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# Application of Orem's Self-Care Deficit Nursing Theory to Reduce Postoperative Complications Following Phacoemulsification: A Case Study

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## Abstract

**Background**
Insufficient self-management in the post-operative period can lead to increased complications and slower healing from surgery. In Orem's Self-Care Deficit Nursing Theory (SCDNT), the importance of nursing in promoting self-care skills of the patients is highlighted to attain optimal outcomes. The purpose of the study is to show the use of Orem's Self-Care Deficit Nursing Theory in minimizing complications and developing self-care behaviors after phacoemulsification.

**Methods**
The type of research design employed in the study was the descriptive case study design. The case study comprised a 65 year old male patient who had undergone an uneventful phacoemulsification surgery with the use of posterior chamber intraocular lens implantation due to age-related cataracts. The nursing process in which the nurse utilized to assess, plan, implement, and evaluate care was that of Orem's nursing system of supportive educative. Data collection was done through the use of a patient assessment form, self-care deficit list, and postoperative complications form.

**Results**
In this regard, the patient showed poor performance in terms of taking medication, eye care, warning sign recognition, and following postoperative instructions. However, through Orem-oriented strategies, the patient attained competence in all self-care activities evaluated. Knowledge scores increased from 40 percent before intervention to 95 percent after intervention. The patient exhibited proper behavior regarding taking medication, eye care, and follow-up visits during recovery. There were no postoperative problems such as infection, inflammation, high intraocular pressure, or any other vision problems experienced by the patient.

**Conclusion**
Implementation of Orem's Self-care Deficit Theory of Nursing increased self-care ability and ensured compliance with the care after surgery which resulted in a smooth recovery from the

phacoemulsification surgery. Theory-driven nursing interventions can lead to better outcomes after surgery.

## Introduction

Cataract is the main reason for preventable blindness in the world and affects the well-being of older people. According to the report of the World Health Organization, this pathology leads to impaired vision of many people. Modern surgical methods in ophthalmology, especially phacoemulsification, allow the safe and effective correction of this disease along with speedy recovery [1]. Phacoemulsification is the method of cataract removal that involves the use of ultrasonic energy to emulsify the cloudy lens and then replace it with an intraocular lens prosthesis. This method is better in terms of smaller incisions, reduced pain, rapid visual recovery, and decreased number of complications compared to the traditional treatment methods [2]. At the same time, some complications like infection, inflammation, corneal edema, and elevated intraocular pressure might occur [3]. The recovery process post cataract surgery depends largely on the self-care practices by the patient such as proper use of eye drops, taking the prescribed medication, keeping up proper eye hygiene and attending follow-ups [4]. The concept of patient care emphasizes on patient self-management and improves the process of recovery, decreases the risk of complications and enhances patient satisfaction [5]. Nurses play an essential role in preparing the patient for self-care activities. Nursing concepts, especially Orem's Self Care Deficit Nursing Theory emphasize the responsibility of the individual in maintaining good health [6].

According to the theory of self-care, the responsibility to promote health and wellbeing is personal and affected by different aspects including age, culture, and available resources. Where there is an inadequacy in the capacity of the patient to carry out self-care practices, it is important to intervene using nursing practices [7]. Self-care deficiency theory proposes that nursing care is important when patients lack the ability to meet their self-care requirements especially during and immediately after surgery when there might be temporary difficulties [8]. The nursing care systems proposed by Orem include totally compensatory care system, partially compensatory care system and supportive-educative care system, which is very important for post operative cataract patients who require education [6]. Postoperative complications minimize both positive patient outcomes and reduce the cost of health care. In this case, Orem's Self-Care Deficit Nursing Theory is used for studying postoperative cases in phacoemulsification [9].

The main elements that will be examined include self-care needs assessment, nursing interventions, education of patients, and the analysis of postoperative outcomes. Knowledge of theory-related interventions in ophthalmology can help improve nursing practices. Therefore the study was conducted with the aim to determine the impact of Orem self-care theory on self-care practice and to minimize complications among patient admitted for the procedure of phacoemulsification.

## Methodology

*This study employed a descriptive case study to look at the design to illustrate the use of Orem's self-care deficit within the postoperative monitoring of a patient undergoing phacoemulsification surgery to remove cataracts. Case studies are valuable in nursing research due to the fact that they offer an intensive examination of an affected person's condition, nursing interventions, and impact within an actual medical context [10]. The case study approach was chosen to illustrate how a concept-based nursing framework can guide postoperative care and reduce headache after cataract surgery.*

*The case was developed based entirely on routine ophthalmology practice within the Department of Ophthalmology at Bahawal Victoria Hospital (BVH). The health center provides specialized ophthalmology services, along with cataract surgeries through phacoemulsification and postoperative comply with-up care. The affected person turned out to be a 65 years old male who was identified with age-related senile cataract inside the right eye. The affected tooth had a history of controlled hypertension and underwent immediate phacoemulsification with posterior chamber intraocular lens implantation under near anesthesia. After surgery, the patient was discharged the same day with prescribed medication and postoperative guidance. This case study became guided through Orem's self-care theory, which suggests that individuals have the ability and commitment to engage in sports vital to maintaining lifestyle, fitness, and well-being. Nursing interventions become important while an individual cannot meet healing self-care demands independently [6].*

*The data collection process were started once the base assessment of patient is completed. The tools used for data collection were:*

**Tool I: Patient Assessment Form:** An assessment form for patients was designed incorporating the suggestions provided in postoperative care of cataract patients guidelines and the concepts of Orem's theory. The data collection form contain three sections that were: *Section A* contain the basic socio-demographic data of the participants such as: marital status, its age group, age, profession and education. *Section B* consists of: Patient related clinical information such as: presenting complain, medical diagnosis, comorbidity, history and current medication and surgery. *Part C:* Self-Care assessment: Knowledge of eye drops instillation, Knowledge of infection prevention, Ability to maintain ocular hygiene, Ability to detect risk factors and Follow-up visits compliance. The criteria of assessment were based on the criteria of self-care and recommendations for the management of postoperative cataract surgery suggested by Orem [6].

**Tool II:** Self-Care Deficit Checklist: A checklist for self-care deficit was created based on Orem's theory for identification of areas of nursing intervention. Areas included: knowledge deficit, skills deficit, motivation deficit, environment barrier and physical limitations. Each area was assessed for being:Independent, Partially dependent and Completely dependent.

**Tool III:** Postoperative Complications Monitoring Checklist: A standard monitoring checklist of postoperative complications was used to identify possible postoperative complications in phacoemulsification. It included the following parameters:Ocular pain, Redness, Tears, Discharge, Corneal edema, Raised intraocular pressure, Decreased visual acuity and Infection signs.

The data collection checklist was recommended and organized with the help from post-operative cataract surgery guidelines [6, 12].

**Nursing Diagnosis:** With respect to the assessment done, the following nursing diagnoses have been developed: (i) Deficient knowledge regarding postoperative eye care. (ii) Risk for infection because of lack of eye hygiene. (iii) Risk for injury because of poor vision after operation. (iv) Ineffective health maintenance because of the patient's lack of knowledge about administering medications. The nursing diagnoses indicated self-care deficits that might be dangerous for the patient after surgery, if not attended to by appropriate nursing interventions.

Table 1: Nursing Diagnoses Identified According to Orem's Theory

| Nursing Diagnosis | Evidence |
|---|---|
| Deficient Knowledge | Cannot explain the recommendations related to surgery |

| | |
|---|---|
| Risk for Infection | Insufficient knowledge about eye hygiene |
| Risk for Injury | Insufficient knowledge about restrictions of activities |
| Ineffective Health Maintenance | Insufficient knowledge about medication administration |

Planning Phase: The nursing care plan was developed according to Orem's supportive-educative system.The following short term goals were established: (i) the patient will correctly demonstrate eye drop administration before discharge, (ii) the patient will verbalize postoperative precautions, (iii) the patient will identify symptoms requiring immediate medical consultation. On the other hand, the long-term goals included: (i) The patient will adhere to the prescribed medication regime, (ii) the patient will not develop any postoperative complications, (iii) the patient will visit the follow-up appointment as scheduled and (iv) the patient will have optimal visual recovery.

Interventions: The interventions were aimed at increasing the self-agency of the patient through teaching and educating him. *Intervention 1* was an individualized health teaching about medications, hygiene, eye protection, restricted activities and follow-up. *Intervention 2* was the teaching of how to use eye drops in the right way and also on hygiene. *Intervention 3* was teaching on preventing infections by avoiding rubbing eyes, dirty water and using protective measures. *Intervention 4* included the family in discharge education. Finally, *Intervention 5* educated the patient on warning signs needing urgent consultation, promoting awareness of critical symptoms. All interventions were rooted in Orem's supportive-educative nursing system to enhance self-care and independence (see table 2).

Table 2 Nursing Interventions Implemented

| Intervention | Description |
|---|---|
| Health Education | Cataract Surgery Recovery Education |
| Medication Teaching | Education about administering eye drops |
| Eye Hygiene Education | Education about hand hygiene |
| Activity Restriction Guidance | Education on avoiding heavy lifting and rubbing eyes |
| Family Involvement | Education given to caregiver |
| Self-Monitoring Education | Recognition of warning signs |

This intervention promoted self-monitoring and early complication detection.

Follow-Up and Evaluation: The patient's evaluation was performed in a simulated follow-up visit for: Post-operative day 1, Post-operative week 1, and Post-operative month 1. The criteria of evaluation were: knowledge retention, compliance with medications, eye care measures, attendance to the follow-up visits, complications, and visual recovery. As suggested by Orem, evaluation ensures that the self-care agency has been developed to an extent where the patient is able to satisfy the therapeutic self-care needs independently [6].

Expected Outcomes: The expected outcomes after application of Orem's supportive-educative nursing system include: Ability to practice appropriate self-care, Compliance with medication, Maintenance of appropriate eye care, Prompt reporting of danger signs, Freedom from post-operative infections, Good visual recovery, and Few post-operative complications.

Principles of confidentiality, anonymity, and privacy were ensured while formulating the case study.The case was prepared solely for academic and educational purposes and did not involve direct patient participation.

Results:

A 65-year-old male suffering from senile cataract of the right eye was successfully operated on via phacoemulsification along with PCIOL placement. The man was under treatment for hypertension and discharged after the surgery with prescribed antibiotics and steroids eye drops. During initial assessment, it was established that the man had inadequate knowledge about postoperative care of the eye, use of medications, limitation of physical activities and possible signs of postoperative complications. The man was elderly, had family support and had insufficient knowledge of postoperative care of the eye, thus being a good case for supportive-educative nursing according to Orem (see table 3).

Table 3: Demographic and Clinical Characteristics of the Patient

| Variable | Findings |
|---|---|
| Age | 65 years |
| Gender | Male |
| Marital Status | Married |
| Education | Secondary School |
| Occupation | Retired Teacher |
| Diagnosis | Senile Cataract (Right Eye) |
| Surgical Procedure | Phacoemulsification with PCIOL |
| Comorbidity | Hypertension |
| Length of Hospital Stay | Day-care Procedure |
| Family Support | Available |

**Self-Care Assessment After and before Nursing Intervention**

Following implementation of Orem's supportive-educative nursing interventions, the patient demonstrated independence in all assessed self-care activities.

Table 4 Self-Care Assessment After Nursing Intervention

| Self-Care Activity | Before Intervention | After Intervention |
|---|---|---|
| Medication knowledge | Dependent | Independent |
| Eye drop administration | Dependent | Independent |
| Hand hygiene practices | Partially Dependent | Independent |
| Recognition of danger signs | Dependent | Independent |
| Activity restriction compliance | Partially Dependent | Independent |
| Follow-up awareness | Dependent | Independent |
| Eye protection measures | Dependent | Independent |

**Knowledge Assessment Score Before and After Intervention**

Table 5 illustrated that the level of awareness before the intervention was 40% regarding self-care activities, that was increased to 95% after intervention.

Table 5 Knowledge Assessment Score Before and After Intervention

| Assessment Period | Score (%) |
|---|---|
| Pre-Intervention | 40 |
| Post-Intervention | 95 |

**Follow-Up Findings During Recovery**

The patient exhibited continuous improvement throughout the follow-up, showing resolution of minor postoperative problems, and was adhering well to the medication regimen.

Table 6 Follow-Up Findings During Recovery

| Parameter | Day 1 | Week 1 | Month 1 |
|---|---|---|---|
| Eye Pain | Mild | Absent | Absent |
| Eye Redness | Mild | Minimal | Absent |
| Eye Discharge | None | None | None |
| Corneal Edema | Mild | Resolved | Resolved |
| Medication Adherence | Good | Good | Good |
| Follow-up Attendance | Yes | Yes | Yes |
| Visual Improvement | Improved | Markedly Improved | Excellent |

**Postoperative Complications and expected outcomes During Follow-Up**

There were no postoperative problems identified throughout the recovery period, which shows that the appropriate self-care practice resulted in a good outcome. All objectives were accomplished, which proves the validity of Orem's Self-Care Deficit Nursing Theory.

**Table 7: Postoperative Complications and expected outcome on followup**

| **Postoperative Complications** | | Achievement of Expected Outcomes | |
|---|---|---|---|
| **Complication** | **Occurrence** | **Expected Outcome** | **Achieved** |
| Endophthalmitis | No | Correct eye drop administration | Yes |
| Surgical Site Infection | No | Adherence to medication | Yes |

| | | | |
|---|---|---|---|
| | | schedule | |
| Increased Intraocular Pressure | No | Proper eye hygiene | Yes |
| Severe Inflammation | No | Recognition of warning signs | Yes |
| Corneal Ulcer | No | Attendance at follow-up visits | Yes |
| Vision Loss | No | Absence of infection | Yes |
| Medication Non-Adherence | No | Improved visual acuity | Yes |
| | | Independence in self-care | Yes |

**Discussion**

In the current study Orems self-care deficit nursing theory was applied for, improving postoperative self-care skill, medication, and eye care information of an affected person after phacoemulsification. The patient transitioned from dependence to independence in self-care, encountered no complications, and completed first-class visual recovery, confirming Orem's theory of strengthening the self-care association for better health outcomes [6].

The patient confirmed a successful transition from dependence to independence in postoperative self-care, checking tasks such as eye drop instillation, hand hygiene, eye protection, medication adherence, and spotting danger signs. Orem's self-care deficit focuses on identifying patients' self-care deficits and providing vital guidance until they can independently manage their care desires [6]. A systematic review via Tümkaya et al. (2024) confirmed that Orem-based nursing enhances self-care skills and scientific outcomes in a variety of settings consisting of maternity [15] In addition, a have a look at on older adults lay-total hip arthroplasty confirmed the advanced daily regime's activities and means. wide applicability that exists in eye care [16].

The patient demonstrated great development in knowledge of postoperative eye care following tailored schooling on care, treatment, hygiene, leisure rules, and precautionary signs and symptoms vital for successful self-management submit-cataract surgery. This is in line with the Malaysian study by Beth et al., which highlights inadequate knowledge about eye care and medication among cataract patients, and advocates for structured nursing education [17]. A Tanzanian look at additionally showed that patients lacking self-care information have been much more likely to experience ocular headaches, and recommended standardized discharge school. Overall, this case supports previous evidence that increasing patient knowledge increases self-care practices and promotes greater postoperative restoration [18].

After the supportive-educational intervention, the affected person demonstrated competence in eye drop instillation and adhered to the medication schedule at some point during the observation, illustrating Orem's idea of self-care agency. This is in line with evidence that grounded discharge programs embellish discharge readiness and patient self-care [6]. Individualized nursing interventions are associated with advanced medication adherence, extended patient satisfaction, and reduced anxiety in elderly cataract patients [19]. The loss of postoperative complications consisting of infection or visual deterioration during comply with-up can be attributed to vigorous teaching, medical drug adherence, proper ocular hygiene, and well-timed examinations essential to Orem's method of care. This is in line with Zuo et al. (2024), showing that first-class nursing leads to fewer complications, reduced tensions, faster recovery, and advancement in first-class rankings [20]. Individualized perioperative care has been established to reduce problem rates and increase postoperative effects in cataract surgery patients [21]. Although the observation involves a single case, the

results support the effectiveness of customized nursing care in stopping headache publish-surgery.

The patient confirmed steady improvement in visual acuity from the primary postoperative day to 1 month after surgery. This is in line with a clinical observation highlighting that improved nursing care and dependent communication provide better visual recovery, reduce pain, and gradually improve psychological outcomes compared to usual care [22]. High-quality perioperative care has been associated with faster intraocular flow recovery, more desirable intellectual and prescient-associated nice of lifestyle, and greater patient satisfaction. The affected person attended all postoperative visits without complications, emphasizing the importance of postoperative observation to detect problems such as brief intraocular flow rise or inflammation [20]. Thus, combining coaching of affected individuals with tracing is critical for early problem management.

The case presents Orem's self-care deficit as an effective framework for postoperative cataract care that facilitates self-care deficit assessment, patient education, skill improvement, and recovery assessment. Meðan fáar eygnalæknakanningar beinleiðis brúka hugskotið hjá Orem, eru støðug prógv fyri inntrivum, sum prýða útbúgving, útskrivingarpraksis, samskifti og sjálvstýring eftir gráskurðviðgerð [23]. This case demonstrates that Orem's theory can be incorporated into eye care to promote patient independence and reduce headaches. Unlike maximum research, which uses randomized trials with large samples, the findings of this unmarried case are not generalizable, yet improvements are in line with leading cataract research related to education and postoperative care.

## Conclusion

This study demonstrated that Orem's theory of self-care deficit of nursing (SCDNT) can be used effectively in the monitoring of patients who have undergone cataract surgery. Self-care deficits were properly assessed the use of SCDNT, and appropriate interventions and outcome trials have been conducted. The use of supportive and educational interventions enhanced the self-care skills of the affected person, resulting in gradual continued monitoring of medications and attention around warning signs. The patient has become independent by demonstrating self-care movements without experiencing any headache. This is an example of the importance of nursing education.

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