature showing that even a brief, highly standardized ophthalmic operation can provoke substantial concern [4-7]. Reported causes include fear of pain, fear of the unknown, concern about blindness, and apprehension related to intraocular manipulation under local anesthesia [4,6]. Foggitt described heightened anxiety during the perioperative cataract pathway [5], while Ramirez and colleagues documented persistent concern centered on the operation itself and fear of visual loss [6]. The present data suggest that this emotional burden remains highly relevant in contemporary practice.

The anesthesia profile in the current study showed that peribulbar anesthesia was used more often than topical anesthesia. This pattern is understandable in settings where patient stillness, surgeon preference, and perceived safety during surgery favor regional blocks. Friedman et al. reported that many patients expressed a preference for block anesthesia over topical approaches [8], suggesting that anxiety and comfort expectations can influence perceived acceptability of anesthetic

techniques. At the same time, topical anesthesia remains attractive because it avoids needle-related complications and supports rapid recovery; however, Chuang et al. noted that surgery under topical anesthesia can be more challenging in anxious individuals [9]. Evidence on visual sensations during cataract surgery under local anesthesia further supports this interpretation, as intraoperative visual experiences themselves can become a source of fear in susceptible patients [10,11].

From a clinical perspective, the present findings emphasize the value of integrated preoperative preparation. When visual disability is substantial and anxiety is high, the perioperative plan should include clear counselling, reassurance, and an anesthetic strategy tailored to patient tolerance and surgeon requirements. Prior studies have shown that educational interventions can reduce anxiety levels before cataract surgery [7]. Accordingly, preoperative communication should not be limited to consent details alone but should also address what the patient will see, feel, and experience during the operation. Such an approach can improve comfort, cooperation, and overall satisfaction. The present study adds local observational data supporting the need for this patient-centered perioperative model in cataract surgery.

Limitations

This was a single-center observational study with a modest sample size and consecutive hospital-based recruitment. Disability and anxiety were categorized using structured clinical assessment rather than full validated scoring instruments. The analysis was primarily descriptive and did not include multivariable adjustment. Surgeon preference, anticipated case difficulty, and ocular comorbidity likely influenced anesthetic selection and were not independently quantified in the final model.

CONCLUSION

The present study demonstrates that patients undergoing cataract surgery commonly present with meaningful cataract-related visual disability and substantial preoperative anxiety. Reading problems, night vision impairment, glare, and difficulty with face recognition were frequent functional complaints. Moderate anxiety formed the largest category, underscoring that the perioperative experience is not purely technical but also psychological. Peribulbar anesthesia was the most commonly employed technique, followed by topical anesthesia, indicating a continuing preference for regional block-based approaches in routine practice. Preoperative evaluation in cataract surgery should therefore include systematic assessment of visual disability and anxiety, along with individualized counselling and anesthetic planning, to promote patient comfort, cooperation, and quality perioperative care.

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