

# Scoping Review Nurse's Knowledge and Practices Regarding Wound Dressing at Primary Health Care Center

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## ABSTRACT

**Background:** Wound care is one of the significant nursing responsibilities that requires excellent skills and knowledge to minimize complications, such as infection, an amputation, or, in severe cases, even death. Effective wound dressing promotes wound healing, minimize hospitalization and saving costs. Objective: This scoping review aimed to provide an overview of the knowledge, practices, and attitude regarding wound dressing among nurses who responsible for wound dressing in PHC, hospitals and clinical setting.

**Methodology:** CINHALL, PubMed, MEDLINE, ProQuest, Cochrane Library, and Science Direct databases were searched to cover published research in the period between 2015 to 2020. 15 articles out of 3153 were analysed. The following searching terms were used: nurse's knowledge (or / and)/nurse's practice AND wound dressing OR wound care OR wound management AND primary health care center OR hospitals OR clinical setting OR healthcare facility.

**Results:** The majority of the articles demonstrate that the nurse's knowledge regarding wound dressing was insufficient in various domains. The results may explain the unsatisfactory level of nurse's practice in wound dressing by most nurses. The finding also recommends that updating nurses' knowledge by frequent wound management courses and clinical training has a positive effect on safe wound dressing practice.

**Conclusion:** There were insufficient wound dressing practices among the registered nurses, although the majority of the nurses enrolled in studies who had clinical experience and attended training programs. In addition, the unsatisfaction of clinical practice of wound management and the reasons that most of the participants are not performing standard dressing protocols are due to significant barriers for practicing the proper technique of wound dressing such as time-consuming procedure, heavy workload, lack of adequate staff to assist in dressing procedure and lack of sufficient supplies. Therefore, further research required more attention to identify and implement effective strategies to enhance health professional knowledge regarding wound dressing management.

## INTRODUCTION

The skin is the first line defense of the body system, protecting the underlying structure from invasion by a microorganism that can be achieved by maintaining an intact skin surface. It is important to prevent breakdown or disruption in this integrity, that might be potentially dangerous and possibly life-threatening by infection

Khudhair [1]. The presence of a wound is considered a burden in terms of economic cost to health and primary health care providers and impacts patient quality of life (QoL). Patients who suffer from wounds may be affected by their appearance, confidence, or financial status if the wound requires long-term treatment BaMohammed

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[2]. Wound care is a nursing duty that requires excellent knowledge and skills to prevent massive complications, such as inflammation, gangrene, and amputation, or, in severe cases, even death, the goal of wound care is promoting tissue repair and regeneration so that skin integrity is restored Khudhair [1]. It is necessary to assess actual knowledge and practices of nurses to know the differences between actual and ideal practice and lean more towards evidence-based practices for wound care BaMohammed [2].

An international survey conducted by WHO (2018) showed Surgical site infections (SSIs) are the most frequent hospital-acquired infection in low- and middle-income countries (LMICs); SSI is responsible for more extended hospital stays and increased costs to the patient and hospital Dhanasundari [3]. Surgical wounds account for the vast majority of skin injuries. A study estimated that over 234 million major surgical procedures are performed worldwide every year Dobson [4]. So, it is considered that the use of aseptic techniques is necessary for creating a healthy environment in the health care setting.

Significantly, it was evident that wound infection can increase the financial cost due to increase hospitalization as well as it increases the time-consuming for personnel in the health sector, increase the use of antibiotics and increase in the consumption of medical supplies Najm [5].

Wound dressing is a technique used to facilitate the optimal environment to enhance wound healing. However, the wound-dressing should be used in accordance with the policy of the health care setting and special dressing guidelines Reid [6]. The primary purposes of wound dressing are to prevent the wound from bacterial infection, prevent further injury, increase healing speeds, and reduce the discomfort feeling Al-Khateeb Sterile technique is the basis of modern surgery, and strict adherence to this is actually recommended in practices Van Wicklin [7].

The primary role of the primary health care is providing basic and comprehensive care, including preventive and curative services Alzaied. The primary nursing role in PHCc is providing holistic wound care, and dressing implementation is vital to confront these challenges through implementing standards in practice BaMohammed [2]. Wound management is a large and important part of the daily activities for most primary health care nurses. Dressings accounted for 20% of all procedures performed by practice nurses, and two-third of the most common procedures in general practices involved wound management. So, the primary health care was a high priority area continuous more education and training around evidence-based best wound management practices Innes-Walker.

## AIM

The aim of this scoping review is to conclude research about nurses' knowledge and practices regarding wound dressing between 2015-2020.

## METHODOLOGY

### Search Strategies

This scoping review was based on five stages methodology Arksey. Framework stage that includes identifying the research question, identifying the relevant studies, the study selection, charting the data and summarizing the results. First, the PICOT questions were identified to guide this searching process in the electronic database. Then, relevant articles were identified by performing an electronic search in the database in April 2020. -Articles were collected between 2015-2020 to select the updated literature depending on inclusion and exclusion criteria. Finally, the thematic framework in (Table 1) and review matrix was completed to collate, summarize, and report the results (Appendix 1).

**Table 1:** Scope review theme and sub-themes.

Themes/Sub Themes	Name	Author
<b>Theme 1: Knowledge</b>		
1.1 Sub theme	High	Bilal et al. (2018)
		Kumarasinghe et al. (2018)
		Anjumol. P.S (2016)
1.2 Sub theme	Moderate	El-Sayed, Gomaa, & Abdel-Aziz (2015)
		Arruda et al. (2019)
		Ghosh, Nida, & Yadav (2019)
		Asiye Gul & Isik, (2017)
		Margareat Thatcher & Hemavathy (2015)
1.3 Sub theme	Poor	Saleh et al. (2019)
		Ogunfowokan. et al (2016)
		Faria GBG de. (2016)
<b>Theme 2: Practice</b>		
2.1 Sub theme	Satisfactory	Dhanasundari. et al (2018)
2.2 Sub theme	Unsatisfactory	Saleh et al. (2019)
		Najm & Hussein (2018)
		BaMohammed et al (2018)
		Khudhair (2018)
		El-Sayed, Gomaa, & Abdel-Aziz (2015)

Theme 3: Attitude		
3.1 Sub theme	Positive	Bilal et al. (2018) Kumarsinghe et al. (2017)
3.2 Sub theme	Negative	-

## Research Question

The research question of this scoping review was defined using the PICOT (Population-Intervention-Comparison-Outcome-Time) format Melnyk PICOT question was, "What are the nurse's knowledge and practices regarding wound dressing in primary health care centers?" This was used to conduct the search process in the chosen databases.

## The Population

The population of interest was defined as Primary Health Care nurses who are responsible for wound dressing in PHC, hospitals and clinical setting were enrolled in this review. The interventions: This review included all studies that assessing wound dressing knowledge or/and practices among nurses.

## The Outcome Measures

Based on literature, the outcome measures, the level of wound dressing knowledge (high, moderate or poor) and practices performance (satisfactory or unsatisfactory).

## Keywords

Combination of keyword was used which include: nurse's knowledge (or /and) nurse's practice AND wound dressing OR wound care OR wound management AND primary health care centers OR hospitals OR clinical setting.

## Search Engines

The electronic searching included extensive searching in databases from Database of Cumulative Index of Nursing and Allied Health Literature "CINAHL", Midline, ProQuest, Cochrane Library,

Science Direct, PubMed, and grey literature also conducted using Google scholar for more evidence through examined for population, intervention, comparison, outcome of the study.

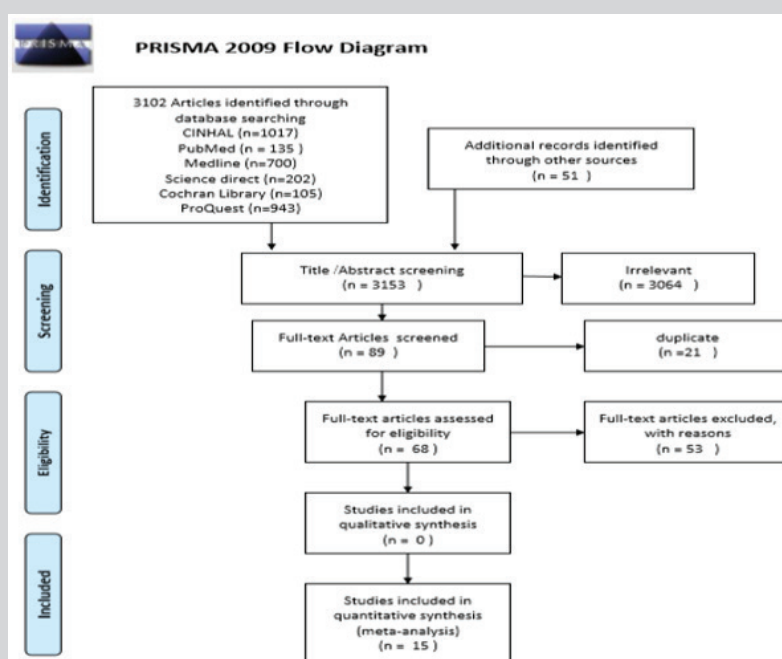
## Inclusion Criteria

Inclusion Criteria were developed according to our aim of the study to identify the most relevant articles to answer PICOT question, which included the following:

1. Articles examine Knowledge or/and Practice regarding wound dressing.
2. Articles that available in English language.
3. Articles were published in the last five years between 2015-2020.
4. Quantitative articles were included.
5. Studies that included adult population

## Articles Retrieved and Screening Process

The retrieved articles were screened using PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis), containing a four-phase flow diagram explained in Figure 1. Initially, 3153 articles were retrieved (1017 from CINAHL, 700 from MEDLINE, 135 from PubMed, 202 from Science Direct, 105 from Cochran Library, 943 from ProQuest and 51 from other resources added manually), and titles/abstracts were screened. After that, 89 full-text articles were screened, then 21 articles were removed for duplication. After following the inclusion and exclusion criteria, 53 articles were excluded accordingly. Finally, the remaining 15 full-text articles were retrieved to be included in this scoping review.



**Figure 1:** PRISMA Flow Diagram Preferred Reporting Items for Systematic Reviews and Meta-Analyses: the PRISMA statement guidelines.

## QUALITY ASSESSMENT

The fifteen studies that met the review's inclusion criteria were independently assessed for their quality using the tool developed by Hawker. The tool was designed to assess several factors including the abstract and title, introduction and aims, method and data, sampling, data analysis, ethics and bias, findings/results, transferability/ generalizability, implications and usefulness Hawker.

The total score possible was 36 points and the score for each factor was 4 points, ranging from 1 (very poor) to 4 (good quality). The quality of each article has been presented in (Appendix 2). in which each article was allocated to one of the following categories: poor (9-18 points), fair (19-27 points) and good (28-36points).

### Charting the Data

This stage includes extracting all relevant data from the literature to gather all of the appropriate and important information from the included studies to answer the scoping review questions and extract related information about the study's characteristics, methodology, and findings. It may also aim to avoid bias and improve reliability and validity Coughlan. The extraction should contain the main variables necessary to answer the research questions of the scoping review Reviews & Dissemination. The author extracted all essential information in the present review, including publication details, study aims, study characteristics, introduction, study design, ethical considerations, and the main findings (Appendix 1). The thematic analysis was used to guide the scoping review result, collate, summarize, and report the results.

## RESULTS

Fifteen articles were retrieved and categorized into three themes using thematic analysis. The first theme is knowledge about wound dressing, including three sub-themes: according to the knowledge level that includes high, moderate, or low. The second theme is a practice about wound care, which includes two sub-themes regarding the practice level among nurses who perform wound dressing (satisfactory and unsatisfactory). The third theme is attitudes towards patients with wound dressing. For each theme and sub-themes, a study discussion is commenced distinctly (Table 1).

The articles were performed in various geographical locations such as - India Dhanasundari [3]; Anjumol [8]; Margareat Thatcher [9]; Brazil Arruda et al. [10]; Faria [12]; Pakistan Ghosh [12]; Bilal et al. [13], Iraq Najm [5]; Jordan Saleh [14]; Sri Lanka Kumarasinghe [15], Saudi Arabia BaMohammed [2], Nigeria Ogunfowokan[16]; Turkey Asiye Gul [17]; Egypt El-Sayed [18].

Eight articles were carried out on general wound care, four articles examine diabetic foot wound, and two articles were carried out on the study on pressure ulcer wound. In contrast, one article carried out a study on burn wounds. However, 14 articles were carried out at hospitals in different departments as medical, surgical, critical care units, emergency departments, and burn units, while one study was conducted in primary health care facilities.

### Theme 1: Level of Knowledge about Wound Dressing

Eleven out of fifteen articles assessed knowledge level about wound dressing between the nurses. The knowledge level was divided into high, moderate and poor according to most of the retrieved articles. Besides, the majority of these articles ( $n= 4$ )

recruited the nurses for general wound dressing, three articles involve the nurses for diabetic wound, three articles for pressure ulcer wound and only one study was carried out in burn wound care.

**Sub theme: High level of knowledge:** There were four studies reported a high level of knowledge among the nurses. The first study was a cross-sectional study performed by Bilal in 2018 at two tertiary care hospitals in Karachi in Pakistan, 250 nurses recruited from surgical wards and their outpatient departments (Dr. Ruth Km Pfau Civil Hospital and Jinnah Hospital). The authors developed a pre-structured questionnaire to assess nurses' knowledge, attitudes, and practices about diabetic foot care. The result showed that the mean score for nurses' knowledge was 74.9 ( $\pm 9.5$ ). The nurses' knowledge also showed that 27.0% of overall, the nurses had poor knowledge. While 19% of the nurses had a moderate level of knowledge, whereas 54% of the study sample possessed a high knowledge level score regarding diabetic ulcer care. Best performed in the domain of ulcer care with 65.3% of the participants possessing high knowledge of the topic and found a significant association between nurses' knowledge and their nursing (0.006) and wound care experiences (0.007), receiving wound care training (0.002). The four criteria to assess knowledge and their respective mean scores were as follows: predisposing factors = 75 ( $\pm 21.0$ ), characteristics of ulcers = 76.0 ( $\pm 24.3$ ), complications of ulcers = 78.5 ( $\pm 22.6$ ), and ulcer care = 80.7 ( $\pm 17.3$ ). The two domains in which a higher percentage of nurses possessed good knowledge were predisposing factors and ulcer care (55% and 65.3%, respectively). A majority of the nurses scored poorly in their knowledge of the characteristics and complications of ulcers with only approximately 40% of the study population having a good score in the two domains. The assessment of knowledge on individual items helps assess the primary features of the nurses' routine practices. Ninety-four percent of the nurses were aware that slough presence is indicative of infection in diabetic ulcers. Nevertheless, routine practices have been found to influence nurses' clinical acumen and are not commonly updated. This redundancy in clinical practice can be attributed to the general lack of knowledge in the nursing workforce.

In addition, Kumarasinghe et al. [15] assess nurses' knowledge of diabetic ulcer disease in three teaching hospitals in Sri Lanka using a descriptive cross-sectional study among 200 nurses from surgical wards and dressing rooms of Out-Patient Departments (OPD). The knowledge score determined by the self-administered questionnaire was developed by the authors. The researchers found that the mean knowledge score was 77.9, with 57.8 % of the nurses had high knowledge, while 17.7 % had moderate knowledge, and 24.5 percent had poor knowledge towards caring for diabetic ulcer patients. The study also identified deficits in core knowledge and lack of formal wound care training was reported by 91.2 %. Moreover, they found statistically significant associations between nurses' knowledge and duration of nursing, wound care experience, and the type of unit they are attached. In addition, out of the 15 items tested, 8 items were answered correctly by more than 80% of participants. All nurses in the study sample knew that infected, highly exuding wounds should be cleansed daily. However, the items on the impact of ischemia in increasing the risk of amputation in diabetic ulcer patients and the importance of mechanical off-loading in ulcer healing were answered correctly by less than 50% of nurses in the study.

Another descriptive study was conducted in Narayana medical



college hospital, Nellore, in India. The study aimed to assess the knowledge and comparisons regarding surgical wound dressing among staff nurses and nursing students among 30 participants, 15 were staff nurses and 15 were nursing students Anjumol. PS [15]. Semi-structured questionnaire was used to assess knowledge on the surgical wound dressing. The study suggested level of knowledge regarding surgical wound dressing among staff nurses, 2(13.3%) had poor knowledge, 5(33.3%) had moderately adequate knowledge and 8(53.4%) had high knowledge. Moreover, there is no significant association between the level of knowledge and socio-demographic variable of staff nurses like age, gender, education qualification, years of experience, source of information and educational program attended.

Moreover, in 2015, El-Sayed [18] evaluate 20 nurses in the burn unit at El Manial University Hospital, Cairo, in Egypt using a descriptive, explanatory research design. Knowledge and observational checklist were used to assess nurses' knowledge and practice to prevent infection in the burn unit used to achieve the aim of the study. The result revealed that 90.0% of the nurses had a high score level relating to burned wound care knowledge, 10.0% had a poor score while no nurses had a high score. Most of the study sample (80%) had satisfactory level of knowledge ( $\geq 75\%$ ) with a total mean score ( $45.10 \pm 10.11$ ). According to definition of infection, cause, source and mode of transmission the majority of the study subjects (80%, 90%, 90% and 65%) had satisfactory level of knowledge. The results also showed that 75% of the study sample attended one or two seminars in infection control, while only 5% of them attended more than two seminars in the area of infection control; on the other hand, 25% did not attend any seminars.

**Sub-theme: Moderate level of knowledge:** Four articles reported that the nurses had a moderate level of knowledge about wound dressing. One of these articles was a descriptive cross-sectional study done by Arruda et al. in 2019 with 90 nurses from the Family Health Strategy in Northeast Brazil to understand nurses' knowledge about caring for a diabetic foot in Primary Care. Semi structured questionnaire was used to assess nurses' knowledge about the prevention of diabetic foot. The results indicate that no nurse had high knowledge for the prevention of diabetic foot. In contrast, 54.4% of the participants had a moderate score level on the knowledge, while 45.6% had a poor score. The evaluation of the set of items regarding nurses' knowledge for the diabetic foot care, showed an average of (72.2 out of 120) points ( $\pm 6.9$ ). When analyzing the items individually, an average of (66.0 out of 120) points for physical examination of the feet was identified. For the item diabetic foot assessment instruments, the highest average for monofilament 10g Semmes-Weinstein with (74.9 out of 120) points were presented, and for the diabetic foot classification item, the highest average for knowledge about the foot, with (90.4 out 120) points, highlighting a lower average point for the item of knowledge about the physical examination of the feet. Also, there is a lack of performance about the physical examination of the feet.

Ghosh et al. [12] conduct a study in Moradabad in Pakistan to assess the knowledge regarding Decubitus Ulcer and its management by using a descriptive study among 60 nurses from tertiary care hospital. The researchers found that 66.7% of the nurses had a moderate knowledge level, while 11.7% had high knowledge and 21.7% had poor knowledge of decubitus ulcers and its management. They also found a significant association between nurses' educational level and area of work with the level of knowledge on decubitus ulcer care.

Another descriptive cross-sectional study was performed to evaluate nurses' knowledge of pressure ulcers among hospitalized patients. Among 308 nurses who work in an acute care department in research and training hospital in Istanbul, Turkey Asiye Gul [17]. The Modified Pieper Pressure Ulcer Knowledge Test (PUKT) questionnaire was used to assess nurses' knowledge of Pressure Ulcers (PUs) regarding prevention/risk, staging, and wound description among hospitalized patients. The study suggested that the sample's mean knowledge score was  $29.7 \pm 6.7$  among participants and had a moderate 55.8% level of knowledge, low (41.6%) and only high (2.6%) regarding knowledge of PU. Knowledge scores were significantly ( $P < 0.05$ ) higher for participants who attended at least 1 lecture/conference/course on PUs in the last year, read articles/books about PUs, cared for patients with PUs, or believed their patients were at risk for PU development. The lowest number of correct answers was for the item, "Bunny boots and gel pads relieve pressure on the heels" (22, 7.1%). The results of this study suggest education and experience caring for patients who are at risk for or have a PU affect nurses' knowledge. This study, and additional research examining nurse knowledge, will help the development of much-needed education programs.

Another study examines the aseptic wound dressing between 100 staff nurses from Sree Balaji Medical College and Hospital in India Margareat Thatcher [9]. Modified structured questionnaire according to the study objectives used to assess knowledge of the staff nurses on aseptic wound dressing practices. The result showed that a moderate level of knowledge 70% among the participants and 19% of the subjects had high knowledge while 11% of the respondents had poor level of knowledge. Highest percentage (88%) of correct responses is observed in the item "Dressing trolley should be cleaned with any disinfectant". (80%) of the subject knew "area with less number of organisms is cleaned first to minimize spread of organisms". (71%) of subjects responded correctly to the item "preparatory phase of dressing includes explanation of procedure to the patient". (64%) of the subjects were aware that "to remove the adherent dressing wet it with normal saline". (59%) of the subjects were aware the "ideal place to keep chattel forceps is lotion bottle" and 58% of the subjects were awareness that "prior to dressing, the room should be cleaned at least an hour before." (49%) of the participants were aware that the principle used in dressing in order to restore the function of the affected part is avoid adhesion of true skin surface. The least percentage (31%) of the knowledge is on the item the dressing should be done one hour before or after mealtime.

**Subtheme: Poor level of knowledge:** Three articles in this review reported poor level of knowledge, one of these articles done by Saleh et al. [14] examining nurses' knowledge on pressure ulcer (PU) prevention and treatment in medical-surgical and critical care units in eleven hospitals in Jordan (six government, two universities, one military, and tow private) by using a self-reported cross-sectional survey. They aimed to assess nurses' knowledge of pressure ulcer prevention and treatment among 377 nurses enrolled in the study. At baseline, the result revealed that total knowledge scores were considered low 73.6% in the prevention and treatment of PU. While 26.4% of nurses who get moderate knowledge level. Knowledge sources about PU were largely from formal education or in-service education. Most nurses (89.9%) were not involved in research activities on pressure ulcers. Only 34.2% stated using RAS. About 90% of participants agreed on the definition of PU and 49.6% acknowledged using the EPUAP-NPUAP

classification system. Also, a significant association with observed prevention and treatment interventions ( $P = 0.001$ ).

Another cross-sectional descriptive design in Nigeria was conducted by Ogunfowokan et al. [16] to assess the knowledge and perception of modern wound dressing and to identify the influence of knowledge on the perception of the nurses among 183 nurses who work in medical and surgical units of a tertiary teaching hospital. Knowledge level was measured by using a self-developed questionnaire. At baseline, the mean knowledge and perception scores of the nurses were  $13 \pm 7.6$  and  $31.8 \pm 5.7$ , respectively. Moreover, the results show that 60.1% of the nurse had poor knowledge, with 80.9% a positive perception. The majority of the nurses responded incorrectly to many of the questions that tested their knowledge on the types of modern wound dressings and the uses of it. For example, a majority gave incorrect answers to the statement, 'Hydrogels cannot be used for highly exuding wounds' (66.7%); 'Sorban is a type of hydrocolloid' (98.1%); 'Alginates can be used for dry and necrotic wounds' (92.3%).

Furthermore, Faria GBG [11]. conduct a cross-sectional study design to assess nurses' knowledge on the evaluation and treatment of wounds and described their clinical practice in wound care by interviewed nurses. They work in (Internal Medicine, Clinical Surgery of Women and Men, Motherhood, Emergency Unit, Intermediate Intensive Care Unit and Surgical Intensive Care Unit) in a hospital public education among 55 nurses. The questionnaire was developed by authors based on literature reviews to answer the research question. The result revealed that of the participants, 92.7% had poor knowledge level on the subject, while 7.3% only of nurses had a moderate level. Also, it was observed that (7.3%) had adequate professional knowledge on the subject (equal hit scores or above 80%), followed by (92.7%) with the level of knowledge classified as inappropriate. Most, 67.3%, reported not having obtained sufficient knowledge at graduation on wound care.

## Theme 2: Level of Practice about Wound Dressing

The number of articles examines practice about wound dressing among nurses was only six articles Saleh et al. [14]; Najm [5]; BaMohammed et al. [2]; Dhanasundari et al. [3]; Khudhair [1]; El-Sayed et al. [18]. The practice of wound care was divided into two categories, according to the nurse's performance (satisfactory and dissatisfactory).

**Subtheme: Satisfactory Level:** In India, a descriptive study was done by Dhanasundari et al. [3] in 2018 to assess the practice of aseptic techniques on surgical wound dressing among 15 nurses using a different checklist for aseptic techniques on the surgical wound dressing. The result showed that among nurses, 100% of them were satisfactory in practice, level the satisfaction level was above 60.1%. it was observed that ,100% of nurses are explaining the procedure, 100% of nurses they arrange all the equipment such as dressing trolley with needed articles, while the least 67% of nurse are Wash hands with soap and water for 40-60 seconds and dried the hands/hand rubbed with alcohol-based solution for 20-30 seconds before the procedure. waste bin near to the patient bed side 91% of study participant are performing aseptic technique in wound dressing. Moreover, the result also revealed that there is no statistically significant association between the practice on aseptic techniques with age, experience and area of work of staff nurses, surgery and the number of post-operative days of study clients.

**Subtheme: Unsatisfactory level:** Saleh et al. conducted a

correlational study in 2019 through prospective observation to measure nurses' pressure ulcer wound care practice for patients to assess pressure ulcer prevention and treatment in clinical practice among nurses. The result revealed that the participants had unsatisfactory levels in implementation of PU prevention and treatment 49.2% and 44.9%, respectively. The study addressed new factors, facilitating the provision of prevention and treatment strategies to PU development, including type of clinical institution and number of beds in clinical unit.

Moreover, a descriptive study was conducted by Najm & Hussein in 2018 to evaluate nurses' practice in three Emergency Hospitals in Erbil city in Iraq. The study aimed to assess nurses' practices regarding wound dressing among 64 nurses by using an observational checklist and a questionnaire which was constructed and modified by the researchers. The result showed that the majority of 65.6% of nurses' wound dressing practices unsatisfactory level of practice and a minority, 34.4%, were at a satisfactory level. The highest percentage was in irrigation and dressing items (1.61), and lowest with the discard wound dressing supplies items (0.79). There was no significant association between the wound dressing practice and nurses' characteristics of age, gender, educational level, years of experience and training participation ( $P = 0.51, 0.609, 0.54, 0.21$  and  $0.78$ , respectively).

Moreover, BaMohammed et al. [2] conducted another cross-sectional observational study design in 2018 to explore nurses' wound dressing performance for pre, intra, and post wound dressing among 41 nurses who worked in adult general care and critical care KAUH in Saudi Arabia settings using a modified checklist. The result shows that the mean score for nurses' adherence to correct wound management techniques was 77.6%. Compliance was lower in the pre-phase, confirming the dressing order 66.7%, conducting client verification 71.8%, and explaining the client's procedures 59%. Compliance was higher during the performance phase 36; 90%. However, the least compliance was shown in the post-phase in educating patients and families by only 33.3%. Of these, 20 (48.8%) had attended a wound management course. The mean score for nurses' adherence to correct wound management techniques was 77.6%. Compliance was lower in the pre-phase, confirming the dressing order: (66.7%), conducting client verification (71.8%), and explaining the procedures to the client (59%). Compliance was higher during the performance phase (90%). However, the least compliance was shown in the post-phase in the area of educating patients and family by only 33.3%. Also, a significant difference in the dressing was made with completely aseptic techniques among participants who attended the wound management course ( $p = 0.02$ ).

Furthermore, in 2018, Khudhair, conduct a descriptive study design that was carried out at the surgical wards of Al-Sadder Teaching Hospital in Iraq to assess nursing practice regarding postoperative wound care for patients. 25 nurses selected from surgical wards and intensive care units. The practice assessment was done through the use of direct observation to answer the research question. The results demonstrated that 77.8% of nurses had a practice deficit in most postoperative clean wound care items for surgical unit patients. Also, there is a significant relationship between education level, years of experience and nurse practice about postoperative wound care for the patient in surgical departments. At the same time, there is no significant relationship between age, gender, and nurse's practices about postoperative wound care for the patient in surgical care units.

El-Sayed et al. [18] conduct a descriptive, explanatory research design study using an observational checklist to assess nurses' practice to prevent infection in the burn unit used to achieve the study's aim. The result revealed that the total mean score of nurses practice ( $37.35 \pm 12.07$ ), 83.8% of the nurses had an unsatisfactory level relating burn wound care practice, 16.2% had an unsatisfactory. The findings indicated that very low percentage 10% of the study sample had satisfactory level of practice related to maintain a safe environment with a mean score of ( $37.35 \pm 12.079$ ), initial care of burn wound, 15% ( $30.40 \pm 12.11$ ), procedure for changing dressing 20% ( $42.25 \pm 17.21$ ) and starting I.V. infusion represent 20 % with a mean score of ( $21.45 \pm 13.02$ ).

Most of the articles involved in this scoping review indicate that most participants had inadequate levels of practice regarding wound dressing except one study shows satisfactory level regarding wound dressing.

### Theme 3: Nurses' Attitudes towards Wound Dressing

Through the scoping review, only two articles were explored to evaluate wound-care attitude among nurses.

**Sub-theme: Positive nurses' attitudes towards wound dressing:** Two selected articles examining nurses' attitudes toward wound care and management report that the nurses positively responded to wound dressing change. One of these studies was done by Bilal et al. in 2018, and the result revealed that the participants had high knowledge (54.0%) with a positive attitude (85.6%) with a median score (38, range 21-48) regarding wound dressing. Most of the nurses prioritized ulcer prevention over treatment (85.6%), gave diabetic ulcer care a high clinical priority (92.8%), and considered it their responsibility to advise patients on avoiding re-ulceration (87.6%).

Another study conducted by Kumarasinghe et al. [15] and found that the participants had demonstrated a high knowledge level (57.8%) with an overall positive attitude towards caring for diabetic ulcer patients (median=41, range 23 -50 on a scale from 10-50). However, the study identified deficits in core knowledge and some negative attitudes such as insensitivity to pain. Although 98.6% of nurses were interested in wound care, only 8.3% wished to engage in research. No correlation was observed between nurses' knowledge and attitudes. Both studies recruited in this scoping review indicate that most participants had a positive attitude toward wound change practice.

## DISCUSSION

Fifteen articles involved in this scoping review provide an overview of the level of knowledge, attitude, and practices regarding wound dressing among nurses in different departments. Out of these fifteen articles, eleven articles assessed the level of wound dressing knowledge among nurses in different departments. There were three studies Kumarasinghe et al. [15]; Anjumol PS [8]; El-Sayed et al. [18] reported that the level of knowledge was high among the nurses. In the study done by Bilal et al., the study result may be due to several reasons: firstly, the questionnaire was derived and modified by the same authors. Secondly, the scoring system has divided the outcome into two main categories (good,  $\geq$  mean score for knowledge) and (poor, less mean score for knowledge). Only 54% of nurses' knowledge level showed they have adequate knowledge regarding diabetic wound dressing related to clinical and wound dressing experiences and receive wound dressing training. As a result, routine practices have been found to influence

nurses' clinical acumen and are not commonly updated. This redundancy in clinical practice can be attributed to the general lack of knowledge in the nursing workforce.

The other study that showed high level of knowledge was done in India by Anjumol PS [8]. The study was a comparison between the level of knowledge among nurse staff and nurse students. The result shows that staff nurses had an adequate level than student nurses due to clinical experience. Furthermore, in the other study done by Kumarasinghe et al. [15]. The high level of wound dressing knowledge was due to all participants having previous clinical experience in wound care. Also, a high score level referred to the nurse's self and health facilities knowledge updating activities. The last study showed a significant relationship between knowledge and clinical experience in the wound care department. While the fourth study was done in Egypt by El-Sayed et al. [18]. The study result show that majority of the nurses had a high score level relating to burned wound care knowledge, most of the study sample had satisfactory level of knowledge. The results also showed that three quarters of the study sample attended one or two seminars in infection control. From the researcher point of view this might be related to all nurses with a diploma degree.

In addition, there were four articles reported that the nurses had a moderate level of knowledge about wound dressing. Even though the diversity of wound types handled in these articles recruited from a different department, the participants obtained moderate knowledge level that found a significant association between level of knowledge and different reasons such as attended lecture or conference recently in last year, clinical training, using of wound care protocol for wound care evaluation, clinical experience, and educational level. On the other hand, three articles reported the poor wound dressing knowledge level among the nurses. Even though most of the nurses enrolled in the studies had clinical experience between one to ten years and a high level of education as BSN, nurses had fewer training programs in their work departments and lacked supervision from high authorities. That highlights the importance of increasing wound dressing knowledge level by providing designed evidence-based educational programs such as seminars, workshops, or short-course about wound care and management and reinforcing nurses' adherence to wound management protocols and policies.

Furthermore, six articles examine the nurse's practices about wound dressing, and the results indicate that most of the participants had an unsatisfactory level in wound care performance. This indicates that the majority of the participants were less than satisfactory and were not performing safe clinical practices in many wound categories.

Additionally, four studies out of six examined the nurse's practices in the general wound while the other two studies were for pressure ulcers and burn wounds. These articles were done in the surgical department, intensive care units, and emergency departments in various hospitals. According to the study aim and objective, these articles used different tools and observational checklist to assess the level of wound care practices among nurses developed by researchers, then modified according to hospital policy.

However, the findings indicate that the recommended level of most of the nurse's performance of wound care was above 85% according to the majority of the studies to ensure patient safety and optimal wound care, while the other of studies was 80% and



75%, one studies was 50% of correct answer was satisfactory. Also, there was a conflict in the relationship between nurses' practices and their educational level and clinical experiences that were found in the results of the studies that investigate the related factor affecting nurses' practice and to evaluate the relationship between practices/ level of qualification and experiences, according to a study done by Saleh et al. [14]; Khudhair [2]. Both articles indicate there is no association between nurses' practices and education while, on study done by Khudhair [2] show that, nurses who had pervious clinical experiences positively impact safe clinical practice regarding wound management. At the same time, other studies done by Najm [5]; El-Sayed et al. [18] found different relationships that indicate there is no association between nurse's performance and their educational background and their clinical experiences.

Moreover, four articles found that different factors negatively affect safe clinical practice regarding wound dressing among nurses in different hospitals. Saleh et al. [14] explored factors associated with pressure ulcer care in clinical practice; workplace was significantly associated with observed implementation ( $p = 0.001$ ), with higher implementation in military hospitals because their high standers in training programs while other hospitals had increase nurse's workload and lack of resources availability. Higher education was also significant for implementing dressing ( $p=0.005$ ). The number of beds in departments was significant for pressure ulcer care and prevention ( $p=0.001$  and  $p=0.018$ ), with units having fewer beds experiencing higher implementation than larger units in both cases. Also, Ba Mohammed et al. [2] explore the educational intervention's effectiveness and its impact on nurses' wound dressing performance. The nurses wound dressing performance was observed in three different phases pre, during, and post dressing. The result showed a significant difference in the dressing technique and optimal adherence to aseptic technique was found between nurses who attended he wound management course and those who did not participate in the course ( $p= 0.02$ ), that reflected the importance of training courses to improve the quality of care be achieved with active wound dressing practices.

In addition, Dhanasundari et al. [3] investigate the factors influencing the stander of practice followed in aseptic technique in surgical wound dressing among staff nurses. The result indicates nurse's practice was influenced by lack of time to aseptic preparation of equipment before the procedure, lack of time to do hand washing and documentation after the procedure and, unavailability of equipment as a bin to dispose of the soiled dressing. Some staff show negligence in following steps, reflecting the importance of continuous education and reinforcement of aseptic technique on surgical wound dressing among nurses to improve their practice.

## CONCLUSION

In conclusion, the findings demonstrate that the nurses' wound dressing knowledge was insufficient in various domains. This may explain the unsatisfactory level of nurses practice in wound dressing by most nurses as found through the results of all those studies that aim to understand the reasons behind unsatisfactory during practice. That despite the establishment of several training courses for nursing, the level of application is not satisfactory, which indicates the need to follow up the performance of nursing after receiving the educational process through courses and impose penalties for non-compliance with the proper application of procedures and make it part of the competency evaluation for nurses to make sure they are aware of this and the safety of the service provided to the patient. The finding also suggests that

updating the nurse's knowledge by frequent wound management courses and clinical training can have an appositive effect on safe wound dressing practice.

The level of wound dressing practices among the clinical nurses was insufficient, although the majority of the nurses who were enrolled in studies had clinical experience and attend training programs. In addition, the unsatisfaction of clinical practice of wound management explains why the most of participants are not performing standard dressing protocols due to the significant barriers for practicing the appropriate technique of wound dressing such as time-consuming procedure, heavy workload, lack of adequate staff to assist in dressing procedure and lack of sufficient supplies. Health professionals may also have an essential role in implementing and preventing practices to raise the optimal safe client-centred care of wound dressing among nurses.

## LIMITATIONS AND IMPLICATIONS

There is only one study found that was done in primary health care center when conducting the search under the research question (What are the nurse's knowledge and practices regarding wound dressing in primary health care centers?)

## RECOMMENDATION

Further research is required and more attention to identify and implement effective strategies to enhance wound dressing management knowledge in health professionals.

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#### Appendix 1: Quality scoring system.

Authors	Abstract	Introduction and Aims	Method and Data	Sampling	Data Analysis	Ethics and Bias	Findings/ Results	Transferability/ generalizability	Implications and Usefulness	Total
Arruda et al. [10]	4	4	4	4	4	2	4	1	2	33 good
Ghosh [12]	4	2	1	2	4	4	4	2	1	23 fair
Saleh [14]	4	4	4	4	4	4	4	1	3	32 good
Najm [5]	4	4	4	4	4	4	4	3	2	33 good
Bilal et al. [13]	4	4	4	4	4	4	4	4	2	34 good
Kumarasinghe [15]	4	4	4	4	4	4	4	3	2	33 good
BaMohammed et al. [2]	4	4	4	4	4	4	4	1	4	33 good
Dhanasundari et al. [3]	4	4	4	3	3	4	4	3	2	31 good
Khudhair [1]	4	4	4	3	4	1	4	3	4	31 good
Asiye Gul [17]	4	4	4	4	4	4	4	1	3	32 good
Ogunfowokan [16]	4	4	4	3	4	4	4	3	3	33 good
Faria [11]	3	3	4	3	4	2	4	2	2	23 fair
Anjumol [8]	4	4	4	3	3	4	4	1	2	29 good
Margareat Thatcher [9]	4	4	4	4	4	1	4	1	2	28 good
El-Sayed [18]	4	4	4	4	4	4	4	3	3	34 good

\*Poor (9- 18 points), Fair (19-27 points) and Good (28-36points).

**Appendix 2:** Data extraction table/review matrix.

<b>(Author/s, year of publication Country of Study</b>	<b>Study objective/Aim</b>	<b>Study Design</b>	<b>Total Sample</b>	<b>Type of Wound</b>	<b>Clinical Setting</b>	<b>Tool used in the Study</b>	<b>Key Finding</b>	<b>Recommendations</b>
Arruda et al. Nurse's knowledge about caring for diabetic foot (2019) Brazil	To understand nurses' knowledge about diabetic foot care in Primary Care.	Quantitative, descriptive, cross-sectional study	90 nurses	Diabetic foot wound	Family Health Strategy / FHS, in the municipality of Teresina-PI, Northeast Brazil	Semi structured questionnaire addressed socioeconomic data, professional profile and knowledge about the prevention of diabetic foot.	<p>-It was observed that no nurse had satisfactory knowledge for the prevention of diabetic foot and, regarding the self-assessment of knowledge, 48.9% of nurses considered it regular. It was found, when analysing the items on the prevention of diabetic foot, better performance for monofilament and neuropathic foot, with lower performance for physical examination; regarding the classification of knowledge, the professionals presented unsatisfactory (45.6%) and conflicting (54.4%) knowledge.</p> <p>-Result show that no nurses had satisfactory knowledge for the prevention of diabetic foot care and regarding the self-assessment of knowledge.</p> <p>-Low performance for items about physical examination of foot.</p>	Highlighting the need to update professionals for educational practices regarding the assessment of feet.

<p>Ghosh, Nida, &amp; Yadav A Study to Assess the Knowledge on Decubitus Ulcer and its Management among the Staff Nurses in Selected Tertiary Care Hospital of Moradabad, Uttar Pradesh: A Original Study (2019) Pakistan</p>	<p>To assess the Knowledge regarding Decubitus Ulcer and its management among the staff Nurses and also to find out the association between the Knowledge regarding Decubitus Ulcer and its management with selected demographic variables.</p>	<p>Descriptive survey design.</p>	<p>60 nurses</p>	<p>PU</p>	<p>Tertiary care hospital</p>	<p>Questioners consist of 3 parts: -Professional profile. -Level of knowledge of nurses regarding -Decubitus Ulcer and its management. -Association between level of knowledge on Decubitus Ulcer and its management with selected demographic variable among staff nurses</p>	<p>-Majority of men participated in the study, 38 (63.3%) were Male, 51 (85%) belongs to 20-29 years, 36 (60%) are did a diploma in Nursing, 40 (66.7%) are trained about Decubitus Ulcer during In-service training, 30 (50%) had no previous knowledge, 26 (43.3%) are having 2-5 years and 31 (51.7%) are working in a general ward. -Majority, 24 (40%) staff Nurse is having good knowledge on Decubitus Ulcer, 16 (26.7%) are having average knowledge, 13 (21.7%) poor knowledge and 7 (11.7%) are having excellent knowledge. -The association of demographic characteristic of staff Nurse level of knowledge. It shows that there is a significant association for level of education and area of work with level of knowledge on Decubitus Ulcer hence, the null hypothesis is rejected and the research hypothesis is accepted.</p>
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<p>Saleh, apanikolaou, Nassar, Shahin, &amp; Anthony Nurses' knowledge and practice of pressure ulcer prevention and treatment: An observational study (2019) Jordan</p>	<p>To assess:                  - Nurses' knowledge of pressure ulcer prevention and treatment.                  - Frequency of observed implementation of pressure ulcer prevention and treatment in clinical practice. -Factors influencing nurses' implementation of pressure ulcer prevention and treatment interventions.</p>	<p>A correlational study, self-reported cross-sectional survey.</p>	<p>377 nurses and 318 patients</p>	<p>PU</p>	<p>Medical surgical &amp; critical care units in 11 hospitals.</p>	<p>Questioners consist of:                  -Nurse demographics and professional characteristics.                  -Patients' demographics.                  -Nurses 'knowledge and implementation of PU prevention and treatment.                  -Observed PU prevention and treatment.</p>	<p>Results showed less than satisfactory knowledge on PU prevention and treatment (74.5% and 72.6% respectively, where we would hope to have at least 80%) and very inadequate implementation of PU prevention and treatment (49.2% and 44.9%, respectively). - Institution was significantly associated with observed prevention and treatment interventions (<math>p=0.001</math>), with the military hospital having higher implementation than governmental, university, or private hospitals in both cases. Type of clinical unit, namely critical care, was significant for observed prevention (<math>p=0.007</math>), but not significant for observed treatment. - Linear regression used observed prevention as the dependent variable. Independent variables included institution, type of clinical unit, number of beds in unit, and knowledge about PU prevention, all were significant under univariate analysis. All categorical independent variables were dummy coded, except for knowledge of prevention. This gave significant negative beta values for the type of institution (university and private hospitals) and significant positive association for the number of beds in unit (10-20 beds). - For observed treatment (Table 7), linear regression used observed treatment as dependent and independent variables were those significant under univariate analysis-institution, higher education, using RAS, number of beds in unit, and knowledge about PU treatment. All independent variables were dummy coded, except for treatment knowledge. This gave significant negative beta values for institution (governmental and private hospitals) and also for number of beds in unit (&gt;50 beds).</p>
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<p>Najm &amp; Hussein Assessment of wound dressing practices among nurses at the emergency hospitals in Erbil city (2018) Iraq</p>	<p>To assess nurses' practices regarding wound dressing, describe the demographic characteristics of the nurses who worked in emergency reception such as (age, gender, level of education, year of experience participation in training on wound dressing) and find out the relationship between nurses' practices and their demographic characteristics.</p>	<p>Quantitative, descriptive study design</p>	<p>64 nurses</p>	<p>General wound</p>	<p>ER departments in East Emergency and West Emergency Hospitals, Emergency management centre in Erbil City</p>	<p>Questionnaire consisted of two parts. Part I: Demographic characteristics included 7 variables (age, gender, levels of education, duration of experience in wound dressing, participation in training session and hospitals setting). Part II: included observational checklist a questionnaire was constructed and modified by the researchers which consist of 24 items based on Louis Mosby skills checklist for wound dressing.</p>	<p>-Shows that the highest percentage of nurses (48.4%) were had less than 30 years old; 60.9% of them were males, most of them (82.8%) were having diploma in nursing, with (62.5%) of the nurses within less than five years of experience and about 68.8% of them did not participate in training regarding wound dressing practice majority of nurses (68.8%) were from Rozhawa Emergency Hospital.</p> <p>-Show that the lower grand mean scores of wound dressing practice were with discard wound dressing supply 0.79 items and preparation and assessment items 0.99. Wound irrigation and dressing items had higher grand mean score than overall wound dressing practice with grand mean scores (1.61 and 1.32 respectively). Table 3 shows that there was no significant association between wound dressing practice and nurses 'demographic characteristics like age, gender, educational level, years of experience and training participation with <math>P = 0.51, 0.609, 0.54, 0.21</math> and <math>0.78</math>, respectively. There was a significant association between the wound dressing practice and hospital setting of nurses with <math>P = 0.005</math>. All nurses in emergency management centre were had above median score on wound dressing practice.</p> <p>-Nurses practice showed that the higher percentage 65.6% of nurses have had a medium score of wound dressing practice; while the lower percentage 34.4% of them with high score of wound dressing practice.</p>	<p>The study recommends that standards infection control should be practiced by nurses and developing their skills during opening special training session concerning wound dressing and standards infection control in emergency wards.</p>
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<p>Bilal et al. Knowledge, Attitudes, and Practices Among Nurses in Pakistan Towards Diabetic Foot (2018) Pakistan</p>	<p>To evaluate the knowledge, attitudes, and practices of nurses towards the diabetic foot, at the tertiary care hospitals in Karachi.</p>	<p>cross-sectional study design</p>	<p>250 nurses</p>	<p>Diabetic foot wound</p>	<p>Two tertiary care hospitals in Karachi, Pakistan</p>	<p>The questionnaire, based on three sections: - Socio demographics, personal and occupational data of nurses - Second section of the study tool was to gauge the level of knowledge possessed by nurses about diabetic foot ulcers and their management. The multiple-choice format. - Third section about attitudes of nurses in relation to diabetic foot care.</p>	<p>- Only 54% of the nurses in our study possessed adequate knowledge of diabetic foot ulcers. The mean score of knowledge was 74.9 (±9.5). Macdonald's standard criteria for learning outcomes was used to gauge the knowledge levels of our study population. Nurses performed best in the domain of ulcer care with 65.3% of the participants possessing good knowledge of the topic. The overall attitude of nurses towards patients with diabetic ulcers was positive.</p>	<p>A comprehensive educational program focusing on evidence-based practice is necessary to ensure positive attitudes and better clinical practices. Evidence-based clinical practice relies heavily on research. Nurses should be made aware of the importance of research in their clinical practice and be provided with opportunities to partake in research activities.</p>
<p>Kumarasinghe, Hettiarachchi, &amp; Wasalathanthri Nurses' knowledge on diabetic foot ulcer disease and their attitudes towards patients (2017) Sri Lanka</p>	<p>To assess nurses' knowledge on diabetic ulcer disease and their attitudes towards patients suffering from it and to identify factors which influence them.</p>	<p>Descriptive cross-sectional survey design</p>	<p>200 nurses</p>	<p>Diabetic foot wound</p>	<p>Surgical wards and dressing rooms of Out Patient Departments (OPD)  From 3 teaching hospitals</p>	<p>Self-administered questionnaire which included three sections: First section consists of socio-demographic data. -Second section of the questionnaire assessing the knowledge of nurses on diabetic ulcer disease comprised of 15 multiple choice questions (MCQs) -Third section was formulated to assess nurses' attitudes towards diabetic ulcer care consisted of 10 questions.</p>	<p>Result show lack of formal wound care training was reported by 91.2 %. Mean knowledge score was 77.9 (range 53.3-100 on a scale from 0-100) with 57.8% of nurses obtaining ≥ 80%. Nurses demonstrated an overall positive attitude towards caring for diabetic ulcer patients (median=41, range 23-50 on a scale from 10-50). However, the study identified deficits in core knowledge and some negative attitudes such as insensitivity to pain. Statistically significant associations were seen between nurses' knowledge and duration of nursing, wound care experience, and the type of unit they are attached to. In-service education (77.2%) and knowledge sharing with peers (77.9%) were the most popular knowledge updating sources. Although 98.6% of nurses were interested in wound care, only 8.3% wished to engage in research. No correlation was observed between nurses' knowledge and attitudes.</p>	<p>Continuous professional development, evidence-based practices and wound care research should be encouraged.</p>



BaMohammed, Mohidin, George, & Al-Aidarous An Observational Study on Wound Dressing Performance among Nurses in Adult Units (2018) Saudi Arabia	To explore nurses' wound dressing performance. It also aims to evaluate the effectiveness of the wound management course and its impact on nurses' performance.	Cross-sectional observational study	41 nurses	General wound	Adult general care and critical care settings in KAUH	Questionnaire comprised two parts: -Questions that elicit respondents' biographic data -Checklist on wound dressing performance for before, during and after the procedure.	The result shows the sample included 41 nurses. Of these, 20 (48.8%) had attended a wound management course. The mean score for nurses' adherence to correct wound management techniques was 77.6%. Compliance was lower in the pre-phase, confirming the dressing order: $n=27$ (66.7%), conducting client verification $n=29$ (71.8%), and explaining the procedures to the client $N=24$ (59%). Compliance was higher during the performance phase ( $n=36$ ; 90%). However, the least compliance was shown in the post-phase in the area of educating patients and family by only 33.3% ( $n=13$ ). The chi-square test disclosed a significant difference in dressing done with completely aseptic techniques among participants who attended the wound management course ( $p=0.02$ ).	The educational course on wound management is beneficial to nurses; however, an advanced educational course that focuses on holistic care is recommended. In addition, wound care guidelines should be modified to include pre-, intra- and post-dressing practices. Further research is suggested to study in depth the correlation between attitude and performance.
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<p>Dhanasundari, Malarvizhi, Samson, Amirtha, &amp; Ravichandran The Practice of Aseptic Wound Dressing By Health Care Professionals (2018) India</p>	<p>To assess the practice of aseptic techniques on surgical wound dressing among medical interns and staff nurses. 2. To identify the factors influencing the standard of practice followed in aseptic techniques on surgical wound dressing among medical interns and staff nurses.</p>	<p>Descriptive design</p>	<p>15 medical interns and 15 staff nurses</p>	<p>General wound</p>	<p>General surgical wards In tertiary care teaching hospital at Pondicherry</p>	<p>Instruments used: There are 4 types of tools used in this study and they are as follows: -Tool I -Observational Checklist for aseptic techniques on surgical wound dressing by Medical Interns. -Tool II -Observational Checklist for aseptic techniques on surgical wound dressing by Staff Nurses. -Tool III - Self-administered questionnaire for medical interns -Tool IV- Self-administered questionnaire for staff nurses.</p>	<p>According to the level of practice on surgical wound dressing by following aseptic techniques, 13 (87%) of the medical interns followed moderately adequate practice and among staff nurses nine (60%) of them followed moderately adequate and six (40%) of the participants followed adequate practice. By implementing surgical wound dressing checklist in respective wards, the surgical wound infection can be prevented and also the health care professionals will have better practice related to surgical wound dressing.</p>	<p>There is a need for continuous education and reinforcement of aseptic techniques on surgical wound dressing among health care professionals to improve their practice.</p>
<p>Khudhair Nurses Practice Concerning Postoperative Clean Wound Dressing (2018) Iraq</p>	<p>To assess nurse's practice concerning postoperative wound care, and to identifying the relationship between nurse's practice and their demographic characteristic.</p>	<p>Descriptive study</p>	<p>25 nurses</p>	<p>General wound</p>	<p>Surgical wards in AL-Sader Teaching Hospital</p>	<p>Questionnaire format was used for data collection, which consisted of (2) parts -Socio-demographic data. -The second part of the questionnaire was comprised (19) items that concerned with nurses practice relative postoperative clean wound care.</p>	<p>The majority of the nurses were males (60%), with age group (25-29) years old (28%), nursing institute graduate (48%), the majority of nurses have than less (1-5) years of experience (44%).-The result indicated that there were no significant associations between the nurse's gender, age, level of education and their practice. -There were significant associations between the nurse's years of experience and their practice. -The results demonstrated a practice deficit in the most items of post-operative clean wound care for patient in surgical units.</p>	<p>Special training sessions should be designed and presented to these nurses, developing assessment sheet for skills and daily nursing note for post-operative wound care.</p>

<p>Asiye Gul &amp; Isik, A Descriptive, Cross-sectional Survey of Turkish Nurses' Knowledge of Pressure Ulcer Risk, Prevention, and Staging (2017) Turkey</p>	<p>To evaluate Turkish nurses' knowledge of PUs regarding prevention/risk, staging, and wound description among hospitalized patients.</p>	<p>Descriptive cross-sectional survey design</p>	<p>308 nurses</p>	<p>PU</p>	<p>Acute care unit in research and training hospital</p>	<p>Questionnaires consist of two parts: -Demographic characteristics. -Modified Pieper Pressure Ulcer knowledge Test (PUKT). 49-item (33 prevention/risk assessment items, 9 PU staging items, and 7 wound description items), who reported that scores &gt;70% corresponded to a satisfactory knowledge level and scores &gt;80% and 90% indicated knowledge levels were good and very good, respectively.</p>	<p>- Among the 308 participating nurses (mean age 29.5 ± 8.1 [range 19–56] years) most were women (257, 83.4%) with 7.3 ± 7.8 (range 1–36) years of experience. The mean knowledge score for the entire sample was 29.7 ± 6.7 (range 8–42). The overall percentage of correct answers was 60.6% to 61.8% for PU prevention/risk assessment, 60% for wound description, and 56.6% for PU staging. Knowledge scores were significantly (<math>P &lt; .05</math>) higher for participants who attended at least 1 lecture/conference/course on PUs in the last year, read articles/books about PUs, cared for patients with PUs, or believed their patients were at risk for PU development. Most participants (180, 58.4%) scored 60% or more correct; 8 (2.6%) correctly answered 80% or more of the items. The lowest number of correct answers was for the item, "Bunny boots and gel pads relieve pressure on the heels" (22, 7.1%).</p>	<p>Study suggest education and experience caring for patients who are at risk for or have a PU affect nurses' knowledge. This study, and additional research examining nurse knowledge, will help the development of much-needed education programs</p>
<p>Ogunfowokan, Adereti, Daramola, &amp; Famakinwa Clinical nurses' knowledge and perception of modern wound dressing in a teaching hospital in Nigeria (2016) Nigeria</p>	<p>To assess clinical nurses' knowledge and perception of modern wound dressing, and to identify the influence of knowledge on the perception of the nurses as well as the influence of socio-demographic variables on their knowledge.</p>	<p>cross-sectional descriptive design</p>	<p>183 nurses</p>	<p>General wound Dressing</p>	<p>Tertiary teaching hospital in medical and surgical units</p>	<p>Self-developed questionnaire The first section in the questionnaire elicited the participants' demographic variables. The second section (16 items) elicited information on the participants' knowledge of MWD, and the third section (13 items) explored perceptions of MWD. The last item is an open format question that identified the perceived factors influencing the implementation of MWD in the study setting.</p>	<p>Results showed that a high percentage had poor knowledge (60.1%) and a positive perception of MWD (80.9%). The knowledge of the nurses did not influence their perception significantly – none of the socio-demographic variables tested significantly influenced their knowledge (<math>p \geq 0.05</math>). The factor most commonly reported as hindering the implementation of MWD techniques was 'non-availability of MWD materials' (34.3%).</p>	<p>-It is recommended that hospital managers organize intensive training programs for clinical nurses as an ongoing component of the staff development processes to improve their knowledge of wound dressing. -There should also be an adequate supply of wound dressing materials for the effective implementation of Wound dressing techniques and the improved health of patients.</p>



<p>Faria GBG de. et al. Knowledge and practice of nurses on the care of wounds (2016) Brazil</p>	<p>To assess the knowledge of nurses on the evaluation and treatment of wounds and describe the clinical practice in the care of wounds.</p>	<p>Descriptive cross-sectional study</p>	<p>55 nurses</p>	<p>General wound Dressing</p>	<p>University hospital in adult unit</p>	<p>Questioner consists of two parts. In the first part, the issues relate to the socio-demographic data of professionals and update sources on the subject. In the second part, it covered general information about the knowledge and practice of nurses in the care of patients with wounds, totalling 24 items.</p>	<p>Result showed 92.7% had regular or inadequate knowledge on the subject. Most, 67.3% reported not having obtained sufficient knowledge at graduation on wound care. Conclusion: the majority of nurses present levels of knowledge lower than desired in relation to wound care.</p>	<p>The distinguish the professional setting of their knowledge and rethink their practice, contributing to an educational strategic planning aimed at a plan of action for the use of recommendations focused on evidence based practice.</p>
<p>Anjumol. P.S Knowledge regarding surgical wound dressing among staff nurses and nursing students in NMCH, Nellore (2016) India</p>	<p>To assess the knowledge and comparisons regarding surgical wound dressing among staff nurses and nursing students in NMCH, Nellore.</p>	<p>Quantitative, descriptive research design</p>	<p>30 samples, 15 were staff nurses and 15 were nursing students.</p>	<p>General wound</p>	<p>Surgical department in Narayana medical college hospital</p>	<p>Semi structured questionnaire consists of two parts: -Deals with demographic variables -Deals with Semi structured questionnaire was used to assess the knowledge on surgical wound dressing among Staff nurses and nursing students' nurses .it consist of 45 multiple choice questions.</p>	<p>- Level of Knowledge Regarding Surgical Wound Dressing among Staff Nurses and nursing students. Shows that comparison of level of knowledge of staff nurses and nursing students, 2(13.3%) are having inadequate knowledge, 5(33.3%) are having moderately adequate knowledge, 8(53.4%) are having adequate knowledge regarding surgical wound dressing among staff nurses. 6(40%) having inadequate knowledge, 7(46.7%) are having moderately adequate knowledge and 2(13.3%) are having adequate knowledge regarding surgical wound dressing among student nurses. - Comparison of level of knowledge shows Association between the level of knowledge regarding surgical wound dressing among Nursing students with their selected socio demographic variables. -There is no significant association between level of knowledge and socio demographic variable of staff nurses like age, gender, education qualification, years of experience, source of information and CNE programme attended. -There is significant association between level of knowledge and socio demographic variable of age of student nurses.</p>	<p>A similar study can be replicated on a large sample to generalize the findings.</p>

Margareat Thatcher & Hemavathy Aseptic Wound Dressing Practices among Nurses (2015) India	<p>To determine the existing knowledge the staff nurses on aseptic wound dressing practices.</p> <p>-Develop and administer a self-instructional module on aseptic wound dressing practices.</p> <p>-Evaluate the effectiveness of self-instructional module on aseptic wound dressing for the staff nurses as measured by same structured questionnaire in terms of gain in knowledge.</p>	Multistage random sampling	100 nurses	General wound	Sree Balaji Hospital	<p>Close-ended structured knowledge questionnaire consist of 3 parts: -Concept on principles and preparation of patient on aseptic wound dressing practice. -Aseptic technique during the procedure. -Aseptic technique to be follow after the procedure.</p>	<p>-The level of knowledge of staff nurses regarding aseptic wound dressing practices revealed that highest percentage (70%) of the respondent had average knowledge and their scores ranged between 10-19. 19% of the subjects had good knowledge and 11% of the respondents had poor level of knowledge, with scores ranging between zero and nine. -The total mean percentage of the score was 53.03% with 15.38 + 2.415 as mean + SD of the total score in the area "concept on principles and preparation of patient on aseptic wound dressing practice" the area-wise mean percentage was 62.5% with mean+ SD of procedure" the area-wise mean percentage was 53.07% with mean + SD 7.43 + 1.559. Area-wise mean percentage of knowledge score was 49.17 in the area "aseptic technique to be followed after the procedure, with mean + SD of the knowledge scores as 2.95 + 0.936. the above findings revealed that the staff nurses had average knowledge regarding aseptic wound dressing practices.</p>
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<p>El-Sayed, Gooma, &amp; Abdel-Aziz Nurses' Knowledge and Practice for Prevention of Infection in Burn Unit at a University Hospital: Suggested Nursing Guidelines (2015) Egypt</p>	<p>To assess nurses' knowledge and practice for prevention of infection in burn unit at a University Hospital, as well as to suggest nursing guidelines according to study results.</p>	<p>Descriptive explanatory research design.</p>	<p>20 nurses</p>	<p>Burn</p>	<p>Burn unit at El Manial University Hospital, Cairo -Egypt</p>	<p>Two tools were used in this study for data collection:                  -Knowledge assessment sheet was divided into two parts;                  -First part: covered the nurses' sample demographic characteristics                  -The second part: covered questions related to nurses' knowledge and included 65 questions -An observational checklist, it was designed for the purpose of assessing nurses' practice in burn unit.</p>	<p>Results of the study will be presented into two parts:                  -Part 1: represent demographic characteristics of the study sample. Findings revealed that all the study sample were females with a diploma degree and with a mean age of (<math>X \pm SD</math> 36.60 <math>\pm</math> 7.53), 40% of them have 10-20 years of experience; followed by 35% with less than 10 years of experience, while 25% have more than 20 years of experience (<math>X \pm SD = 14.84 \pm 6.954</math>). The results also showed that 75% of the study sample attended one or two seminars in infection control, while only 5% of them attended more than two seminars in the area of infection control; on the other hand, 25% did not attend any seminars.                  -Part 2: Represents nurses' knowledge and practice for prevention of infection in burn unit: The findings pointed up that most of the study sample (80%) had satisfactory level of knowledge (<math>\geq 75\%</math>) with a total mean score (<math>45.10 \pm 10.11</math>). According to definition of infection, cause, source and mode of transmission the majority of the study subjects (80%, 90%, 90% and 65%) had satisfactory level of knowledge with a subtotal mean score of (<math>2.10 \pm .718</math>, <math>5.45 \pm 1.14</math>, <math>2.35 \pm .670</math> and <math>2.65 \pm 1.14</math>) respectively and a total mean score (<math>12.55 \pm 2.83</math>)</p>	<p>Written guidelines and infection control manual should be available in burn units to be known for all health team members particularly nurses. An in-service training / continuing education must be stressed and provided for nurses working in such critical area of speciality. Also, periodic estimation of infection rate and type of infection should be done in critically ill units such as burn units.</p>
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