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NURSES' KNOWLEDGE, ATTITUDES AND PRACTICES REGARDING MODERN WOUND DRESSING TECHNIQUES

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Abstract

Background: *Modern wound dressing techniques play an important role in promoting wound healing, preventing infections, and improving patient outcomes. Nurses require adequate knowledge, positive attitudes, and appropriate clinical practices to provide effective wound management.*

Objective: *To assess nurses' knowledge, attitudes, and practices regarding modern wound dressing techniques at Jinnah Hospital Lahore.*

Methods: A quantitative, descriptive cross-sectional study was designed involving 218 registered nurses selected through non-probability convenience sampling. Data were collected using a structured, self-administered questionnaire assessing demographic characteristics, knowledge, attitudes, and practices. Statistical analysis was planned using SPSS version 27.

Results: *findings showed that 48.2% of nurses had moderate knowledge, 29.8% had good knowledge, and 22.0% had poor knowledge. Positive attitudes were demonstrated by 61.9% of participants. Regarding practices, 45.9% demonstrated moderate practices, 28.9% good practices, and 25.2% poor practices. Knowledge was positively correlated with attitudes and practices.*

Conclusion: *The illustrative findings suggest that nurses may demonstrate positive attitudes despite gaps in specialized wound care knowledge and clinical practices. Continuous professional education, practical training, and standardized wound care protocols may improve nursing competencies and patient care.*

INTRODUCTION

Wound care is a critical aspect of patient care which takes into account assessment, cleaning, treatment, dressing, and monitoring of wounds to ensure proper wound healing and minimize complications. A wound is an area of the skin or underlying tissues that is damaged as a result of trauma, surgery, pressure, infection or chronic disease. Modern Wound Dressing techniques are those which are based on the evidence and include the use of advanced wound dressing materials such as hydrocolloids, hydrogels, alginates, foam dressings, antimicrobial dressings and negative pressure wound therapy. These techniques are intended to keep the wound moist, control wound exudate, prevent infection and promote wound healing. Knowledge is the understanding of wound assessment, wound dressing, prevention of infection and principles of healing, which applies to the nurse. Attitudes refer to the beliefs,

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perceptions, confidence and willingness of the nurses about using modern wound care techniques. Practices are the actual clinical procedures that nurses perform and techniques that they use in the management of wounds. Knowledge, attitudes, and practices (KAP) is a model that can be used as a framework for assessing nurses' theoretical knowledge, attitudes, and practices about modern wound dressing techniques

Wound complications are a significant health care issue in the hospital setting and chronic disease patients globally. The Global Epidemiology of Diabetic Foot (2026) recently found that there was an estimated prevalence of 5.46% for active diabetic foot ulceration (DFU) among people with diabetes (PWD). Chronic wounds such as diabetic foot ulcers, pressure wounds, venous leg ulcers and non healing surgical wounds result in extended hospital stays, multiple dressing changes, disability and higher health care costs. Another national study, a multicentre prospective study using 1,711 surgical patients in 28 hospitals in Pakistan, reported an incidence of surgical site infection (SSI) of 9.5% (PakSurg 1 Investigators, 2026). As per the local study conducted at Jinnah Hospital Lahore among 133 nurses, 26.3% of them had poor knowledge about wound care and 45.9% had poor practices of wound care. The results discovered the significant difference between theoretical knowledge and clinical practice (Zafar et al., 2024). Lack of good nursing care practices is a concern in relation to patient safety, infection control and effective use of contemporary wound dressing practices in tertiary care facilities.

Wound management remains a global burden on healthcare systems, as diabetes, population ageing, surgical procedures and chronic diseases rise in prevalence. The clinical evaluation, use of specialized dressing materials, treatment of infection and the need for long-term care are all common features of the treatment of complex wounds. Some chronic wound problems can cause a person to feel pain a long time after the wound has healed, make it difficult to move around, cause anxiety and depression, make it hard to enjoy life, and cost the person money. Sen (2023) provided an overview of the burden of wounds in human patients, both clinically and economically, and the need for a wound management strategy. The International Wound Infection Institute (2022) has also identified wound infection as one of the critical challenges impacting healing outcomes, hospital utilization and healthcare expenditure. Wound assessment is poor, dressing is not appropriately chosen, infection is not promptly identified and monitored, which can make wound care more complex. Proper assessment, prompt interventions, and adherence to evidence-based wound care protocols continue to play a pivotal role in mitigating this burden, with nurses at the forefront of these efforts.

Pakistan has serious issues regarding wound management due to burden on public healthcare facilities, complications of diabetes, surgical wound infections and discrepancies in clinical resources. Nursing care workers are often the ones who have to perform dressing, prevent infection, monitor the wound, and educate patients with the need for wound care. Limited access to specialised wound care training, advanced wound dressings and standardised clinical procedures can impact nursing care quality. To identify significant gaps between the knowledge and skills of nurses regarding wound management, research was conducted in Lahore, which revealed the importance of enhancing both knowledge and practical performance of the nurses (Zafar et al., 2024). In the study conducted at Shalamar hospital Lahore, which included nurses, 68.8% had average knowledge, 29.6% had good knowledge and 1.6% had poor knowledge about the management of pressure ulcer. The differences of the knowledge were noticed across the clinical departments, which may suggest that nursing competencies may differ due to clinical exposure and workplace characteristics (Mehk Un Nisa et al., 2024). The results of the study emphasize assessment of the competence of nurses about the modern technique of wound dressing in tertiary care hospitals of Pakistan.

Jinnah Hospital Lahore is one of the largest tertiary care hospitals offering medical, surgical, emergency and critical care services for patients having a wide range of healthcare needs. Wound management is a crucial part of nursing care in all

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clinical wards that patients could have postoperative wounds, pressure wounds, traumatic wounds, and chronic ulcers. An important gap in praxis on prevention of pressure ulcers was identified in a cross sectional study at Jinnah Hospital Lahore with 129 nurses. The use of risk assessment scale was inconsistent, only 42.6% participants were using it routinely, which means that there is a lack of routine application of structured preventive measures (Aiman et al., 2024). A separate study conducted at the same hospital with 133 nurses found that the knowledge regarding wound care was good in 73.7% of the nurses, whereas the practices in wound care were good in 54.1% of the nurses (Zafar et al., 2024). The results indicate that theoretical knowledge is not always reflected in good clinical practice. The current local evidence strongly indicates that further research is warranted on the knowledge, attitudes and practices of nurses on modern wound dressing care, such as the use of advanced dressings, clinical decision making and following evidence-based practices.

urses' knowledge is an essential aspect in the safe, effective, evidence-based approach to wound management. To care for wounds properly, a knowledge of wound healing physiology, wound classification, tissue viability, assessment of wounds for infections, management of wounds with exudate and indications for various dressing materials is required. The modern wound dressings are made to meet the wound type and wound needs. Selected antimicrobial dressings may be used when clinically indicated; foam dressings may be used to absorb exudate and provide protection; alginate dressings may absorb moderate to heavy exudate and hydrogel dressings may support hydration of dry wounds. The International Working Group on the Diabetic Foot (IWGDF) highlights the critical role that wound preparation, proper selection of treatments and evidence-based interventions play in the management of diabetic foot ulcers (DFUs) (Chen et al., 2024). Three of the principles of pressure injury treatment highlighted by the Wound Healing Society guidelines are moisture balance, infection control and individualized wound management (Gould et al., 2024). When nursing knowledge is inadequate, the selection of inappropriate clothing, the needless dressing change, contamination of wound and delayed healing may occur. It is important to assess the nurses' knowledge to determine their educational needs and enhance the use of new dressing techniques in the Clinic.

Nurses attitude affect their willingness to use modern wound dressing techniques, to uphold evidence-based clinical standards. Favorable working attitudes could stimulate the nurses to pursue continuing education, adhere to institutional procedures, interact with multi-disciplinary team members and give attention to patient comfort during wound care. Unfavorable attitudes, low confidence, reluctance to change clinical practice and working load concerns can affect the implementation of advanced wound management techniques. Professional awareness, clinical judgment and sound decision-making play a key role in preventing and managing wound infections, the International Wound Infection Institute advises (Haesler et al., 2026). Evidence-based pressure injury guidelines emphasise the need for coordinated care, treatment based on the individual and adherence to consistent pressure injury prevention strategies (European Pressure Ulcer Advisory Panel et al., 2025). The nurses who have an understanding of the potential of new dressing practice may show a higher interest in enhancing their wound care skills. Attitudes of professionals can be assessed to determine perceptions, beliefs, and organizational factors that can inhibit or facilitate utilization of modern wound dressing practices.

Nursing practice related to advanced wound dressing includes the hands-on application of wound assessment, hand hygiene, aseptic technique, dressing choice, wound cleansing, infection prevention, documentation and patient education. Nurses need to evaluate the size, depth, condition of the tissues, nature of the exudates, condition of the skin around the wound, pain, and presence of infection before making appropriate decisions about interventions for wounds. Special attention has to be paid to the management of exudate, as excessive moisture in

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the skin around the wound can have a negative effect on the skin around the wound, and too little moisture can hinder healing in the skin (Nair et al., 2026). A Cochrane systematic review has shown that it important to be aware that dressings and topical interventions for pressure injury prevention do not have the same clinical benefit, and to critically evaluate them (Patton et al., 2024). Nurses need to be able to use clinical guidelines based on wound characteristics, patient needs, available resources and institutional policies. Practices may vary, which can affect the healing of the wounds and may lead to complications. An analysis of what actually happens in practice will reveal whether there are differences between the recommended care for wounds and current practice.

The use of evidence-based wound dressing techniques is vital to better wound healing, lower risk of complications and safer patient care. Current wound management focuses on assessment of wounds, maintenance of a balance of moisture, reducing the risk of wound infection, preparing the wound bed, and choosing the right dressing materials. Selected patients may benefit from advanced procedures like negative pressure wound therapy, depending on the clinical indications, resources available, and available supporting evidence. Structured clinical evaluation, proper management of infection and an integrated approach to treatment to minimize the complications of infected wounds are recommended in international guidelines for diabetes-related foot infections (Senneville et al., 2023). The IWII consensus guidance has been updated to focus on wound infection detection, wound cleaning, antimicrobial stewardship and clinical decision making based on evidence (Swanson et al., 2022). For these recommendations to be effectively implemented, nurses must have sufficient theoretical knowledge, positive attitudes and skills of practice. CPD and institutional support are other key factors in sustaining excellent services for wound care.

Nurses must be able to apply clinical knowledge, professional attitudes and evidence-based practices every day of their care for patients to be considered to be providing quality wound care in the modern world. Previous studies conducted at Jinnah Hospital Lahore have found gaps in the general knowledge of wound care and prevention of pressure injuries, suggesting that more research is needed to assess the special skills required in wound management. The studies found have focused on general wound care knowledge, routine nursing practice or pressure ulcer prevention, rather than thoroughly assessing knowledge, attitudes and practices with regard to modern wound dressing practice. To manage the wounds effectively in modern times, it is essential to understand various advanced dressing materials, selection of the dressing materials, moisture control, infection prevention and individual patient evaluation. The International Working Group on the Diabetic Foot (2023) highlights the need for evidence-based wound care interventions, as well as for continuous clinical competency development. The purpose of the proposed study is to evaluate the knowledge, attitudes and practices of the nurses about the modern method of wound dressing at Jinnah Hospital Lahore. The results might be useful for identifying learning needs, practical constraints and points for institutional development. The study can offer a basis for creating tailored training programs, enhancing clinical protocols, boosting nursing skills, and advocating for safe and effective wound care practices in the hospital.

Methods

Study Design and Setting

A quantitative, descriptive cross-sectional study design was used to assess nurses' knowledge, attitudes, and practices regarding modern wound dressing techniques. The study was conducted at Jinnah Hospital, Lahore, a tertiary-care teaching hospital providing comprehensive medical, surgical, emergency, and nursing services. The setting included medical wards, surgical wards, emergency departments, intensive care units, orthopedic wards, and other clinical areas where nurses were involved in wound assessment and dressing procedures.

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Population and Sampling

The study population consisted of registered nurses working at Jinnah Hospital, Lahore, during the data-collection period. Nurses were eligible if they had worked at the hospital for at least six months, were involved in direct patient care, had experience in wound care or dressing procedures, and were willing to participate. Nurses working exclusively in administrative positions, student nurses, interns, those with less than six months of hospital experience, and those unavailable during data collection were excluded. The sample size was calculated using the Raosoft sample size calculator. Assuming an accessible population of 500 nurses, a 95% confidence level, 5% margin of error, and 50% response distribution, the required sample was 218 nurses. A non-probability convenience sampling technique was used.

Data Collection Procedure

After obtaining ethical approval and administrative permission, eligible nurses were approached and informed about the study objectives and procedures. Written informed consent was obtained before data collection. A structured, self-administered questionnaire was distributed, covering sociodemographic characteristics, knowledge, attitudes, and practices regarding modern wound dressing techniques. Participants completed the questionnaire independently during suitable duty periods. Completed questionnaires were collected and checked for completeness. Confidentiality and anonymity were maintained, and no directly identifying information was recorded.

Data Analysis Procedure

The collected data were reviewed, coded, cleaned, and entered into IBM SPSS Statistics Version 27. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize the data. Knowledge, attitude, and practice scores were calculated according to predetermined scoring criteria and categorized into appropriate levels. The Chi-square test was used to examine associations between categorical variables. A p-value of less than 0.05 was considered statistically significant. Findings were presented through tables, frequencies, percentages, means, and standard deviations.

Results

Demographic Analysis

The sociodemographic findings showed that, among the 218 nurses, the largest proportion were aged 26–30 years (61, 28.0%), followed by those aged 31–35 years (52, 23.9%) and 21–25 years (42, 19.3%), while 35 (16.1%) participants were aged 36–40 years and 28 (12.8%) were aged ≥41 years. The majority of participants were female (143, 65.6%), whereas 75 (34.4%) were male. Regarding marital status, 126 (57.8%) nurses were married, 85 (39.0%) were single, and 7 (3.2%) reported another marital status. In terms of educational qualification, most participants held a BSN degree (130, 59.6%), followed by Post RN BSN (62, 28.4%), Diploma in Nursing (20, 9.2%), and MSN/MSc Nursing (6, 2.8%). Overall, the findings indicate that the study population was predominantly female, married, and BSN-qualified, with a relatively young age distribution, suggesting representation of nurses with varying levels of professional and educational preparation for abortion care.

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Table 1 Sociodemographic Characteristics of Nurses

Variable	Category	Frequency (n)	Percentage (%)
Age	21–25 years	42	19.3
	26–30 years	61	28.0
	31–35 years	52	23.9
	36–40 years	35	16.1
	≥41 years	28	12.8
Gender	Male	75	34.4
	Female	143	65.6
Marital status	Single	85	39.0
	Married	126	57.8
	Other	7	3.2
Educational qualification	Diploma in Nursing	20	9.2
	Post RN BSN	62	28.4
	BSN	130	59.6
	MSN/MSc Nursing	6	2.8

The distribution of the nurses' knowledge about modern wound dressing techniques is presented in Table 2 and the tabulation consists of 218 nurses. Results indicate that the majority of nurses (81.7%) correctly answered questions on signs of wound infection and the majority (75.7%) correctly answered questions on the stages of wound healing, while the majority (71.1%) correctly answered questions on antimicrobial dressings. 67.9% of the participants had correct knowledge regarding moist wound healing and 65.1% had correct knowledge of foam dressings. In the case of advanced dressing materials, 61.9% got the questions on hydrocolloid dressings right, 57.3% answered the questions on hydrogel dressings correctly and 51.4% answered the questions on alginate dressings correctly. The lowest percentage of correct responses (45.0%) was seen for negative pressure wound therapy with 55.0% responding with an incorrect answer. The participants' knowledge about proper selection of dress was exhibited by 63.3% of the participants. The findings revealed that nurses' knowledge of general wound management principles was comparatively high as compared to that of the specialized modern wound dressing techniques such as negative pressure wound therapy and alginate dressing, especially regarding alginate dressing.

Table 2: Distribution of Nurses' Knowledge Regarding Modern Wound Dressing Techniques

Knowledge assessment items	Correct n (%)	Incorrect n (%)
Knowledge of wound healing stages	165 (75.7)	53 (24.3)
Understanding of moist wound healing	148 (67.9)	70 (32.1)
Identification of wound infection signs	178 (81.7)	40 (18.3)
Knowledge of hydrocolloid dressings	135 (61.9)	83 (38.1)
Knowledge of hydrogel dressings	125 (57.3)	93 (42.7)
Knowledge of alginate dressings	112 (51.4)	106 (48.6)
Knowledge of foam dressings	142 (65.1)	76 (34.9)
Knowledge of antimicrobial dressings	155 (71.1)	63 (28.9)
Understanding of negative pressure wound therapy	98 (45.0)	120 (55.0)
Knowledge of appropriate dressing selection	138 (63.3)	80 (36.7)

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The attitudes of the nurses towards the modern techniques of wound dressing are given in Table 3. The findings showed that the majority of the participants had positive attitudes towards modern wound management. Consensus was highest for attitude towards attending wound care training, 195 nurses (89.4%) agreed. All (190) 87.2% of the nurses were aware of the benefits of advanced wound care training and 188 (86.2%) were willing to learn new dressing techniques. 84.9% agreed that they followed wound care guidelines based on evidence and 82.6% agreed that modern dressing materials should be available in clinical wards. Some 80.3% felt modern dressings are beneficial for wound management and 78.0% said that this technique is beneficial for patient's comfort. The confidence level in using modern wound dressings was relatively low with 57.3% agreeing, 25.2% neutral and 17.4% disagreeing. The findings indicated that nurses' attitudes toward the use of modern dressing techniques for wounds were generally positive with the exception that their confidence in the use of modern dressing techniques was relatively low.

Table 3: Distribution of Nurses' Attitudes Toward Modern Wound Dressing Techniques

Attitude statements	Agree n (%)	Neutral n (%)	Disagree n (%)
Modern dressings improve wound management	175 (80.3)	28 (12.8)	15 (6.9)
Advanced wound care training is important	190 (87.2)	18 (8.3)	10 (4.6)
I feel confident using modern wound dressings	125 (57.3)	55 (25.2)	38 (17.4)
Modern dressings can improve patient comfort	170 (78.0)	32 (14.7)	16 (7.3)
Evidence-based wound care guidelines should be followed	185 (84.9)	23 (10.6)	10 (4.6)
I am willing to attend wound care training	195 (89.4)	15 (6.9)	8 (3.7)
Modern dressing materials should be available in clinical wards	180 (82.6)	25 (11.5)	13 (6.0)
I am willing to adopt new wound dressing techniques	188 (86.2)	20 (9.2)	10 (4.6)

The distribution of the modern techniques of dressing wounds as self-reported by the nurses is presented in Table 4. The results showed that the hand hygiene before dressing changes was the most consistent practice with 180 nurses (82.6%) reporting that they always undertake hand hygiene before dressing changes. The majority of the participants (80.3%) always monitored wounds for signs and symptoms of infection and 75.7% always follow aseptic wound dressing technique. Most of the nurses used appropriate wound cleansing solutions all the time (71.1%) and most of the nurses followed institutional wound care protocols (68.8%). Sixty-six and a half percent of the participants routinely evaluated the wound prior to choosing a dressing, and 63.3% routinely evaluated the exudate and surrounding skin. 59.6% always documented the condition of the wounds and procedures for dressing, and 57.3% always used dressings based on the characteristics of the wounds. Patient education about wound care was the least consistent practice with 54.1% always providing patient education. The findings indicate differences in consistency of wound dressing practices, especially in the areas of patient education, documentation, and choice of dressing for individual patients. The overall practice levels of the nurses are examined in Table 4.8.Table 4.8 is analysed with regard to the overall practice levels of the nurses.

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Table 4: Distribution of Nurses' Self-Reported Wound Dressing Practices (N = 218)

Practice statements	Always n (%)	Sometimes n (%)	Never n (%)
Perform hand hygiene before dressing changes	180 (82.6)	30 (13.8)	8 (3.7)
Assess wounds before selecting dressings	145 (66.5)	55 (25.2)	18 (8.3)
Follow aseptic wound dressing techniques	165 (75.7)	42 (19.3)	11 (5.0)
Select dressings according to wound characteristics	125 (57.3)	70 (32.1)	23 (10.6)
Use appropriate wound cleansing solutions	155 (71.1)	48 (22.0)	15 (6.9)
Monitor wounds for signs of infection	175 (80.3)	35 (16.1)	8 (3.7)
Assess wound exudate and surrounding skin	138 (63.3)	60 (27.5)	20 (9.2)
Document wound condition and dressing procedures	130 (59.6)	65 (29.8)	23 (10.6)
Educate patients regarding wound care	118 (54.1)	75 (34.4)	25 (11.5)
Follow institutional wound care protocols	150 (68.8)	50 (22.9)	18 (8.3)

The Chi-square test results for the association between selected demographic and professional characteristics and knowledge level of nurses about modern techniques in wound dressing are shown in Table 4.10. The results showed that statistically there was an association between knowledge levels and education qualification (χ^2 = 14.28, p = 0.027), clinical department (χ^2 = 16.35, p = 0.038), previous wound care training (χ^2 = 18.64, p < 0.001) and experience (χ^2 = 13.12, p = 0.041). The variables examined showed the most statistically significant association with knowledge levels in the previous wound care training. There were no significant differences in knowledge score by age group (χ^2 = 8.42, p = 0.209) or gender (χ^2 = 2.15, p = 0.341). From the results it is evident that there may be correlations between educational background, clinical working environment, professional experience and previous wound care training and differences in nurses' knowledge levels. These associations cannot be inferred in direction or magnitude from the reported Chi-square statistics alone, nor do they prove causal relationships.

Table 5: Chi-Square Test Results for Associations Between Demographic Characteristics and Knowledge Levels

Variables	Chi-square (χ^2)	df	p-value
Age group	8.42	6	0.209
Gender	2.15	2	0.341
Educational qualification	14.28	6	0.027
Clinical department	16.35	8	0.038
Professional experience	13.12	6	0.041
Previous wound care training	18.64	2	<0.001

The Pearson correlation results for the relationships between nurses' knowledge, attitudes, and practices related to modern dressing methods for wounds are presented in Table 6. Results show that there are positive relationships between all three dimensions. A moderate positive correlation was noted between knowledge and attitude scores (r = 0.42, p<0.001), which showed that individuals who had high knowledge scores also had high attitude scores. A moderate positive correlation was found between knowledge and practice scores (r = 0.51, p<0.001), which was the strongest correlation among the three comparisons. There was a moderate positive correlation between the scores of attitude and practice (r = 0.46, p < 0.001) that means people who had a positive attitude had a higher score for self-reported wound dressing practices. The three reported correlations were statistically significant at the 0.05 level of significance. These illustrative findings indicate that there can be positive relationship between Knowledge, Attitude and

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Practice but not causal relationship due to cross sectional study design.

Table 6:Pearson Correlation Results

Variables	Pearson correlation (r)	p-value
Knowledge and attitude	0.42	<0.001
Knowledge and practice	0.51	<0.001
Attitude and practice	0.46	<0.001

Discussion

The current study was designed to evaluate the knowledge, attitudes and practices of the nurses in modern wound dressing techniques in Jinnah hospital Lahore. The illustrative examples (218 nurses) showed that 48.2% of the nurses had moderate knowledge, 29.8% had good knowledge, and 22.0% had poor knowledge of modern wound dressing techniques. The results showed that there was a significant level of basic knowledge of wound management among the nurses, but limited understanding of specialized techniques in dressing wounds. Zafar et al. (2024) completed a study in Jinnah Hospital Lahore on the knowledge of wound care amongst registered nurses working in the hospital, 73.7% had good knowledge and 26.3% had poor knowledge. The study by Zafar et al. had higher percentage of nurses with good knowledge compared to the present illustrative results. This variation could be due to some differences in the tools used for assessment, the criteria for defining knowledge, and the specific topics of wound care. Mehk Un Nisa et al. (2024) found that 68.8% of the nurses at Shalamar Hospital Lahore had average knowledge, and 29.6% had good knowledge about the treatment of pressure ulcers. The percentage having good knowledge was similar to the present example (29.8%). The above comparisons indicate that some knowledge gaps exist in the knowledge of nurses in the tertiary healthcare institutions especially in specialized wound management techniques.

The results for the various components of knowledge showed great variation in the knowledge of nurses about contemporary wound dressing techniques. The largest percentage of correct answers was correct identification of signs of wound infection (81.7%), stage of wound healing (75.7%) and antimicrobial dressings (71.1%). Comparatively little knowledge was reported for negative pressure wound therapy (45.0%) and a small number of respondents (51.4%) had knowledge of alginate dressings, and 57.3% had knowledge of hydrogel dressings. Chen et al. (2024) highlighted the need for evidence-based wound assessment, the right dressing, and personalized treatment for DFUs. Their clinical guidelines focus on the specialist expertise needed for higher-level wound care treatments such as negative pressure wound care. Gould, et al., 2024, noted that the key elements of pressure injury management included wound assessment, infection management, moisture balance, and selection of the appropriate dressing for the pressure injury. The relatively low scores reflect the specialized dressing techniques were emphasized in these guidelines and required advanced knowledge. The guidelines do not give directly comparable prevalence estimates of the knowledge gaps of nurses. The comparison is used to support the clinical relevance of the identified knowledge gaps, but not to reach consensus that the studied populations are equivalent.

Regarding the attitude of the nurses towards modern techniques of dressing the wounds, the illustrative results showed that 61.9 per cent possessed positive attitudes, 25.2 per cent were neutral and 12.8 per cent were negative. The majority of participants (89.4%) were keen to receive wound care training and 87.2% understood that there was a need for advanced wound care education. There was a gap between willingness to use modern approach and confidence, as only 57.3% were confident of using modern wound dressing techniques. Zafar et al. (2024) described the lack of adequate training, and heavy workload as challenges to wound care

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practices among nurses in Lahore. Their study centered on what they knew and how they acted, not on measuring attitudes directly, and so they were not able to make quantitative comparisons. The International Wound Infection Institute (2022) highlighted the importance of professional awareness, clinical decision making and evidence-based practices for wound infection management. The positive attitude demonstrated in the case study is in line with the commitment to professionalism that is encouraged by international guidance. There is low confidence in the use of advanced dressing techniques suggesting there is a potential benefit in practical training, clinical demonstrations and supervised learning experiences.

The illustrative findings of the nurse's practices showed that 45.9% of the nurses had moderate practices, 28.9% had good practices, and 25.2% had poor practices. 82.6% of nurses reported that they always cleaned their hands before dressing changes, and 80.3% of nurses reported wound infection is being monitored regularly, and 75.7% said they always followed the aseptic wound dressing techniques. Only 54.1% of the respondents always educated the patients, while 57.3% indicated that they chose dressings according to the wound characteristics. In 2024, Zafar et al. found that 54.1% of nurses had good wound care practices with 45.9% having suboptimal practices. The percentage of those that showed good practices was higher than in the present illustrative findings. Aiman et al. (2024) carried out a study on 129 nurses at Jinnah hospital Lahore and found that only 42.6% participants were able to routinely utilize a pressure injury risk assessment scale (PIRAS). They concluded that there were gaps in the implementation of recommended preventive measures. Both studies provide support for concerns about wound care procedures that are not always consistent, but the differences in the procedures that were assessed and the differences in the scoring criteria, mean that the percentages reported are not directly comparable.

The illustrative analysis of the demographic and professional characteristics showed statistically significant relationships between the level of knowledge of nurse and educational qualification ($p = .027$), clinical department ($p = .038$), professional experience ($p = .041$), and previous training in wound care ($p < .001$). There were no statistically significant association with age ($p = .209$) or gender ($p = .341$). The findings presented here indicate that there may be differences in knowledge levels with regard to professional preparation, clinical experiences, and training in wound care. Mehk Un Nisa et al (2024) found differences in know-how between nurses in various clinical departments, with nurses in surgical intensive care and high dependency units having a comparatively higher level of know-how than those in certain other departments. This is a pattern that is suitable for the example relationship between clinical department and knowledge. Aiman et al (2024) found that nurses from various professional backgrounds had a lack of knowledge and skills in pressure injury prevention, highlighting the need for ongoing education. The present example does not indicate which education/knowledge categories contained greater frequencies of knowledge since the cross-tabulated frequencies were not given. The statistical correlations seen do not permit the drawing of causal inferences on knowledge related to education, experience or training.

The relationship between the nurses' knowledge, attitudes, and practices in the use of modern wound dressing techniques was shown by illustrative correlation analysis to be positive. There was moderate positive correlation between knowledge and attitudes ($r = .42$, $p < .001$) and knowledge and practices ($r = .51$, $p < .001$). There was positive correlation between attitudes and practices ($r = .46$, $p < .001$). The highest correlation was seen between knowledge and practices with increasing knowledge score, people had better self-reported practices in wound dressing. Zafar et al (2024) found that there was a difference between theoretical knowledge and practical performance, the nurses had good knowledge (73.7%) and only good practices (54.1%). They found that good knowledge is not always associated with proper application of wound care measures. In the present example, the positive correlations do not detract from this

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observation as an association between knowledge and practice does not necessarily imply that there are no differences in the overall level of performance. The cross-sectional design prevents causal conclusions to be drawn and self-reported practices might lead to response bias. The differences between these comparisons underscore the need to measure knowledge, attitudes, and practices separately as complementary aspects of nursing competence.

The overall illustrative findings indicate that nurses can display a positive attitude towards innovative dressing methods, but also show that they feel constrained in their knowledge of specialty and have inconsistent clinical practices. The scores obtained indicated that there was moderate knowledge (48.2%), positive attitude (61.9%) and moderate practices (45.9%) among the participants. The findings are generally aligned with the issues raised by Zafar et al. (2024), Aiman et al. (2024), and Mehk Un Nisa et al. (2024) about the lack of knowledge, the differences in knowledge among the clinical departments, and the lack of uniformity of wound care practices. The variations between studies may be due to differences that occurred in the study populations, sample sizes, settings, questionnaires, and scoring systems. There are indications that contemporary wound care education needs to cover theoretical knowledge, clinical competence, selection of dressings, preventing infection, documentation, and patient education. Nursing competencies can be supported by a practical demonstration, structured training, clinical supervision and access to proper dressing materials. The proposed study at Jinnah Hospital Lahore could help in identifying education priorities and providing the supporting evidence for wound management. Only after replacing the illustrative results with data of participants can conclusions be drawn about the actual study population.

CONCLUSION:

The present study aimed to assess nurses' knowledge, attitudes, and practices regarding modern wound dressing techniques at Jinnah Hospital Lahore. The illustrative findings indicated that 48.2% of nurses demonstrated moderate knowledge, 29.8% had good knowledge, and 22.0% had poor knowledge regarding modern wound dressing techniques. Most nurses (61.9%) demonstrated positive attitudes toward modern wound management, while 25.2% had neutral attitudes and 12.8% had negative attitudes. Regarding clinical practices, 45.9% demonstrated moderate practices, 28.9% had good practices, and 25.2% had poor practices. The findings suggested that nurses possessed comparatively better knowledge of general wound management principles, including wound infection identification and wound healing stages, while deficiencies were observed in specialized techniques such as negative pressure wound therapy and advanced dressing selection. Positive attitudes toward modern wound care were evident, although confidence in applying advanced dressing techniques remained comparatively limited. Educational qualification, clinical department, professional experience, and previous wound care training demonstrated statistically significant associations with knowledge levels in the example analysis. Positive correlations were observed among knowledge, attitudes, and practices. The findings highlight the potential importance of continuous professional education, practical training, standardized wound care protocols, and institutional support for improving nursing competencies. The study emphasizes the need to strengthen evidence-based wound management practices to promote patient safety, improve the quality of nursing care, and support better wound healing outcomes at Jinnah Hospital Lahore.

RECOMMENDATIONS

Based on the illustrative findings, the following recommendations are proposed to improve nurses' knowledge, attitudes, and practices regarding modern wound dressing techniques at Jinnah Hospital Lahore.

1. Continuous Professional Education: Regular educational programs, workshops, and training sessions should be organized to improve nurses' knowledge regarding modern wound dressing techniques, wound assessment, infection

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prevention, and evidence-based wound management.

2. Practical Skills Development: Hands-on training and clinical demonstrations should be provided to strengthen nurses' practical competencies in using hydrocolloid, hydrogel, alginate, foam, antimicrobial dressings, and negative pressure wound therapy.

3. Implementation of Standardized Protocols: Hospital administration should develop and implement standardized, evidence-based wound care guidelines to ensure consistency in wound assessment, dressing selection, infection prevention, and documentation.

4. Availability of Modern Dressing Materials: Hospital management should ensure adequate availability of appropriate modern wound dressing materials and essential wound care supplies to support effective clinical practices.

5. Regular Competency Assessment: Nursing supervisors should conduct periodic assessments of nurses' wound care knowledge and clinical skills to identify educational needs and provide appropriate professional support.

6. Strengthening Patient Education: Nurses should be encouraged to provide comprehensive patient education regarding wound hygiene, dressing care, infection prevention, and follow-up management to support wound healing and reduce complications.

7. Supportive Clinical Supervision: Nursing administrators should promote supportive supervision, mentorship, and multidisciplinary collaboration to improve nurses' confidence and adherence to evidence-based wound care practices.

8. Further Research: Future studies should be conducted in multiple tertiary healthcare institutions using larger samples and observational methods to examine wound care competencies and identify factors influencing the implementation of modern wound dressing techniques.

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