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Original Article

Assessing Knowledge and Practice Among Nurses Regarding Postoperative Wound Care in Public Sector Teaching Hospitals of Peshawar

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ABSTRACT

Wound management, or the expert practice carried out by healthcare professionals in a hospital context, poses a significant challenge to patient care. Because the whole expense of wound management was covered by health insurance in various care settings, the impact of wound complications on people and healthcare institutions was typically underestimated or even ignored. **Objective:** To assess the knowledge and to determine practices among nurses regarding post-operative wound care. **Methods:** A cross-sectional study design was used among 209 nurses, having at least 1-year experience, of Khyber Teaching Hospital and Hayatabad Medical Complex (KTH and HMC). Data were collected through self-administered questionnaire via convenient sampling. Descriptive statistics and variable were computed using SPSS version 23.0 and correlation and significance was determined among variables. **Results:** The study showed that 60.8 % nurses had good knowledge while 82.3% had good practices regarding post-operative wound care. Educational level and experience of nurse were significant and positively correlated to the knowledge and practice of nurse regarding wound care. The greater the educational level and experience of nurse, greater is the knowledge and practice of that nurse regarding wound care. **Conclusions:** Nurses displayed good wound care knowledge and practice. Education and work experience were recognized as key factors impacting nurses' knowledge and practices in the study.

INTRODUCTION

Pathogenic organisms that invade the healthy tissue close to a localized injury, fissure or laceration in the skin or underlying soft tissue result in wound infection. Bacterial wound infections can be brought on by antibiotic-resistant bacteria and are associated with increased morbidity and medical expenses [1]. If correct wound care is not given, the wound-healing process may be delayed, prolonged hospital stays, production of scars, and hernias spurred on by wound dehiscence, all of which raise expenditures. Postoperative wound care negligence contributes to global high mortality rate, global research indicates the wound care can is an insidious and result in measurable deaths [2]. Moreover, they are the main cause of illness and death in developing nations [1, 3]. The duration of wound healing process varies depending on the type of wound, ranging from a few days to several weeks or even months [4]. Numerous factors may lead to erroneous or inefficient tissue restoration, resulting in delayed wound healing. Wound care procedure is also influenced by local circumstances like resources readily accessible, skill mix, healthcare provider preferences, patient behavior, and duration of hospital stay [5]. In cancer patients, wounds may exhibit atypical symptoms and fail to heal in the usual manner [6, 7]. According to published studies, surgical site infections are common in Africa after a variety of surgical operations, with rates ranging from 2.5% to 34.6 [8, 9]. The total surgical site infection rate in Ethiopia ranges from 9.1% to 75% [8-10]. According to 131 nurses who participated in a study in Pakistan, 58% of staff nurses had effective practices for avoiding and controlling surgical

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wound infections [11]. According to a research done in the Ethiopian city of Mekele, 58.2% of nurses practiced effective postoperative wound care [12]. The primary goal of wound care is to facilitate the healing process, prevent infection, and promote optimal tissue regeneration [13]. Wound management, or the expert practice carried out by healthcare professionals in a hospital context, poses a significant challenge to patient care. Because the whole expense of wound management was covered by health insurance in various care settings, the impact of wound complications on people and healthcare institutions was typically underestimated or even ignored [14]. In order to properly care for a wound, wash the wound with normal saline solution and, if necessary, use hydrogen peroxide solution or povidone-iodine solution to remove discharges, slough, dead particles, infectious pathogens, and dressing leftovers without harming cellular activity, which helps the wound heal and prevents further damage Gizaw *et al.*, in 2022 [12]. The usage of goods like honey, butter, coffee beans, herbs, and fragrances as well as other medicines derived from plants, like myrrh, can be used into traditional medical practices [14, 15]. Although a diverse team performs wound care, it is essentially a nurse-led task [5]. In fact, nursing interventions and understanding of the physiology and process of wound healing are both essential for wound healing [12]. A nurse who is well-versed in wound healing techniques may conduct a comprehensive, all-encompassing patient evaluation and spot potential wound issues early on [1].

To reduce wound infection, wound care knowledge and practice must be improved. A person's quality of life is improved and wound-related problems and frequent hospitalizations are reduced with better knowledge and use of wound care.

METHODS

A cross-sectional research method was used in this study to evaluate nurses' postoperative wound care practices and knowledge in tertiary care hospitals of Peshawar, Khyber Teaching Hospital and Hayatabad Medical Complex (KTH and HMC). Ethical approval letter was obtained from Institute of nursing sciences, Khyber medical university (Reference Number: KMU/INS/6167). Non-probability convenience sampling technique had been used in the study to choose registered nurses employed in tertiary care hospitals (KTH and HMC) with at least 1-year clinical experience. Sample size was 209 and calculated using online software. The research includes all nurses who are actively involved in providing patients with post-operative wound care and who hold at least a diploma in nursing. Those who did not want to participate were excluded from the study. An official letter was written from the institute of nursing sciences, Khyber medical university to the public sector tertiary care hospitals (HMC and KTH) of Peshawar region to obtain their approval for participation in the study. Ensuring participant confidentiality and anonymity through the assignment of unique identifiers to questionnaires and secure data storage were the ethical considerations. Informed consent was given by participants, who were also made aware of their freedom to leave the study at any moment without facing repercussions. The research complied with ethical standards and laws that govern studies involving human subjects in order to safeguard the subjects' welfare and rights. The questionnaire was developed by reviewing the literature comprising of three parts; demographic details of participants, fourteen yes-or-no questions in Section 2 related to knowledge of nurses regarding wound care and fifteen Likert scale questions (ranging from "never" to "always") in Section 3 are practice-related items. Four BSN students and one MSN supervisor collected the data. The mean knowledge score of participants was 11.42 with standard deviation of 1.87, with minimum score of 1 and maximum score of 14. Using the cutoff point as 12, 60.8% of the participant have good knowledge score and 39.2% have poor knowledge. Mean practice score was 29.82 with standard deviation of 7.57. Using 22.5 score as cutoff point, 82.3% of respondents had good practice of wound care while 17.7% had poor practice. To ensure the validity and usefulness of the questionnaire, its preparation considers established wound care recommendations, prior research, and expert advice. The questionnaire was reviewed by experts in wound care and research methodology to ensure it was appropriate, relevant, and clear. Collected data were analyzed in SPSS 23.0 version. Frequency, percentage, mean, standard deviations and other statistical test were applied and calculated for all three sections of the questionnaire. Later, correlational tests were used to identify the association between different variables affecting the knowledge and practices regarding post-operative wound care.

RESULTS

Of the sample (Table 1 showed demographic characteristics), 23% (48) were between the ages of 31 and 40, and 72.2% (151) were between the ages of 20 and 30. There were just 4.8% (10) participants that were older than 40. 124 were male nurses and 85 were females. Among them, 43.1% (90) were married and 56.9% (119) were unmarried. More than half of nurses were BSN qualified i.e., 55% (115), diploma holders were 12.4% (26), and the number of post RN nurses was 32.5% (68). The research sample comprises 46.4% nurses from HMC and 53.6% nurses from the KTH. Regarding experience of nurses, 137 nurses experience ranges from 1-5 years, 35 nurses have 6-10 years of experience, 23 nurses have 11-15 years and 14 nurses have more than 15 years of experience (Table 1).

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Table 1: Demographic Data of study participants

Variables	Category	N (%)
Age	20-30	151 (72.2)
	31-40	48 (23.0)
	>40	10 (4.8)
Gender	Female	124 (59.3)
	Male	85 (40.7)
Marital Status	Married	90 (43.1)
	Single	119 (56.9)
Educational Level	Diploma	26 (12.4)
	Post RN	68 (32.5)
	BSN	115 (55.0)
	MSN	0 (0.0)
Area of work	HMC	97 (46.4)
	KTH	112 (53.6)
Experience	1-5	137 (65.6)
	6-10	35 (16.7)
	11-15	23 (11.0)
	>15	14 (6.7)

Table 2 showed the mean and standard deviation of knowledge and practice score and Table 3 shows frequency and percentage of knowledge in four different categories.

Table 2: Knowledge and Practice Score

Knowledge and Practice Score (Mean ± SD)/n		
Variables	**Knowledge**	**Practice**
Total Score	14	45
	11.42 ± 1.87	29.82 ± 7.57

Table 3 illustrated the distribution of nurses' knowledge and practice levels regarding postoperative wound care. According to the table, 60.8% of nurses had good knowledge about postoperative wound care, while 39.2% had poor knowledge. In terms of practices, a majority of 82.3% demonstrated good practices, whereas 17.7% had poor practices. This indicated that while most nurses had a strong understanding of wound care, a high proportion also effectively applied this knowledge in their practice (Table 3).

Table 3: Knowledge and Practice Level

Variables	N (%)
Poor Knowledge	127 (39.2)
Good Knowledge	92 (60.8)
Poor Practice	37 (17.7)
Good Practice	172 (82.3)

Educational level is positively correlated to the knowledge level regarding wound care. It means that the knowledge level will increase as the qualifications of the nurse increases. The percentage of poor knowledge at diploma level is 61.5 percent. The knowledge level gradually starts increasing and reaches the total of 71.3% at the BSN level. Both Post RN and BSN have greater percentage of nurses with good knowledge as it is a degree program compared to the diploma level (Table 4).

Table 4: Educational Level Correlation to the Knowledge Level

Educational Level	Knowledge Level
Pearson Correlation	0.250**
Significant (2-tailed)	0.000

Table 5 percentage presented the distribution of knowledge levels among nurses based on their educational qualifications. For those with a diploma, 61.5% had poor knowledge and 38.5% had good knowledge. Among nurses with Post RN qualifications, 48.5% had poor knowledge and 51.5% had good knowledge. In contrast, nurses with a BSN showed a higher proportion of good knowledge, with 71.3%, while 28.7% had poor knowledge. This indicated that higher educational levels were associated with better knowledge of wound care.

Table 5: Educational Level and Knowledge Level Frequency and Percentage

Knowledge Level		
Educational Level		**Frequency (%)**
Diploma	Poor Knowledge	16 (61.5)
	Good Knowledge	10 (38.5)
Post RN	Poor Knowledge	33 (48.5)
	Good Knowledge	35 (51.5)
BSN	Poor Knowledge	33 (28.7)
	Good Knowledge	82 (71.3)

The working experience was positively correlated with the knowledge and practice levels regarding wound care. As the number of years of working experience increased, both the knowledge level and practice level of the nurses also increased (Table 6).

Table 6: Working Experience Correlation to the Knowledge Level and Practice Level

Experience	Knowledge Level	Practice Level
Pearson Correlation	0.182**	0.253
Significant (2-tailed)	0.008	0.000

DISCUSSION

The study sought to investigate post-operative wound care behaviors and knowledge among nurses at two tertiary care facilities in Peshawar, Pakistan: Khyber Teaching Hospital (KTH) and Hayatabad Medical Complex (HMC). The researchers recognized that nurses' wound care proficiency is frequently influenced by their educational background and job experience. According to the study's findings, 82.3% of nurses at HMC and KTH displayed good wound care procedures. Furthermore, the survey discovered that 60.8% of nurses had strong wound treatment knowledge. Compared to the studies in the South Wollo Zone of Ethiopia, only 40.3% of nurses were found to have good knowledge of wound care, while 51% demonstrated good wound care practices [1]. Similarly, in the Public hospitals of West Showa Zone, Ethiopia, the percentages were 44.3% for good knowledge and 48% for good practices among nurses [12]. But the research

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findings regarding knowledge of wound care was almost same as the knowledge of the nurses in Mekelle city of Ethiopia, where 55% of nurses had good knowledge of wound care [15]. The disparity in the results between the Peshawar study and the Ethiopian studies may be attributed to several factors, including differences in the educational level of the participants and their working experience in wound care. The variation could also be influenced by the differences in the healthcare systems and resources available in the respective regions. Moreover, the finding was higher than the research conducted in Nigeria where only 32% of nurses had good knowledge of wound care [16]. The results of our study are far better as compared to the Lahore and Faisalabad. According to the research conducted in Lahore 31% of nurses were performing good practices [17]. In Allied Hospital Faisalabad, 13.5% always wash their hands before and after changing wound dressings, indicating hand hygiene practices. 35.7% nurses use aseptic technique and 10.5% uses facemask during surgical wound dressing [18]. While in this research, 42.6% nurses always wash their hands, 60.3% nurses use aseptic technique and 64% always wear facial mask. This research implies that when nurses gain experience and spend more time in wound care settings, their expertise in this area improves. The current study's findings are congruent with similar research conducted in Oromia, Bahirdar, and Amhara regional states, indicating that the association between years of experience and expertise in wound care is constant throughout geographical locations [12, 19, 20]. The cumulative effect of experience, in which nurses continually gain and perfect their knowledge and abilities over time, may be linked to this consistency. These statements also coincide with the study conducted in the South Wollo Ethiopia [1].

CONCLUSIONS

According to the study's findings, nurses displayed good wound care knowledge and practice. Education and work experience were recognized as key factors impacting nurses' knowledge and practices in the study. Based on these findings, it is recommended that nurses take steps to improve their education and receive basic wound care knowledge and practices. This is especially important in postoperative wound care to prevent infections and improve patient outcomes.

Authors Contribution

Conceptualization: MH
Methodology: IA
Formal analysis: IWA
Writing, review and editing: IWA, KR, KG, SA

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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REFERENCES

[1] Tegegne B, Yimam F, Mengesha Yalew Z, Wuhib M, Mekonnen L, Asmamaw Yitayew Y *et al.* Knowledge and practice of wound care and associated factors among nurses working in South Wollo Zone Government Hospitals, Ethiopia. Chronic Wound Care Management and Research. 2022 Dec: 1-1. doi: 10.2147/CWCMR.S366322.

[2] Macefield RC, Blazeby JM, Reeves BC, King A, Rees J, Pullyblank A *et al.* Remote assessment of surgical site infection (SSI) using patient-taken wound images: development and evaluation of a method for research and routine practice. Journal of Tissue Viability. 2023 Feb; 32(1): 94-101. doi: 10.1016/j.jtv.2023.01.001.

[3] Gould D. Causes, prevention and management of surgical site infection. Nursing Standard (through 2013). 2012 Jul; 26(47): 47. doi: 10.7748/ns.26.47.47.s51.

[4] Whitby M, McLaws ML, Collopy B, Looke DF, Doidge S, Henderson B *et al.* Post-discharge surveillance: can patients reliably diagnose surgical wound infections?. Journal of Hospital Infection. 2002 Nov; 52(3): 155-60. doi: 10.1053/jhin.2002.1275.

[5] Gillespie BM, Walker R, Lin F, Roberts S, Eskes A, Perry J *et al.* Wound care practices across two acute care settings: A comparative study. Journal of Clinical Nursing. 2020 Mar; 29(5-6): 831-9. doi: 10.1111/jocn.15135.

[6] Chhabra S, Chhabra N, Kaur A, Gupta N. Wound healing concepts in clinical practice of OMFS. Journal of Maxillofacial and Oral Surgery. 2017 Dec; 16: 403-23. doi: 10.1007/s12663-016-0880-z.

[7] Niculescu AG, Georgescu M, Marinas IC, Ustundag CB, Bertesteanu G, Pinteală M *et al.* Therapeutic Management of Malignant Wounds: An Update. Current Treatment Options in Oncology. 2024 Jan; 25(1): 97-126. doi: 10.1007/s11864-023-01172-2.

[8] Mukagendaneza MJ, Munyaneza E, Muhawenayo E, Nyirasebura D, Abahuje E, Nyirigira J *et al.* Incidence, root causes, and outcomes of surgical site infections in a tertiary care hospital in Rwanda: a prospective observational cohort study. Patient Safety in Surgery. 2019 Dec; 13: 1-8. doi: 10.1186/s13037-019-0190-8.

[9] Seid MA, Mengstie MA, Teshome AA, Abdu K, Abtew YD. Post-operative site infections among surgical

DOI: https://doi.org/10.54393/pbmj.v7i07.1118

patients at Southern Ethiopia: A prospective cohort study. Heliyon. 2024 Apr; 10(7). doi: 10.1016/j.heliyon.2024.e28650.

[10] Shiferaw WS, Aynalem YA, Akalu TY, Petrucka PM. Surgical site infection and its associated factors in Ethiopia: a systematic review and meta-analysis. BioMed Central Surgery. 2020 Dec; 20: 1-5. doi: 10.1186/s12893-020-00764-1.

[11] Shaheen SR and Hawash MA. Assessment of Nurses' Knowledge and Practices Regarding Prevention of Surgical Site Infection. Egyptian Journal of Nursing and Health Sciences. 2021 Sep; 2(2): 176-97. doi: 10.21608/ejnhs.2021.234371.

[12] Gizaw MA, Negawo MK, Bala ET, Daba DB. Knowledge, practice, and associated factors towards postoperative wound care among nurses working in public hospitals in Ethiopia: A multicenter cross-sectional study in low resource setting area. Health Science Reports. 2022 Jul; 5(4): e677. doi: 10.1002/hsr2.677.

[13] Choi JS, Jo S, Park S. Awareness and Practice of Wound Disinfection among Wound Care Nurses in Korea. Journal of Wound Ostomy & Continence Nursing. 2013 Sep; 40(5): 475-80. doi: 10.1097/WON.0b013e3182a21e26.

[14] Heerschap C, Nicholas A, Whitehead M. Wound management: investigating the interprofessional decision-making process. International Wound Journal. 2019 Feb; 16(1): 233-42. doi: 10.1111/iwj.13017.

[15] Berhe H, Abebe YT, Brhan HT, Ibrahim S, Tesfay K. Knowledge, Practice and Associated Factors Regarding Postoperative Wound Care of Hospitalized Pediatric Patients in Public Hospitals of Mekelle. International Journal of Development Research. 2018 Sep; 08(10): 23592-603.

[16] Famakinwa TT, Bello BG, Oyeniran YA, Okhiah O, Nwadike RN. Knowledge and practice of post-operative wound infection prevention among nurses in the surgical unit of a teaching hospital in Nigeria. International Journal of Basic, Applied and Innovative Research. 2014 Jun; 3(1): 23-8.

[17] Javed S, Parveen K, Afzal M, Gillani SA. Awareness, Behavior, and Practices of Nurses related to Nursing Ethics, in tertiary care Hospitals of Lahore, Pakistan. International Journal of Health Medicine and Nursing Practice. 2021 Jun; 3(3): 1-12. doi:10.47941/ijhmnp.597.

[18] Sadaf S, Inayat S, Afzal M, Hussain M. Nurse's knowledge and practice regarding prevention of surgical site infection at allied hospital Faisalabad. International Journal of Scientific & Engineering Research. 2018 May; 9(5): 351-69.

[19] Woldegioris T, Bantie G, Getachew H. Nurses' knowledge and practice regarding prevention of surgical site infection in Bahir Dar, Northwest Ethiopia. Surgical Infections. 2019 Jan; 20(1): 71-7. doi: 10.1089/sur.2018.081.

[20] Teshager FA, Engeda EH, Worku WZ. Knowledge, practice, and associated factors towards prevention of surgical site infection among nurses working in Amhara regional state referral hospitals, Northwest Ethiopia. Surgery Research and Practice. 2015 Dec; 2015(1): 736175. doi: 10.1155/2015/736175.