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Post-cataract surgery infection prevention and postoperative care: A scoping review

Ni Putu Sri Rahayu Dirantini^{1,2}, I Ketut Swarjana^{1*}, Ni Luh Dwi Indrayani¹,
I Gusti Agung Tresna Wicaksana¹

¹Fakultas Kesehatan, Institut Teknologi dan Kesehatan Bali

²Rumah Sakit Mata Bali Mandara

Corresponding author: *E-mail: ktswarjana@gmail.com

Abstract

Background: Post-cataract surgery infections, particularly endophthalmitis, are rare but potentially vision-threatening complications. Postoperative care and patient education are essential for infection prevention and early detection. However, evidence on infection postoperative care remains fragmented across different aspects.

Purpose: To summarize research findings on post-cataract surgery infections, care strategies, and factors affecting post-cataract surgery patients.

Method: A scoping review was conducted following PRISMA-ScR using the Population, Concept, and Context (PCC) framework. The population included patients undergoing cataract surgery or having undergone cataract surgery, the concept focused on Postoperative infection, Infection prevention, Postoperative self-care, Education, Medication adherence, Follow-up, and Endophthalmitis and the context included Home-care, Hospital discharge, Outpatient, and Community settings. A literature search was conducted using MeSH terms in PubMed, keywords in ScienceDirect, and other relevant sources. Studies published between February 2016 and January 2026 were considered. Eligible studies were English-language, full-text original research articles. Narrative reviews, integrative reviews, scoping reviews, systematic reviews, and meta-analyses were excluded.

Results: The search retrieved 2,413 articles (1,645 from PubMed and 768 from ScienceDirect). Following PRISMA screening, nine articles were included in the final review. The included studies examined infection prevention, infection incidence, patient-level determinants, patient knowledge, medication adherence, and discharge education to support postoperative cataract care.

Conclusion: Comprehensive postoperative care may improve adherence, self-care, and clinical outcomes after cataract surgery. Further research is needed to strengthen the evidence and identify effective infection prevention strategies.

Keywords: Cataract Extraction; Endophthalmitis; Eye Infections; Patient; Postoperative Care.

INTRODUCTION

Cataracts are one of the major causes of blindness worldwide (Fang et al., 2022). Approximately 94 million people worldwide experience visual impairment, with cataracts accounting for 45–51% of cases (World Health Organization, 2026). The prevalence of cataracts has been reported at 17.1% among adults aged ≥40 years in the United States corresponding to approximately 24 million people (Astari, 2018), 22,9% among adults

40 years of age and older in Bangladesh (Shakoor et al., 2022). In Indonesia 3,0% prevalence of blindness among people aged 50 years and older with cataracts being the leading cause of blindness, accounting for 81% of cases (Rif'ati et al., 2021). Cataract surgery is the primary and most effective treatment for restoring vision (Nizami et al., 2024). Although cataract surgery has a high success rate, postoperative infectious complications such as endophthalmitis may occur.

Endophthalmitis is an intraocular infection that can cause serious visual impairment (Wadbudhe et al., 2022). Its prevalence after cataract surgery has been reported to range from 0.04% to 0.3% globally (Gunalda et al., 2023), while in Indonesia it has been reported at 0.18% (Elvira & Gunanegara, 2023).

Endophthalmitis can cause vision loss and may present with symptoms such as ocular pain, redness, and decreased vision during the early postoperative period (Ilyas & Yulianti, 2018; Wadbudhe et al., 2022). Therefore, infection prevention should begin during the perioperative period and continue after discharge through appropriate postoperative care. Postoperative care includes medication use, maintaining eye cleanliness, avoiding contamination of eye-drop bottles, and following appropriate medication administration procedures (Devireddy et al., 2025; Ilyas & Yulianti, 2018). These measures become important after patients return home, when patients and their families are primarily responsible for implementing postoperative care.

Postoperative home care remains challenging because some patients do not fully adhere to recommended instructions. Poor adherence to postoperative eye-drop regimens may increase the risk of infection, persistent inflammation, bottle-tip contamination, and suboptimal visual outcomes (Widiadnyana et al., 2025). Non-adherence may be associated with complex medication regimens, inappropriate eye-drop administration techniques, cognitive and physical limitations, inadequate health literacy, and insufficient patient education (Nouraeinejad, 2023). Limited knowledge has also been associated with difficulties in performing postoperative cataract care at home (Muthupriya, & Bharathi, 2022).

Previous reviews have examined several specific aspects of cataract postoperative care. A systematic reviewed to 16 randomized controlled trials evaluating patient education strategies for cataract surgery. The review identified knowledge of postoperative care and proficiency in postoperative care among the assessed outcomes, but also reported considerable clinical and methodological heterogeneity and a need for further high-quality research (Choi & Greenberg, 2018). More recently, a scoping review that focusing specifically on health education for operative cataract care involving patients and families. The review included educational

approaches such as video, telephone, social media, and web-based interventions and found that these approaches could improve patient knowledge, although their comparative effectiveness remained unclear (Ridwanti et al., 2025).

Previous studies have explored postoperative cataract care after discharge, particularly patient education, self-care, eye-drop adherence, eye protection, and follow-up. However, the available evidence remains fragmented, with limited mapping of infection prevention and home-based care involving patients and families. Previous reviews have also tended to focus on specific educational interventions or individual aspects of postoperative care rather than the broader range of evidence on infection prevention and home-based care. Given the diversity of study designs, interventions, care components, and outcomes, a scoping review is appropriate for mapping the breadth of available evidence and identifying research gaps. Therefore, this review aimed to map the evidence on post-cataract surgery infection prevention and postoperative. Based on this, the question arises, "What evidence is available on infection prevention and postoperative care for patients after cataract surgery, particularly in the home setting, and what research gaps remain?". Therefore, the researcher was interested in choosing the title "Post-Cataract Surgery Infection Prevention and Postoperative Care: A scoping review".

RESEARCH METHOD

This scoping review was conducted following the methodological framework proposed by Arksey and O'Malley (Arksey & O'Malley, 2005) and reported according to the Preferred Reporting Items for Scoping Reviews (PRISMA-ScR) (Page et al., 2021). The review aimed to map the current scientific evidence on post-cataract surgery infection and postoperative care, identify research trends, and highlight knowledge gaps to support future research. The review process consisted of five stages: identifying the research question, identifying relevant studies, selecting studies, extracting data, and collating, summarizing, and reporting the findings

The review question was: "What evidence is available on infection prevention and postoperative care for patients after cataract surgery, particularly in the home setting, and what research gaps remain?"

Ni Putu Sri Rahayu Dirantini^{1,2}, I Ketut Swarjana^{1*}, Ni Luh Dwi Indrayani¹, I Gusti Agung Tresna Wicaksana¹

¹Fakultas Kesehatan, Institut Teknologi dan Kesehatan Bali

²Rumah Sakit Mata Bali Mandara

Corresponding author: *E-mail: ktswarjana@gmail.com

DOI: <https://doi.org/10.33024/minh.v9i7.4111>

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The Population–Concept–Context (PCC) framework was used to guide the eligibility criteria and search strategy (Indrayani, 2025; Peters et al., 2021). The Population comprised patients undergoing cataract surgery or having undergone cataract surgery. The Concept focused on Postoperative infection, Infection prevention, Postoperative self-care, Education, Medication adherence, Follow-up, and Endophthalmitis. The Context included Home-care, Hospital discharge, Outpatient, and Community settings.

A comprehensive literature search was conducted in PubMed and ScienceDirect. The search strategy used Medical Subject Headings (MeSH) and related keyword (Indrayani et al, 2026), including *Cataract Extraction*, *Endophthalmitis*, *Eye Infections*, *Patient*, and *Postoperative Care*. Eligible studies included quantitative, qualitative, and mixed-methods research published in English between February 2016 and January 2026 with full-text availability. Narrative reviews, integrative reviews, scoping reviews, systematic reviews, and meta-analyses were excluded.

Table 1. PCC Framework and Search Terms

Framework	Keywords	Search Terms (MeSH)
Population	Patient undergoing or having undergone cataract surgery	"Patient*" OR "Patient undergoing cataract surgery" OR "Post cataract extraction patient" OR "post cataract surgery patient" OR "postoperative patient"
Concept	Postoperative infection, Infection prevention, Postoperative self-care, Education, Medication adherence, Follow-up, Endophthalmitis stoperative Cataract Care	"Eye Infections*" OR "Infection prevention" OR "Postoperative Complications" OR "Postoperative infection" OR "Endophthalmitis" OR "Postoperative self-care" OR "Education" OR "Medication adherence" OR "Follow-up" "Postoperative cataract care" OR "Post cataract extraction care"
Context	Home-care, Hospital discharge, Outpatient, Community settings	"Home care" OR "Community settings" OR "Hospital discharge" OR "Outpatient"

Table 2. Database Search Strategies

Databases	Searching syntax
PubMed	("Cataract Extraction"[Mesh] OR Cataract* OR "Cataract Surgery" OR Phacoemulsification OR "Small Incision Cataract Surgery") AND ("Postoperative Care"[Mesh] OR Postoperative OR "Postoperative Care" OR "Home Care" OR "Patient Education") AND ("Endophthalmitis"[Mesh] OR "Eye Infections"[Mesh] OR "Endophthalmitis" OR "Postoperative Complication*")
Science Direct	("Patient") AND ("eye infections" OR "postoperative complication" OR "Endophthalmitis") AND ("post operative care" OR "postoperative cataract care") AND ("Home care")

The search yielded 2,413 records (PubMed = 1,645; ScienceDirect = 768). After duplicate removal and screening, 125 articles underwent title and abstract review, with 114 full texts assessed. Nine studies met inclusion criteria and were synthesized following the PRISMA-ScR 2020 flow diagram. Screening was conducted independently by two reviewers, with disagreements resolved through discussion. Data extraction used a standardized form capturing study details (author, year, country, objectives, design, sample, variables, instruments, analysis, and findings on post-cataract infection and care). Extracted data were compiled in a comparison table, then narratively synthesized and thematically grouped to highlight infection patterns, care strategies, educational interventions, influencing factors, research gaps, and recommendations for practice and future studies.

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¹Fakultas Kesehatan, Institut Teknologi dan Kesehatan Bali

²Rumah Sakit Mata Bali Mandara

Corresponding author: *E-mail: ktswarjana@gmail.com

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RESEARCH RESULTS

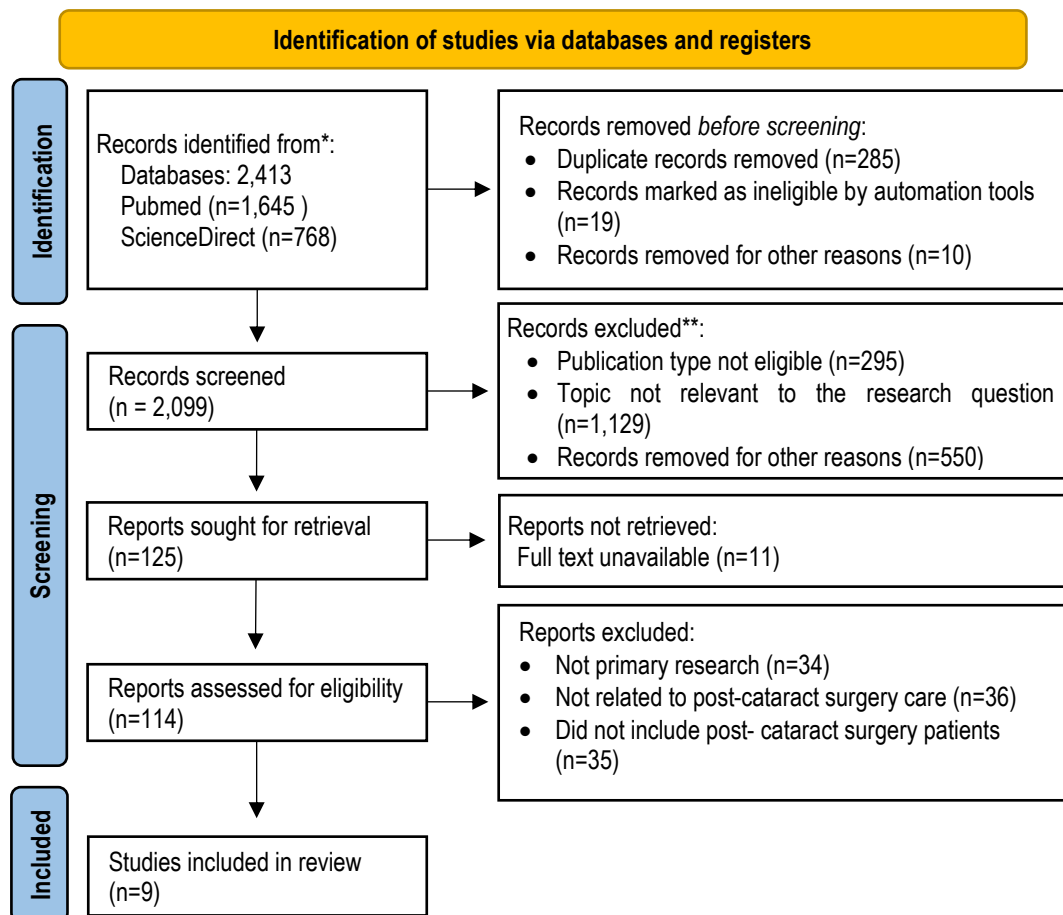


Figure 1. PRISMA-ScR Flowchart — Study Selection Process

Nine articles that met the inclusion criteria were extracted and analyzed to map the characteristics of the studies, the focus areas examined, and the research gaps related to infection and post-cataract surgery care. The included articles provide an overview of infection and post-cataract surgery care. Articles from various countries such as India, China, Ghana, Thailand, Nigeria, Egypt, Türkiye, and Indonesia with various research designs and study focuses. Two studies used a quasi-experimental design (Eldoushy, 2022; Mahfouz et al., 2019), one used a controlled comparative design (Gülşen & Akansel, 2020), two used retrospective longitudinal designs (Atima et al., 2025; Liu et al., 2025), three used cross-sectional designs (Devireddy et al., 2025; Rahmawati et al., 2019; Sakunsuk et al., 2025), and one used a descriptive design (Muthupriya, & Bharathi, 2022).

In terms of research objectives, the included studies comprised two main themes, each consisting of several subthemes. The first theme, post-cataract surgery infection, comprised three articles addressing two

subthemes: infection incidence and infection prevention (Atima et al., 2025; Liu et al., 2025; Rahmawati et al., 2019). The second theme, post-cataract surgery care, comprised six articles addressing four subthemes: discharge education, patient knowledge, medication adherence, and patient-level determinants (Devireddy et al., 2025; Eldoushy, 2022; Gülşen & Akansel, 2020; Muthupriya, & Bharathi, 2022; Mahfouz et al., 2019; Sakunsuk et al., 2025). A summary of the article characteristics is presented in Table 2 below.

Overall, the evidence highlights the importance of infection prevention and continued care after discharge, particularly education, self-care, medication adherence, family support, and follow-up. However, the evidence remains fragmented, with limited research integrating these components into comprehensive home-based postoperative care.

Ni Putu Sri Rahayu Dirantini^{1,2}, I Ketut Swarjana^{*}, Ni Luh Dwi Indrayani¹, I Gusti Agung Tresna Wicaksana¹

¹Fakultas Kesehatan, Institut Teknologi dan Kesehatan Bali

²Rumah Sakit Mata Bali Mandara

Corresponding author: ^{*}E-mail: ktswarjana@gmail.com

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Table 3. Summary of the Selected Articles

(Author, year), Country	Purpose	Method (DVISA)	Theme	Subtheme	Focus of study	Research Result
(Eldoushy, 2022) Egypt	To assess the effectiveness of nurse-led intervention on post-cataract surgery outcomes.	Design: Quasi-experimental. Variables: Nursing intervention, outcome Instrument: <i>Structured Interview Questionnaire</i> worth 0.85, <i>observational checklist</i> worth 0.81 and <i>Patients' post-surgical expected outcomes scale</i> with a value of 0.83 Sample & sampling: 100 post-cataract surgery patients: 50 in the intervention group and 50 in the control group. (purposive sampling) Analysis: Pearson's t-test and correlation	Post-Cataract Surgery Care	Discharge education	Intervention strategies: nurse-led education to improve knowledge, eye care, and postoperative outcomes.	After the intervention, 63.3% of patients in the intervention group had a satisfactory level of knowledge, while in the control group, 96.7% of patients still had an unsatisfactory level of knowledge. There was a relationship between knowledge, self-care practices, and expected outcomes ($p < 0.001$).
(Muthupriya, & Bharathi, 2022), India	To assess the level of knowledge of post-cataract surgery patients regarding home care after cataract surgery.	Design: Descriptive design. Variables: post-cataract surgery care knowledge Instrument: <i>Structured Knowledge Questionnaire</i> Sampling and samples: Probability Sampling- Simple random sampling - lottery method (30 post-cataract surgery patients) Analysis: Descriptive statistics	Post-Cataract Surgery Care	Patient knowledge	Knowledge about post-cataract surgery care	Some post-cataract surgery patients had sufficient knowledge (53.4%) and insufficient knowledge (40%) regarding home care.

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(Author, year), Country	Purpose	Method (DVISA)	Theme	Subtheme	Focus of study	Research Result
(Liu et al., 2025), China	To analyze the effectiveness of infection control strategies for preventing post-cataract surgery endophthalmitis.	Design: Retrospective observational Longitudinal study. Variables: Infection control strategies and the incidence of endophthalmitis. Instrument: Infection data and evaluation of perioperative infection prevention measures. Sample & sampling: 134,045 post-phacoemulsification Analysis: Chi-square test and trend analysis	Post-Cataract Surgery Infection	Infection prevention	Infection prevention strategies: perioperative eye drops, lacrimal irrigation, povidone iodine, infection control, and closed-loop management.	There were 26 cases of endophthalmitis among 134,045 operations (26/134,045 = 0.019%) and Infection control strategies reduced the incidence of endophthalmitis (P<0.01).
(Devireddy et al., 2025), Ghana	To determine compliance with the use of eye drops and obstacles related to literacy levels after cataract surgery.	Design: Cross-sectional. Variables: Literacy level, compliance with eye drop use, eye drop administration technique, frequency of eye drop use, and understanding of instructions. Instrument: survey one week after cataract surgery. Sample & sampling: 59 patients after cataract surgery. Analysis: Chi-square test	Post-Cataract Surgery Care	Medication adherence	Predictors of compliance to postoperative cataract eye drop use.	76.3% of patients always washed their hands before using eye drops, 10.15% forgot to wash their hands more than twice, and 11.9% forgot once or twice. There was a statistically significant relationship between patients' literacy level and adherence to eye drop use, specifically in the habit of forgetting to instill eye medication (p = 0.018) and forgetting to wash hands before instilling medication (p = 0.0005).
(Sakunsuk et al., 2025), Thailand.	To identify factors that influence self-care behavior during home	Design: Cross-sectional. Variable: Education, age, anxiety, post-operative	Post-Cataract Surgery Care	Patient-level determinants	Factors influencing postoperative self-care	Self-care was influenced by age, education, number of caregivers, occupation, anxiety, and postoperative symptoms; age, anxiety, symptoms,

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(Author, year), Country	Purpose	Method (DVISA)	Theme	Subtheme	Focus of study	Research Result
	recovery after cataract surgery.	symptoms, health insurance, operated eye, self-care behavior. Instrument: Validated questionnaires: Demographic Questionnaire, Self-Care Behavior Scale, Knowledge Assessment, Self-Care Evaluation Form. Sample & sampling: 111 post cataract surgery patients. Analysis: Multiple linear regression.				operated eye, health insurance, and education accounted for 98.8% of the variation in self-care ($R^2=0.988$; $p<0.001$).
(Atima et al., 2025), Nigeria.	To assess the incidence of post-cataract surgery endophthalmitis and predictors of visual outcomes following infection.	Design: Retrospective chart review. Variables: Incidence, surgical technique, visual outcome. Instrument: Medical records, visual examination. Sample and Sampling: 9,782 samples with 17 cases of postoperative endophthalmitis (Total sampling) Analysis: Chi-square, logistic regression, descriptive statistics.	Post-Cataract Surgery Infection	Infection incidence	Incidence of endophthalmitis and predictors of visual outcome following infection	The overall incidence across the three years was 0.17% (17 out of 9,782 surgeries), with a confidence interval ranging from 0.10% to 0.26%, reflecting the precision of the estimate. In 2021, 6 cases of endophthalmitis were recorded out of 3,378 surgeries, resulting in an incidence of 0.18% (confidence interval: 0.08% to 0.39%). In 2022, the number of cases increased slightly to 8 out of 3,625 surgeries, yielding an incidence of 0.22% (confidence interval: 0.11% to 0.44%). By 2023, the incidence decreased notably to 0.11% (3 cases out of 2,779 surgeries, confidence interval: 0.03% to 0.34%).

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¹Fakultas Kesehatan, Institut Teknologi dan Kesehatan Bali

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(Author, year), Country	Purpose	Method (DVISA)	Theme	Subtheme	Focus of study	Research Result
(Mahfouz et al., 2019), Egypt	To determine the effect of implementing post-cataract surgery discharge instructions on reducing eye infections in elderly patients.	Design: Quasi-experimental Variables: Discharge instruction and infection reduction Instrument: Self-Care Compliance Scale, Post-operative Assessment Tool to assess signs of postoperative infection. Sample and Sampling: 100 elderly post-cataract surgery patients were divided into an education group of 50 people and a control group of 50 people (Purposive sampling) Analysis: Chi-square, Fisher Exact Test, Correlation Coefficient Test.	Post-Cataract Surgery Care	Discharge education	Intervention Strategy: Discharge instructions: patient and family education using brochures, training on the use of eye drops, care, use of protective equipment, infection prevention, recognition of eye danger signs and follow-up compliance.	The intervention group demonstrated >90% self-care compliance after surgery. The proportion of patients without signs of infection was higher in the intervention group than in the control group, namely 32% vs. 6% on day 1, 66% vs. 24% on day 7, and 88% vs. 60% on day 30 ($p \leq 0.05$).
(Gülşen & Akansel, 2020), Turkey	To assess the effect of discharge education and telephone follow-up on patients' daily activities after cataract surgery based on <i>Model of Living</i>	Design: <i>Controlled comparative study.</i> Variables: Home-based education <i>Model of Living</i> , telephone follow-up, and daily living activity abilities. Instrument: 54-item form based on 12 activities <i>Model of Living</i> . The reliability of the instrument value = 0.89 Samples & sampling: 144 first cataract surgery patients	Post-Cataract Surgery Care	Discharge education	Intervention strategies : Model of Living discharge education by telephone follow-up to improve patients' ability to carry out daily postoperative activities.	The intervention group showed improvements in the use of eye drops, eye protection, personal hygiene, mobilization, sleep, and knowledge of conditions requiring consultation with a doctor ($p < 0.05$).

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(Author, year), Country	Purpose	Method (DVISA)	Theme	Subtheme	Focus of study	Research Result
		(intervention group n=72; control group n=72) (Selection based on the surgery list; odd numbers in the intervention group and even numbers in the control group) Analysis: Pearson Chi-square, Fisher Exact Test, Likelihood Ratio, and Mann-Whitney U Test				
(Rahmawati et al, 2019), Indonesia	To evaluate the results and complications of post-cataract surgery and the relationship between the type of surgical procedure	Design: Cross-sectional study with analytical observation Samples & sampling: 193 post-cataract surgery patients convenient sampling Instrument: patient medical record observation sheet Variables: Type of cataract surgery, patient characteristics, postoperative complications Analysis: Chi-square/Fisher's Exact Test, multivariate with logistic regression	Post-Cataract Surgery Infection	Infection incidence and clinical outcomes	Visual outcomes and postoperative complications	Of 170 analyzed eyes, 93.5% showed visual improvement. Postoperative complications occurred in 26 eyes (15.3%), mainly corneal edema (7.1%), intraocular lens dislocation (1.8%), endophthalmitis (1.2%), and the remaining complications occurred at lower proportions individually.

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¹Fakultas Kesehatan, Institut Teknologi dan Kesehatan Bali

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Theme 1: Post-Cataract Surgery Infection

This theme comprises 3 articles focusing on the clinical and epidemiological aspects of post-cataract surgery infections, particularly the incidence of infection and strategies for infection prevention. The included studies examined the occurrence and clinical impact of postoperative infections, as well as interventions aimed at reducing the risk of infection following cataract surgery. The findings are organized into two subthemes including: (1) Infection incidence, namely endophthalmitis, which occurs at a relatively low rate but has a significant impact on patients visual function (Atima et al., 2025; Rahmawati et al, 2019). (2) Infection prevention, by evaluating the effect of discharge instructions in significantly reducing the manifestation of postoperative ocular infection (Liu et al., 2025). This theme emphasizes a research focus directed more toward the clinical and healthcare system side, namely how healthcare providers and facilities can reduce infection rates through the implementation of evidence-based prevention protocols.

Theme 2: Post-Cataract Surgery Care

This theme comprises 6 articles that focus on the patient's role in the post-cataract surgery recovery process, particularly in relation to postoperative education, knowledge, medication adherence, self-care practices, and factors influencing postoperative self-care. The included studies examined how patients receive and apply information, adhere to postoperative treatment, perform self-care activities, and respond to individual factors that may influence their ability to carry out postoperative care. The findings were categorized into four subthemes including: (1) Discharge education. The three studies demonstrated that postoperative interventions improved patients' knowledge and self-care practices following cataract surgery. Improvements were observed in patients' knowledge of postoperative care, adherence to self-care practices, use of eye drops, eye protection, personal hygiene, mobilization, and recognition of conditions requiring medical consultation. Higher self-care compliance was also associated with better postoperative outcomes, including a greater proportion of patients without signs of infection during follow-up. Overall, these findings suggest that structured postoperative education and

self-care interventions can strengthen patients' ability to perform postoperative care and may contribute to the prevention of postoperative complications (Eldoushy, 2022; Gülşen & Akansel, 2020; Mahfouz et al., 2019). (2) Patient knowledge. Patients' knowledge of post-cataract home care varied, with a considerable proportion demonstrating insufficient knowledge (Muthupriya, & Bharathi, 2022). (3) Medication adherence. Eye drop adherence was associated with patients' literacy level, with lower adherence reflected in forgetting medication administration and handwashing before instillation (Devireddy et al., 2025). (4) Patient-level determinants. Postoperative self-care was influenced by several patient- and care-related factors, particularly age, anxiety, postoperative symptoms, operated eye, health insurance, and education (Sakunsuk et al., 2025). This theme demonstrates a shift in focus from the clinical side to the behavioral and patient education side, indicating that successful recovery after cataract surgery depends not only on medical interventions, but also on the extent to which patients understand and properly carry out self-care.

DISCUSSION

This scoping review summarizes the current scientific evidence regarding post-cataract surgery infections, postoperative care strategies, educational interventions, and factors influencing postoperative recovery. Overall, the included studies demonstrate that research has primarily focused on infection prevention, patient education, discharge planning, self-care behavior, medication adherence, and postoperative outcomes. Collectively, the findings suggest that successful postoperative cataract care requires not only effective perioperative infection control but also structured education, continuous follow-up, and self-care support. However, the variability of intervention approaches and study outcomes indicates that several important research gaps remain.

Current Evidence on Post-Cataract Surgery Infections

Postoperative endophthalmitis is an uncommon but potentially serious complication of cataract surgery. The reviewed evidence primarily focused on perioperative strategies for infection prevention and

Ni Putu Sri Rahayu Dirantini^{1,2}, I Ketut Swarjana^{*}, Ni Luh Dwi Indrayani¹, I Gusti Agung Tresna Wicaksana¹

¹Fakultas Kesehatan, Institut Teknologi dan Kesehatan Bali

²Rumah Sakit Mata Bali Mandara

Corresponding author: *E-mail: ktswarjana@gmail.com

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early management rather than infection prevention during the longer period after hospital discharge. A reported article about comprehensive infection-control approach was associated with a reduction in postoperative endophthalmitis (Liu et al., 2025), while another article reported a low incidence of endophthalmitis and better visual outcomes among patients receiving early diagnosis and appropriate surgical management (Atima et al., 2025). Another article also reported that postoperative complications were relatively uncommon, with endophthalmitis representing a small proportion of reported complications (Rahmawati et al, 2019).

These findings highlight the importance of patient safety and infection prevention throughout the care pathway. Despite the low incidence of postoperative infection, consistent preventive practices remain essential. Nursing care should extend to discharge education on hand hygiene, proper eye-drop administration, eye protection, and warning signs requiring prompt assessment. However, evidence on infection-prevention strategies during home recovery remains limited.

Current Evidence on Post-Cataract Surgery Care

Discharge education and patient knowledge

The reviewed studies indicate that postoperative cataract care extends beyond the surgical procedure and includes home-based activities such as eye-drop administration, eye protection, personal hygiene, recognition of warning signs, and follow-up. Mahfouz et al (2019) evaluated structured discharge instructions involving patients and families, while Gülşen & Akansel (2020) examined discharge education combined with telephone follow-up. Both studies reported improvements in aspects of postoperative self-care and patient management. The findings highlight continuity of care in postoperative cataract management, with discharge serving as a transition rather than the end of care. Nursing support should include individualized education, self-care demonstration, medication guidance, and follow-up reinforcement. However, evidence on integrated postoperative care pathways remains limited.

Educational interventions were among the important areas identified in the review. Overall, the evidence suggests that education plays an important role in improving patients' knowledge, self-care

practices, treatment adherence, and postoperative outcomes. An article reported improved knowledge and self-care practices following a nurse-led educational intervention (Eldoushy, 2022), whereas Muthupriya, & Bharathi (2022) identified that a proportion of patients still had insufficient knowledge regarding postoperative home care. These findings indicate that health education is essential for patient safety after discharge, particularly as patients perform much of their postoperative care independently. Nursing education should assess understanding and include practical skills such as eye-drop administration, hygiene, eye protection, and recognition of warning signs. However, evidence on the long-term sustainability of knowledge and self-care remains limited.

Medication Adherence and patient-level determinants

Medication adherence represents another important aspect of postoperative safety because patients are commonly responsible for administering eye drops after discharge. There is identified an association between literacy level and aspects of eye-drop adherence, including medication schedules and hand hygiene (Devireddy et al., 2025). Sakunsuk et al (2025) also identified several patient-related variables associated with self-care performance, including age, education, anxiety, postoperative symptoms, health insurance, operated eye, and caregiver support. Postoperative care should be tailored to patients' individual needs and capabilities, particularly in medication management. Nurses should consider literacy, age, psychological status, and caregiver support when assessing adherence and planning discharge education. Existing observational evidence mainly demonstrates associations between these factors and postoperative outcomes, rather than direct causal effects.

Implications for Post-Cataract Care

The findings indicate that postoperative cataract care needs to be adapted to patients' individual needs, particularly in medication use and self-care. Literacy, age, psychological condition, and caregiver support may affect how well patients understand and follow postoperative instructions. Nurses therefore need to identify these factors before discharge and adjust education or involve family members when

Ni Putu Sri Rahayu Dirantini^{1,2}, I Ketut Swarjana^{*}, Ni Luh Dwi Indrayani¹, I Gusti Agung Tresna Wicaksana¹

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²Rumah Sakit Mata Bali Mandara

Corresponding author: *E-mail: ktswarjana@gmail.com

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necessary. This may support better adherence and safer recovery at home. Since most of these findings came from observational studies, the reported relationships should be understood as associations rather than causal effects.

Research Gaps and Limitation

This scoping review was limited to articles published in English with heterogeneous designs. Differences in interventions, outcome measures, and healthcare settings also limited direct comparisons between studies. Despite evidence on infection prevention, postoperative care, education, and factors associated with recovery, most studies have examined these components separately rather than as an integrated postoperative care approach. Evidence on long-term follow-up, digital health, family-centered education, and technology-assisted support also remains limited. Future research should therefore focus on integrated, patient-centered care models that combine discharge education, medication support, caregiver involvement, infection-prevention education, and follow-up, with longer observation periods to determine whether improvements in self-care and adherence are sustained. Further evaluation of patients' and families' ability to manage postoperative care at home is also needed to strengthen evidence for safe and continuous recovery.

CONCLUSION

This scoping review mapped the available evidence on post-cataract surgery infections and postoperative care, showing that existing research primarily focuses on perioperative infection prevention, postoperative care strategies, health education, self-care, medication adherence, and factors associated with postoperative recovery. The findings indicate that safe postoperative cataract care requires an integrated approach that extends from infection prevention during the perioperative period to structured discharge education, medication management, self-care support, caregiver involvement, and follow-up after discharge. However, the evidence remains limited regarding comprehensive and integrated postoperative care programs, long-term follow-up, digital health and technology-assisted interventions, and patients' and

families' ability to perform postoperative care at home. Future research should therefore focus on developing and evaluating integrated, patient-centered postoperative care approaches that strengthen continuity of care, promote patient safety, and support effective self-care after cataract surgery.

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Ni Putu Sri Rahayu Dirantini^{1,2}, I Ketut Swarjana^{*}, Ni Luh Dwi Indrayani¹, I Gusti Agung Tresna Wicaksana¹

¹Fakultas Kesehatan, Institut Teknologi dan Kesehatan Bali

²Rumah Sakit Mata Bali Mandara

Corresponding author: *E-mail: ktswarjana@gmail.com

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Ni Putu Sri Rahayu Dirantini^{1,2}, I Ketut Swarjana^{1*}, Ni Luh Dwi Indrayani¹, I Gusti Agung Tresna Wicaksana¹

¹Fakultas Kesehatan, Institut Teknologi dan Kesehatan Bali

²Rumah Sakit Mata Bali Mandara

Corresponding author: *E-mail: ktswarjana@gmail.com

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Ni Putu Sri Rahayu Dirantini^{1,2}, I Ketut Swarjana^{*}, Ni Luh Dwi Indrayani¹, I Gusti Agung Tresna Wicaksana¹

¹Fakultas Kesehatan, Institut Teknologi dan Kesehatan Bali

²Rumah Sakit Mata Bali Mandara

Corresponding author: *E-mail: ktswarjana@gmail.com

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