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## Nursing Diagnosis in Perioperative Cataract and Comorbidity



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### Abstract

Nurses are essential in providing nursing care to patients for pre, intra, and postoperative cataracts. An appropriate nursing diagnosis can help clients achieve optimal health. The purpose of the study was to identify nursing diagnoses in pre, intra, and postoperative cataracts. The design of the study used qualitative descriptive research design. The population of all patients undergoing surgery was 30, and data was collected through interviews and observations. The results of the study: preoperative nursing diagnosis consisted of sensory perception and anxiety disorders 30 (100%), impaired physical mobility, activity intolerance, and risk of falling 3 (10%), knowledge deficit 2(6,7%), body image disorders 1 (3,3%). Intraoperative nursing diagnosis: impaired tissue integrity 30 (100%), acute pain 7(23,3%), hypothermia 4 (13%), hypothermia risk 3 (10%). Postoperative nursing diagnosis, all participants experienced sensory perception disorders 30 (100%), acute pain 7(23.3%), infection risk 5(16,7%), impaired physical mobility, activity intolerance and fall risk 3 (10%), knowledge deficit 2(6.7%). Comorbidity affects the enforcement of nursing diagnoses. The correct nursing diagnosis is a reference for nurses in providing continuous intervention so that quality nursing services are obtained.

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## INTRODUCTION

Cataracts are associated with poor health because patients with cataracts complain of smoky vision and sharp, progressively decreased vision. This leads to limited activity, poor emotional distress, and decreased quality of life. Poor eyesight is also a major psychological stressor problem for patients and their families. Nurses play an important role in every aspect of cataract surgery. The challenge is to avoid or hinder the onset of problems and timely deal with them if problems occur. Therefore, patient needs must be identified, and established into a nursing diagnosis, then become a reference for determining appropriate nursing interventions (Taha, 2021; Abdullah et al, 2021).

The results of the Rapid Assessment of Avoidable Blindness (RAAB) survey, in Indonesia 8 million people are experiencing visual impairment, 1.6 million have blindness, and 6.4 million suffer from moderate and severe visual impairment. The highest cause is around 81 percent due to cataracts (Kemenkes, 2020). The results of the study by Sandor et al (2020), cataracts caused 77,933 blind eyes, 98,067 eyes had VA <6/60, and an estimated 277,493 eyes had VA <6/18. Cataract patients also experienced severe anxiety (VASA  $\geq 7$ ) and pain (VAS  $\geq 7$ ) documented in 18.5 and 17.5% of patients, respectively. Patients with severe anxiety were >10 times more likely to experience severe pain, and VASA > 4 predicted severe pain with 88.9% sensitivity and 69.4% specificity (Socea et al, 2020). The research of Diana and Fadila (2022), the anxiety experienced by cataract patients during pre-cataract surgery is related to the patient's level of knowledge.

The most effective treatment to overcome the number of blindness due to cataracts is surgical (surgery) when the patient cannot see properly even though he is assisted by glasses in carrying out his daily activities (Havivah, 2019). Surgical procedures are a form of therapy that can cause fear to anxiety because they can threaten the integrity of the body and threaten meaningful values for individuals, as well as the most frequent physical problems in perioperative patients, are the risk of injury, the risk of infection, acute pain, and the risk of hypothermia (HIBKABI, 2014).

Eye nurses are part of the health team having an important role in perioperative, especially during pre- and post-intraocular surgery. Nurses positively affect the quality and efficiency of the surgical process

(Abid et al., 2018). The thing that needs to be prepared during preoperative is to ensure that the patient is in the best condition, the nurse conducts an assessment including health status and risk, physical and psychological assessment (Kurniawan, H., Dwiantoro, L., & Sulisno, 2020). Each phase of perioperative begins and ends with a specific sequence of times forming a surgical experience, covering a wide range of nursing behaviors and activities using nursing processes and nursing standards (Ayuni, 2020).

Nursing diagnosis is the second stage in the nursing process and is a basic formulation of problem-solving through proper problem identification (Aziz, 2021). Nursing diagnoses that are not enforced and documented in a medical record format can harm the patient, that is, the next stage of care is many obstacles and inappropriate so that the patient's health problems cannot be solved appropriately and the caregiver does not have strong evidence and legal force to face demands from the community (KARS, 2018).

Nursing diagnoses in cataract surgery patients at RSUD Bangil Pasuruan have not been established and documented in writing in the format of hospital medical records. Nursing problems that occur in patients have not been identified in detail and written in the format of the patient's medical record both in the preoperative, intraoperative, and postoperative phases of cataracts. In a preliminary study at Bangil Regional Hospital from January to December 2020, cataracts ranked first among eye diseases that cause visual impairment with a total of 621 (29.7%) and those undergoing surgery as many as 347 (55.9%) (RM, 2020).

The preoperative phase is when the decision is made to carry out surgical intervention. This stage ends when the patient is escorted to the operating room, in this phase the patient experiences various health problems so it requires the role of the nurse in reviewing data for taking interventions for the health problems experienced by the patient because it is very influential in the operation process. If no treatment is carried out for nursing problems, there can be complications or failure of surgery that the patient does not want. The intraoperative phase begins when the patient enters the surgical room and ends when the patient is transferred to the recovery room. Nursing activities that must be carried out are to carry out thorough physiological monitoring throughout the surgical procedure, maintain patient safety, and collaborate with other health workers. The

postoperative phase begins when the patient exits the surgical room into the recovery room and ends during the follow-up evaluation at home.

Nursing activity in this phase is to examine the effects of anesthetic agents, monitor vital functions, and prevent complications, as well as conduct health counseling, and optimal healing follow-up treatments followed by discharge (HIBKABI, 2014).

Enforcement and documentation of nursing diagnoses and the implementation of interventions by nursing diagnoses can solve health problems in patients appropriately, the operation goes smoothly, the patient feels comfortable and the results are by the expectations of obtaining optimal health. Based on this description, the author is interested in researching "Nursing diagnosis in perioperative cataract and comorbidity"

## METHODS

The design of the study was descriptive study which identifying nursing diagnoses in all phases of surgery from the pre, intra to post-operative cataract phases. The population in this study was 59 patients who underwent cataract surgery at Bangil Pasuruan Hospital with the criteria of being conscious clients, able to communicate well, psychologically and physiologically stable (composmetic awareness), and willing to be participants. The sampling technique used consecutive sampling technique. The sample was 30 participants. The data was collected through interviews, observations, and physical examinations.

The instrument used in this study variable is a characteristic limitation of the Standar Diagnosa Keperawatan Indonesia (SDKI) 2017. Univariate data analysis. Ethical eligibility was obtained from RSUD Bangil with numbers 445.1/005/424.072.01/2021.

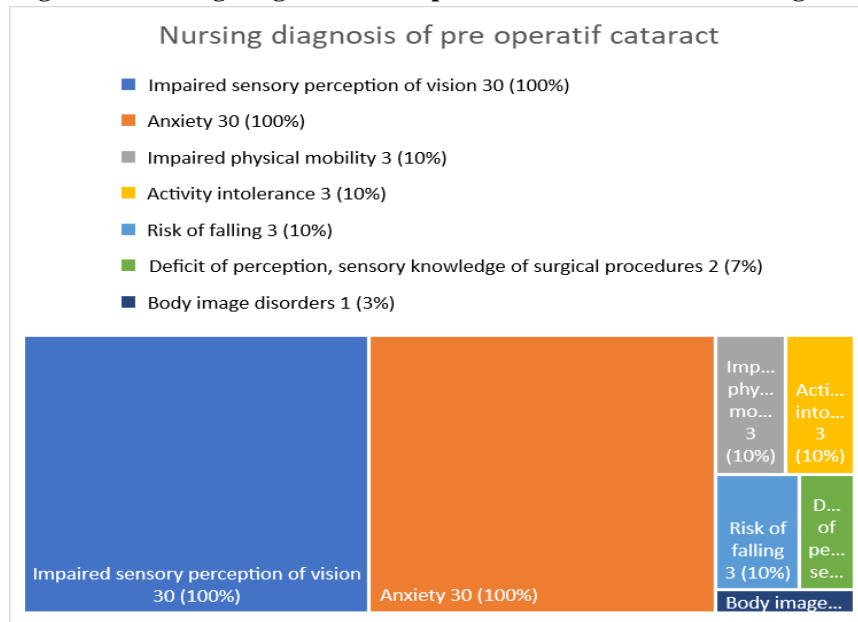
## RESULTS

**Table 4.1: Frequency distribution based on patient characteristics in RSUD Bangil 2021**

No	Characteristics	Frequency	Percentage
<b>1</b>	<b>Gender</b>		
	a. Male	18	60
	b. Female	12	40
	<b>Total</b>	<b>30</b>	<b>100</b>
<b>2</b>	<b>Experience operations</b>		
	a. The first	22	73,3
	b. The second	8	26,7
	<b>Total</b>	<b>30</b>	<b>100</b>
<b>3</b>	<b>Age (years)</b>		
	a. 45-59	12	40
	b. 60-74	14	46,7
	c. 75-90	4	13,3
	<b>Total</b>	<b>30</b>	<b>100</b>
<b>4</b>	<b>Education level</b>		
	a. Elementary school	16	53,3
	b. Yunior high school	6	20
	c. Senior high school	5	16,7
	d. College	3	10
	<b>Total</b>	<b>20</b>	<b>100</b>
<b>5</b>	<b>Comorbidities</b>		
	a. None	25	71,4
	b. PPOK	1	2,9
	c. Diabetes Mellitus	4	11,4
	d. Hypertension	4	11,4
	e. Other heart diseases	1	2,9
	<b>Total</b>	<b>30</b>	<b>100</b>

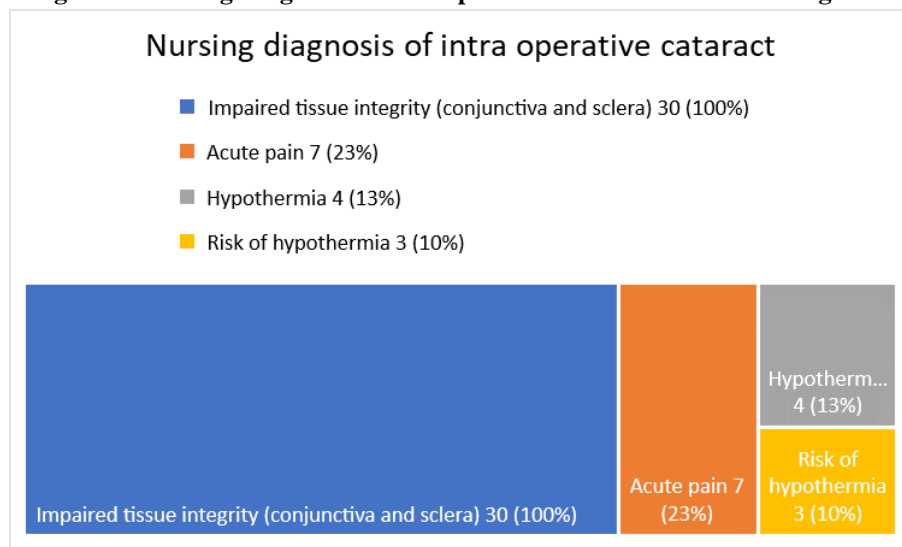
Table 1 shows that of the 30 participants, most of them were men 18 people (60%), almost some were aged 60-74 years, generally had their first cataract surgery 22 people (73.3%), the education level of the participants was mostly elementary school 16 people (53.3%), most of the 25 people (71.4) did not have comorbidities.

**Diagram 1: Nursing Diagnosis of Preoperative Cataract in RSUD Bangil 2021**



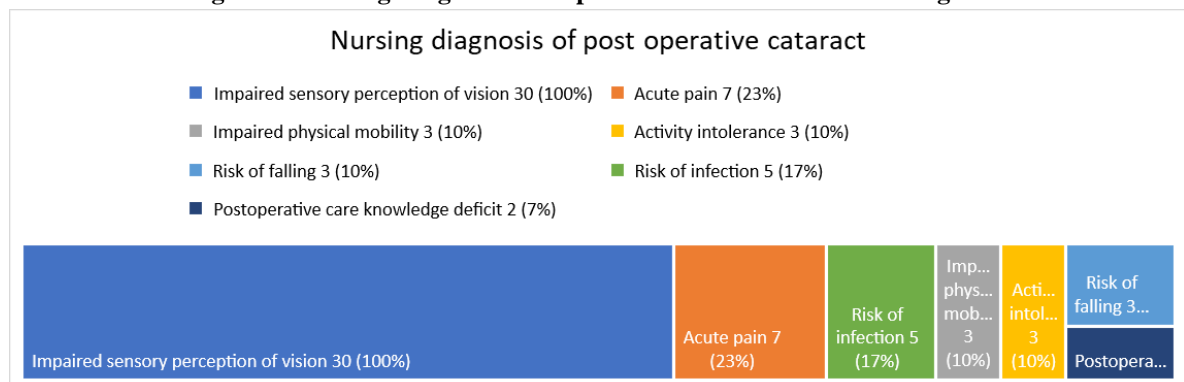
All participants have impaired sensory perception of vision 30 (100%) and anxiety 30 (100%).

**Diagram 2 Nursing Diagnosis of Intraoperative Cataract in RSUD Bangil 2021**



All participants have impaired tissue integrity (conjunctiva and sclera)

**Diagram 3 Nursing Diagnosis Postoperative Cataract in RSUD Bangil 2021**



All participants have impaired sensory perception of vision 30 (100%).

## DISCUSSION

### Nursing Diagnosis of Preoperative Chataract in RSUD Bangil Pasuruan 2021

The results showed that all participants experienced impaired sensory perception of vision and anxiety 30 (100%), impaired physical mobility, risk of falling, activity intolerance 3 (10%), knowledge deficit 2 (6.7%), and body image disorder 1 (3.3%). The preoperative phase begins when the patient is planned to be surgically performed and ends when the patient is sent to the operating table (Iqnavicius, D. D., Workman, M. L., Blair, M., Rebar, C., & Winkelman, 2016).

Cataracts cause protein clumping in the lens of the eye and slowly make the lens cloudy and foggy. This causes the lens' ability to focus light to decrease, resulting in blurred and unclear vision. Patients will experience an impaired sensory perception of vision, namely changes in perception of stimulus both internal and external accompanied by a reduced, excessive or distorted response (Ilyas, S., & Yulianti, 2013).

Anxiety problems occurred in all male and female participants, educated in elementary to tertiary studies, ages 46 to 82, with first and second surgery experiences. Anxiety is an individual's emotional state and subjective experience of an obscure and specific object due to the anticipation of danger that allows the individual to take action to deal with the threat (PPNI, 2017). In this study, participants experienced more than 80% of major signs and symptoms, namely all participants said they were worried and looked tense even though they had been given information about the surgical procedure. This is in line with the research of Abid et al (2018), patients report anxiety before undergoing surgery because they are worried about going blind after surgery. Researchers have already provided counseling about the procedure to be performed but there are still feelings of worry and tension.

Nursing problems with impaired physical mobility occur in 3. Impaired physical mobility is a limitation in the physical movement of one or more extremities independently (PPNI, 2017). The results of the study by Chen et al (2017), cataract patients who had difficulty doing activities before surgery ranged from 81.0% to 94.8%. In this study, physical mobility disorders occurred not only due to cataracts, but also caused by other factors, namely the amputation of the right leg due to DM, hypertension of more than five years, age of more than 65 years

physiologically causing a decrease in muscle mass and strength.

Nursing problems of activity intolerance occurred in 3 female participants aged 75-90 years, with complaints of fatigue and increased heart frequency. Activity intolerance is the insufficiency of energy to carry out daily activities (PPNI, 2017). In this study, the problem occurred because participants suffered from heart disease with drug consumption, and hypertension was more than five years old with the age of over 65 years.

Fall-risk nursing problems arise because no major and minor symptoms are found but have risk factors, namely health conditions that can be at risk of falling (PPNI, 2017). These conditions are visual impairment which is the impact of lens turbidity and hearing loss that arises because participants in general are in advanced so that they experience a decrease in hearing function. Poor visual acuity of the dominant eye in cataract sufferers is closely related to the risk of falling (Palagy et al, 2017).

Nursing problems perception deficits and knowledge constitute the absence or lack of cognitive information relating to a particular topic with various causes characterized by major and minor symptoms both subjective and objective (PPNI, 2017). In this study, most of the participants had an elementary school education, which affected cognitive abilities, plus elderly factors that had an impact on reducing the ability to remember. The ability to communicate in Indonesian that is lacking causes the information conveyed to be less well received, so participants are still confused and often ask about the procedures to be carried out even though they have been given information and explanations.

The nursing problem of body image disorder occurred in one male participant aged 46 years with the first surgery and who had a high school education. Participants expressed disability and loss of bodily functions, with the presence of cataracts his eyes became white, vision decreased, and participant felt embarrassed when in contact with his co-workers, often looking down worried. Body image disorder is a change in perception of an individual's appearance, structure, and physical functioning with many contributing factors (PPNI, 2017).

### Nursing diagnosis of intraoperative cataract in RSUD Bangil Pasuruan 2021

The results of the study from 30 participants showed that all participants experienced impaired tissue integrity, namely 30 (100%), acute pain 7 (23.3%), hypothermia 4 (13.3%), and hypothermia risk 3 (10%). Surgical procedures are a form of therapy that can cause fear to anxiety because they can threaten the integrity of the body and threaten meaningful values for the individual.

Nursing problems impaired the integrity of the conjunctiva, cornea, and sclera tissues due to cataract surgery to replace cloudy lenses. Such actions cause bleeding of less than 1 milliliter. Participants who have hypertension usually bleed more than 1 milliliter, to prevent excessive bleeding before surgery blood pressure must be normal.

In this study, pain nursing problems occurred more in female participants, 80% of major signs were obtained, namely complaining of pain, being protective (position avoiding pain), anxiety, and increased pulse frequency. To treat the pain that occurs, topical pantocain is given at 0.5% periodically until participants say the pain decreases or disappears. Acute pain is an experience or emotional related to actual or functional tissue damage, with sudden or slow onset and mild to severe intensity lasting less than 3 months (Zakiyah, 2015). Men and women differ in that the response to pain varies more in women than in men (Pieretti et al, 2016).

Hypothermic nursing problems occurred in 4 participants, aged 60-74 years and 75-90 years. In this study, signs of hypothermia were found with temperatures below 36 °C, feet palpable cold, participants said it was cold, the results of observations of acrocyanosis were seen on the toenails and sometimes shivering even though they had been given a blanket because the temperature in the operating room was very cold according to the standard operating room, which was 19 °C-22 °C. The operating room is a special unit in the hospital that functions as a place to perform surgical procedures electively or acutely, which requires sterile conditions and other special conditions, with temperature standards (19-22 C), with positive air pressure (difference of 1 atm inside and outside the operating room), humidity 45-60 RH (Ministry of Health RI, 2019).

At the time of surgery, participants must wear special patient clothes in the operating room so that they still feel the change in cold temperature. Almost all participants aged over 50 years with a reduced subcutaneous fat layer (thin), cataract surgery using

local anesthesia, participants are still conscious and can be communicated with, if the hypothermia has not been resolved it can affect the surgical process, the patient becomes uncooperative so that unwanted complications can occur, to overcome the problem the nurse provides additional blankets and observes the patient's temperature continuously.

The risk problem of hypothermia occurred in 3 female participants, both participants' legs were palpable cold, thin bodies. The results of the axillary body temperature check are still within the normal limit of 36.6°. The risk of hypothermia is a risk of thermoregulation failure which can result in body temperature being below normal ranges, clinical conditions related to extreme weight, dehydration, and lack of physical mobility. Risk diagnosis is a health condition that can cause risk of experiencing health problems not found major and minor symptoms but has risk factors for experiencing problems. (PPNI, 2017).

#### **Nursing diagnosis of postoperative cataract in RSUD Bangil Pasuruan 2021**

The results of the study from 30 participants showed that all participants experienced impaired sensory perception of vision, namely 30 (100%), acute pain 7 (23.3%), risk of infection 5 (16.7%), impaired physical mobility, activity intolerance and risk of falling 3 (10%), and knowledge deficit 2 (6.7%).

The postoperative phase begins with the patient's entry into the recovery room and ends with follow-up evaluations in inpatient settings, clinics, and at home (IqnataVICIUS, D. D., Workman, M. L., Blair, M., Rebar, C., & Winkelman, 2016). Nursing problems with impaired sensory perception of postoperative vision occur due to the presence of surgical wounds on the sclera, cornea edema, and covered with gauze so that vision decreases. In addition, diabetic and elderly patients with a history of diabetic retinopathy who use insulin and have high levels of Hgb A1C, have an increased risk of intraoperative and postoperative complications and decreased visual acuity and postoperative visual function that can affect the quality of life (Smalling, Lara & Egilmez, 2014). Postoperative sensory perception disorders can be resolved gradually characterized by increased visual acuity.

Research by Chen et al (2017), most cataract patients have high expectations about the results of vision improvement after cataract surgery and in most cases, postoperative outcomes achieve a level

of vision improvement as expected. The action of phacoemulsification can significantly improve the sharpness and quality of vision in cataract patients (He et al., 2020).

Acute pain nursing problems are more common in female participants, subjectively complaining of pain, to overcome the pain that occurs it is recommended to immediately take anti-pain medications that have been given, postoperative pain is reduced when compared to intraoperative time.

Nursing problems at risk of infection arise because there are participants who have a history of diabetes mellitus and high unstable sugar levels (hyperglycemia) which can affect the healing process that runs long and even worse so it is very risky for infection. The presence of patients who are suffering from COPD also requires proper care, a proper nutritional diet, and adherence to treatment with regular control of postoperative cataracts. The results of the study by XiaoLing et al (2018), showed that age and the presence of a history of diabetes mellitus, the length of time of surgery, and the location of the incision are factors related to infective endophthalmitis after cataract surgery. The use of intraoperative antibiotics and cleaning behind the lens are closely related to the occurrence of postoperative endophthalmitis ( $P < 0.05$ ) (Sun et al, 2021).

The role of nurses as educators is needed, especially in participants who have a high risk of infection in the hope that the surgical wound will heal, the infection does not occur although many factors can affect the healing process of the surgical wound. The recommendation is to always maintain cleanliness around the wound and consume nutritious food because most people in Pasuruan are afraid to eat vegetables and fish after surgery thinking that by eating vegetables and fish the surgical wounds do not heal quickly.

The factors causing the emergence of nursing problems impaired physical mobility in patients after cataract surgery are the same as the preoperative phase, namely due to comorbidities. However, specifically in patients after cataract surgery, there are restrictions on some activities to prevent an increase in eye pressure. The patient should not look down for at least 2 weeks after surgery, tighten the hard, cough too hard, lift heavy weights, > 4.5 kg, scratch/grope / rub the eye area.

The quality of life of cataract sufferers after undergoing surgery, gradually within three months

showed improvement as visual acuity improved. Self-care ability, daily activities, social ability, psychological status, and quality of life are rapidly improving (He et al., 2020).

## CONCLUSION

All patients in the preoperative phase experienced impaired sensory perception of vision due to clouding of the lens and anxiety due to knowledge deficit. Other nursing diagnoses include impaired physical mobility, activity intolerance, risk of falling, a deficit of sensory perception and body image disorders. In the intraoperative phase of surgery, all patients experience impaired tissue integrity (conjunctiva and sclera), then only a small percentage experience acute pain, hypothermia and risk of hyperthermy. In the post-operative phase, all patients experience impaired sensory perception of vision but will decline with improvements in sharpness and quality of vision. Acute pain, hypothermia and the risk of hypothermia are also present in post-operative. The presence of comorbidities, such as diabetes mellitus and hypertension, affects the establishment of nursing diagnosis.

## SUGGESTION

Proper nursing diagnosis is a reference for nurses in providing continuous intervention so that quality nursing services are obtained. The eye nurse must identify the presence of comorbidity and coordinate with the doctor to maximize comorbidity control (e.g., diabetes mellitus and hypertension control before surgery), and should also coordinate postoperative care information.

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## CONFLICT OF INTEREST

The author declared there was no conflict of interest in this study.

**AUTHOR CONTRIBUTIONS**

The first, second and third authors jointly identify and discuss phenomena that will be designated as the topic of the study. The first author carries out the research coordinator, monitoring and evaluation data collection, data analysis, and manuscript preparation. The second and third authors draw up proposals and analyze the data. Data collection was carried out by the third author.

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