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The Role Of Nurses And Midwives In The Management Of Post-Operative Wound Care And The Prevention Of Complications

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Abstract

This study focuses on the ability of nurses and midwives to promote wound healing and control infection following surgical procedures. The motivation for selecting this topic stems from the need to better understand the challenges and complexities associated with post-surgical wound care, particularly in relation to the experiences of nurses, midwives, and patients in managing contaminated and high-risk wounds.

The aim of this paper is to clarify the role of nurses and midwives in the care of post-surgical wounds among older adults, and to examine how they contribute to wound healing and the strategies they employ to manage and prevent infection. This includes wound assessment procedures, physiological and laboratory investigations, adherence to clinical guidelines, prevention of surgical site infections, and the provision of adequate postoperative nutrition as a critical factor in the healing process.

In addition, the role of midwives is especially significant in the management of surgical wounds related to women's health, particularly in the postoperative care of cesarean sections and other gynecological surgeries. Midwives play a key role in continuous wound monitoring, patient education regarding wound care practices, early identification of infection signs, and timely intervention in collaboration with the multidisciplinary healthcare team.

This study adopted a narrative literature review methodology, with data obtained from university library databases and reputable online sources, specifically CINAHL, PubMed, and SAGE. The research question focused on post-surgical wound infections among older adults and the strategies used by nurses and midwives to manage and reduce these infections.

The findings of this review indicate that nurses' and midwives' comprehensive knowledge of patients' health conditions, age-related factors, the importance of nutrition in wound healing, surgical site infections, and strict adherence to clinical guidelines is essential for effective infection control. Such knowledge significantly enhances the wound healing process and improves overall patient outcomes

Keywords: Wound care, Role of nurses and midwives, Post-surgical wounds, Wound healing, Infection prevention.

INTRODUCTION

Wounds can vary in size, ranging from minor to significant. Proper care is essential, necessitating that they remain free from infections to facilitate effective wound healing. This thesis topic will encompass wounds and infection, while also providing insights into wound healing and the influence of age and nutrition on the healing process. This can serve as valuable information for nurses preparing to provide wound care in the future, as well as for elderly individuals recovering from surgical wounds. The elderly may experience various diseases that can hinder the wound healing process and increase the risk of

wound infections. The central concept of this thesis revolves around elderly patients facing multiple complications and the nursing process involved (Nuutila et al., 2014). It is essential for nurses to possess a comprehensive understanding of surgical wound care procedures, the consequences of untreated surgical wounds, the indicators of infected surgical wounds, and the potential for bacterial and fungal infections, all while upholding the rights of the patient. Individuals can come from diverse sectors, religions, genders, and share similar professional backgrounds. This thesis aims to guide nurses in making informed decisions regarding surgical wound care. Insufficient understanding and negligence in treatment can jeopardize a patient's life, potentially resulting in significant pain, bleeding, or even the development of chronic wounds and cancer. This study will outline the guidance provided by nurses in the management of surgical wounds and emphasize the significance of self-care among the elderly population (Nuutila et al., 2014).

A wound is defined as a disruption in the natural state of the skin and underlying tissues caused by injury or surgical procedures. Surgical wounds are classified into four categories, from Class I, which is clean and uninfected, to Class IV, which is the most contaminated and infected. Chronic wounds, common in elderly individuals, often stem from underlying health conditions like diabetes and cardiovascular diseases, as well as the use of multiple medications that lower immunity. Effective care involves maintaining wound cleanliness, changing dressings regularly, and creating a moist and warm environment to accelerate the healing process. Chronic wounds require additional attention, as they can lead to severe complications if left untreated (Al-Chalabi 2019-2020). Proper wound management is critical in preventing infections and promoting faster healing. European strategies often involve home visits for wound care, including procedures like debridement to remove decaying tissue. Various debridement methods, such as autolytic (where the body’s immune system removes dead cells), mechanical, and surgical debridement, are employed based on the wound type and the patient’s condition. These techniques help ensure a sterile environment, reduce bacterial load, and promote tissue regeneration (Choung et al. 2020).

The wound healing process comprises four stages. The first stage, hemostasis, involves vascular constriction and platelet aggregation to stop bleeding. Inflammation follows, where neutrophils and monocytes clean the wound and signal repair. The proliferation phase sees the formation of new epithelial tissues and blood vessels, supported by the extracellular matrix. Finally, remodeling or maturation includes collagen restructuring and vascular regression, strengthening the repaired tissue. These stages demonstrate the body’s systematic and efficient response to injuries (Perez, 2021). Surgical wounds are particularly vulnerable to infections, with Staphylococcus aureus being the leading cause of surgical site infections, accounting for approximately 30% of cases. Other dangerous microorganisms include methicillin-resistant S. aureus (MRSA) and anaerobic bacteria like Klebsiella and E. coli. Infection risks are heightened in cases of reduced immunity, prolonged hospital stays, or poor sterile practices during and after surgical procedures. Employing aseptic techniques and continuous postoperative care significantly minimizes these risks (Nema et al., 2021).

Systemic factors influencing wound healing include age, hormonal levels, and stress. Aging decreases cellular function and delays immune responses, slowing T-cell replacement and neutrophil activation. Hormones like estrogen facilitate tissue regeneration, whereas stress-related hormones such as glucocorticoids suppress immune functions, impairing the healing process. These systemic factors highlight the need for tailored care in older patients and those with chronic stress (Guo et al., 2022). Local factors, such as hygiene, lifestyle habits, and environmental conditions, also impact wound healing. Poor hygiene and inadequate cleaning of wounds can lead to bacterial and fungal colonization, delaying recovery. Oxygen availability plays a crucial role, as oxygenated cells heal faster than those in hypoxic conditions. Temporary hypoxia may trigger healing processes, but prolonged oxygen deficiency can cause irreversible tissue damage, necessitating careful monitoring (Guo et al. 2022).
The aim of this study is to differentiate between the needs of nursing wound care and infection control. This thesis has identified and analyzed the challenges faced by healthcare professionals and patients in the management of infected wounds. The aim of this study was to clarify the essential components of nursing wound care and highlight the significance of the nurse's role in wound management and infection control across various age groups. The objective of this study was to encourage nursing

professionals to pursue knowledge regarding infections, surgical wounds, healing processes, and dietary supplements tailored to various age demographics. Each sub-topic addressed in this thesis holds equal significance in uncovering the concepts and providing answers to the research questions. This thesis topic was selected to inform nurses and patients about the various types of wounds that can lead to accidents and the appropriate methods for treating them. The role and knowledge of the nurse in infection control will serve as the central theme of the thesis. Upon completion of this study project, the results are expected to offer valuable insights or motivation for decreasing infection rates in surgical wound care.

Nurses' and Midwives' Roles in the Postoperative Phase

The scope of responsibilities in postoperative wound care encompasses both nurses and midwives, particularly in surgeries related to women's health, such as cesarean sections and gynecological procedures. Postoperative wound management is complex, involving protection against pathogenic bacteria, optimization of the wound environment, and facilitation of tissue regeneration (Rijal, 2019). The selection of dressing materials, frequency of dressing changes, and maintenance of sterile techniques are crucial responsibilities for both nurses and midwives.

Midwives play a vital role in postpartum surgical care. For example, after cesarean sections, midwives assess wound healing, monitor for signs of infection, educate patients on proper wound care, and coordinate with nurses and physicians to ensure timely intervention if complications arise. This dual responsibility enhances both maternal safety and wound healing outcomes.

Dressing selection is influenced by wound size, discharge, and location. Absorbent dressings are often preferred over breathable ones to maintain optimal moisture and circulation. Flexible bandages are more effective than non-stretchable options, and brands such as Mepilex are widely used for postoperative wound care due to their absorbency and biocompatibility (Wound, E.D.A.E.O., 2023). Postoperative wounds are cleaned and dressed every 48 hours, following strict sterile techniques (Falcone et al., 2021).

Various dressing types include adhesive, non-adhesive, foam, hydro-fiber, hydrogel, hydrocolloid, alginate, medicated, non-medicated, and collagen dressings, each serving specific functions in wound healing (Al-Chalabi, 2019–2020; Ghomi et al., 2019). Nurses and midwives assess the wound and select the most appropriate dressing, considering clinical effectiveness, cost, and patient comfort.

Postoperative care also involves pain management, fluid balance, nutrition, and infection prevention, with emphasis on educating elderly patients who may inadvertently disrupt wound dressings. Both nurses and midwives are responsible for ensuring adherence to safety protocols, preventing infection, and promoting healing through evidence-based interventions (Rijal, 2019).

Table 1: Types of Wound Dressings and Roles of Nurses and Midwives

Dressing Type	Purpose/Function	Nurse's Role	Midwife's Role
Adhesive Bandage	Support sutures, protect incision	Apply above sutures, monitor for infection	Educate postpartum mothers on correct placement
Foam Dressing	Absorb exudate, maintain moisture balance	Monitor moisture levels, change dressing as needed	Assess comfort and integrity, guide patient handling
Hydro-Fiber	High absorbency, acute and chronic wounds	Apply directly, manage exudate	Monitor for delayed healing, report complications
Hydrogel/Hydrocolloid	Promote moist healing, protect wound bed	Select appropriate type, ensure proper adhesion	Provide patient education on dressing care

Dressing Type	Purpose/Function	Nurse's Role	Midwife's Role
Alginate Dressing	Manage moderate-to-heavy exudate, enhance healing	Replace according to exudate level, observe for infection	Assist in postpartum wound assessment
Collagen Dressing	Stimulate tissue regeneration	Apply per protocol, monitor healing response	Educate patient on benefits and signs of complications

Methodology

This study employed a narrative literature review, focusing on surgical wound care, infection prevention, and the integrated roles of nurses and midwives in elderly and postpartum patients. Data collection involved systematic identification of studies from PubMed, SAGE, and CINAHL, using keywords such as "wound care," "infection control," "SSI," "wound healing," "nursing care," and "midwifery care." Inclusion criteria included English-language publications from 2013–2023. This methodology allowed synthesis of current evidence, identification of knowledge gaps, and development of practical recommendations for nursing and midwifery practice.

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Table 1: Initial Search Results

Search Terms	Number of Articles	PubMed	SAGE	CINAHL
Wound and nurses?	963	235	141	525
Nursing surgical wound and infection control?	506	128	94	185
Surgical wound and nutrition in elderly people	143	31	39	73
Nursing surgical wound, infection control, and elderly people?	1151	240	285	626
TOTAL	2763	634	559	1570

Table 2: Inclusion and Exclusion Criteria for Chosen Articles

Inclusion Criteria	Exclusion Criteria
Articles relevant to the topic	Articles without direct access
Articles published from 2013 to 2022	Articles published before 2013
Articles in the English language	Non-relevant articles

Table 3: Table of Articles

Author and Articles	Journal & Year	Summary
Wang, Li, Ye, Xie, Wu, Song, Cheng & Fang	Postoperative infectious complications in elderly. Journal of Japanese Psychogeriatric Society (2021)	Discusses postoperative infections in elderly patients, focusing on

Author and Articles	Journal & Year	Summary
		lab diagnostics and patient care decisions, emphasizing nurses and midwives roles.
Falavigna, Righesso, Teles, Silva & Bassanesi	Effective Protocol to treat patients with deep wound infection after Spinal Lumbar Fusion. Global Spine Journal (2017)	Highlights methods for diagnosing and treating surgical site infections, particularly outlining nurses and midwives' involvement.
Harris, Softeland, Moi, Harthug, Ravony, Storesund, Jurmy, Thakkar, Haaverstad, Skeie, Valen, Sevdalis & Haugen	Development and validation of patient's surgical safety checklist. BMC Health Services Research (2022)	Provides guidance on using checklists for treating chronic wounds and infection control, supporting nurses and midwives' practice.
Harris, Softeland, Harthug, Storesund, Jesuthasan, Sevdalis & Haugen	Patient and healthcare worker's recommendations for a surgical patient safety checklist. BMC Health Services Research (2020)	Focuses on preoperative and postoperative risk management using safety checklists, integrating nurses and midwives roles.
Stott	Collaboration in the prevention of surgical site infections. Journal of Infection Prevention (2015)	Highlights fundamental hygiene practices to reduce infection risks, demonstrating nurses and midwives' preventive interventions.
Aleem, Tan, Nassar & Daniel	Surgical Site Infection Prevention Following Spine Surgery. Global Spine Journal (2020)	Discusses applying the Deming Cycle for managing surgical site infections, emphasizing nurses and midwives' responsibilities.
Desai, Badiger, Tokur, Naik & Prashanth	Postoperative pain treatment. Indian Journal of Anaesthesia (2017)	Explores pain management strategies for elderly patients, showing how nurses and midwives tailor care.
Claire	Importance of nutrition in wound healing. Wounds UK (2013)	Details the role of nutrition in improving wound healing, especially for patients aged 65 and above, highlighting education

Author and Articles	Journal & Year	Summary
		by nurses and midwives.

Result and Discussion

During data collection, eight relevant research articles were identified and critically appraised. Data analysis demonstrated methodological approaches used by researchers to transform datasets into actionable insights. The discussion developed through data analysis and comparison with previous studies, determining the significance of results for inclusion (Coughlan & Cronin, 2017). The study specifically explored how nurses and midwives recognize and reduce surgical wound infection risks among older adults. Critical appraisal was organized into four sections aligned with the research questions.

Multiple sources were employed to support evidence-based responses. Wang et al. (2021) provided insights on laboratory diagnostics and clinical decision-making for infection control, with specific applications for nurses and midwives. Flavinia et al. (2017) outlined criteria distinguishing healthy and infected wounds, facilitating timely intervention by healthcare providers.

Adherence to the Surgical Safety Checklist (Harris et al., 2020; Harris, 2022) by nurses and midwives reduces surgical site infection risks. WHO guidelines further support standardized wound care protocols, enhancing patient safety. Stott (2015) and Aleem et al. (2020) highlighted hygiene practices and the Deming Cycle for continuous improvement, demonstrating practical applications for nurses and midwives.

Desai et al. (2017) reported that elderly patients have lower pain tolerance, necessitating tailored pain management strategies by nurses and midwives. Nutrition interventions (Claire, 2013) and post-discharge follow-up are essential for wound healing and immunity support.

Conclusion

This study emphasizes the pivotal role of nurses and midwives in postoperative wound care, infection prevention, and management, particularly in elderly and immunocompromised patients. Their responsibilities include systematic wound assessment, monitoring for infection, applying evidence-based interventions, and educating patients. Midwives have an additional role in women's postoperative care, ensuring maternal safety and optimal healing outcomes.

Nurses and midwives must develop individualized care plans considering age, comorbidities, and lifestyle factors, contributing to improved patient outcomes, reduced complications, and enhanced quality of care.

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