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Nurses' Knowledge, Attitudes and Barriers Towards Prevention of Pressure Ulcers in Critical Care Units

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Abstract

Background: Pressure ulcer occur when the force exerted on a specific area of the body exceeds the pressure that the capillaries in that area can handle. In some cases, even a relatively small amount of pressure can be enough to impede blood flow and reduce the delivery of oxygen to the surrounding tissues. This can lead to the development of a pressure ulcer in as little as two to six hours, particularly in patients who are seriously ill. **Aims of the study:** To assess knowledge, attitudes, and barriers among critical-care nurses on pressure ulcer prevention according to evidence-based guidelines **Methodology:** A descriptive cross-sectional quantitative design has been used in the current study The study has been carried out between the 1st of November 2022 and the 1st of June 2023 to the assessment of nurses' knowledge attitude and barriers toward pressure ulcers in critical care units at Al Najaf hospitals. A non-probability (purposive) sampling has been performed during a selection of (130) nurses who works at the intensive care unit The researcher used The researcher used self-administrated questionnaire used to assess nurses' level of knowledge regarding pressure ulcer prevention it included (30) items. The characteristics of the subjects under study included age, gender, level of education, years of experience, Education program on pressure ulcer prevention and Specific guideline regarding pressure ulcers. The attitudes and barriers questionnaire used the 5 points Likert's scale model, however, the scoring system is not much different than the 3 points scales but the higher scores given to the more positive attitudes and high barriers. **Results:** The results of this study revealed that were significant differences in nursing staff' attitudes between the (age, educational level, and years of experience as a nurse). the overall level of knowledge of nurses about pressure ulcer prevention is fair level 66.9 % with mean of score (0.38) there are positive attitude among nurses about pressure ulcer toward their pressure ulcer prevention, with mean of score (3.42 >2.5). 98.5 % of nurses have positive attitudes. that the overall level of barriers of nurses about pressure ulcer prevention is high level 94.6 % with mean of score (3.6038). **Conclusion:** The majority of ICUs nursing staff' have fair knowledge, positive attitudes and high barriers regarding pressure ulcer prevention when assessed at the statistical analysis. **Recommendations:** The study recommended providing an interventional and education program periodically to the nursing staff' who working at ICUs in order to enhance their knowledge and attitudes regarding PU prevention.

Keywords: evidence-based guidelines ICUs nursing, Al Najaf hospitals

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Introduction

Nurses play an important role in providing effective and quality nursing care for patients with various health condition. Patients who admitted to the hospital need not only cure from such a disease but also prevent complications as a result of admitting reason. Moreover, patients who need to be in the critical care units usually suffer from skin complications as a consequence of prolonged bedtime. However, pressure ulcers, also known as bedsores, are a type of injury that occurs when pressure is applied to the skin and underlying tissues for extended periods of time. They commonly occur in patients who are bedridden, immobile, or have limited mobility, and are at risk of developing pressure ulcers on bony prominences such as the heels, hips, and sacrum. The impact of pressure ulcers on patient morbidity and mortality is significant. In addition to causing pain and discomfort, pressure ulcers can lead to serious complications such as infections, sepsis, and even death. Patients with pressure ulcers are also at increased risk of malnutrition, which can further compromise their health. ¹

Prevention of pressure ulcers is key to reducing their impact on patients and the healthcare system. Strategies for prevention include regular repositioning of patients, use of pressure-relieving devices such as cushions and mattresses, and maintaining good skin hygiene. Healthcare professionals should also be trained in the identification and management of pressure ulcers to ensure timely and appropriate care ².

The skin is the largest organ in the human body and is continuous with the mucous membranes that line the body surface. It is comprised of three layers: the epidermis, dermis, and subcutaneous tissue. While bacteria, fungi, viruses, and parasites can act as normal microbiota, they can also cause skin diseases and injuries. One prevalent skin-related disease is pressure ulcers (PUs), also known as bedsores, decubitus ulcers, and pressure injuries. These ulcers can result in microbial contamination and are a major problem for hospital patients. PUs are characterized by degenerative changes in the skin and subcutaneous tissue, which occur when an area of skin and the tissues below are damaged due to pressure that impairs blood supply. PUs typically develop on bony body areas such as the heels, ankles, hips, back of the head or its sides, and tailbones. Symptoms of PUs include changes in skin color or texture, swelling, pus-like drainage, and a skin area that feels warmer or fresher to the touch than other areas. The primary factors that lead to PUs are pressure, friction, and shear. Risk factors for PUs include immobility, lack of sensory perception, poor nutrition and hydration, medical conditions that affect blood flow, age, low tissue oxygen tension, and moisture ³.

The incidence of pressure ulcers and the recovery of patients can be influenced by the critical care nurses' knowledge regarding the causes, staging, and prevention of these ulcers. Therefore, in order to minimize the occurrence of pressure ulcers in critically ill patients, it is crucial for nursing staff to have the ability to accurately assess and predict the risk of developing pressure ulcers, stage them appropriately, and apply the necessary interventions ⁴.

Medical professionals have long recognized that preventing pressure ulcers involves a series of assessments and interventions. Risk Assessment Scales (RASs) are tools that assign a point score based on various parameters that are known risk factors for developing PUs. These scales are designed to identify patients who are at risk of developing PUs, enabling healthcare providers to implement targeted intervention measures to minimize the occurrence of these injuries. By using a risk assessment scale, nurses can identify patients who are at risk of developing pressure injuries and take appropriate measures to prevent them ⁵.

Critically ill patients in the ICU are at a heightened risk of developing pressure ulcers due to factors such as anesthesia and artificial respiration, which can cause immobility and prolonged pressure on certain areas of the body. This, along with other medical conditions, can lead to the formation of bed sores. Identifying and addressing risk factors is crucial for effective prevention and resource management.⁶

To prevent pressure ulcers in critically ill patients, healthcare providers should frequently adjust patients' positions, use specialized devices, and maintain good hygiene and skin care. Other risk factors for pressure ulcers include age, malnutrition, incontinence, and poor circulation. Preventing pressure ulcers not only improves patient outcomes but also optimizes healthcare resources in the ICU. Assessing patients' risk for pressure ulcers and involving a multidisciplinary team in prevention and management, including nurses, physicians, and wound care specialists, are also important.⁷

AIMS OF THE STUDY

To assess knowledge, attitudes, and barriers among critical-care nurses on pressure ulcer prevention according to evidence-based guidelines and to find out the association between critical-care nurses' attitudes, knowledge, and barriers with their demographical variables (age, level of education, years of experience in intensive care unit, and participation in training courses).

METHODOLOGY:

A descriptive cross-sectional quantitative design has been used in the current study. The study has been carried out between the 1st of November 2022 and the 1st of June 2023 to the assessment of nurses' knowledge attitude and barriers toward pressure ulcers in critical care units at Al Najaf hospitals. A non-probability (purposive) sampling has been performed during a selection of (130) nurses who works at the intensive care unit The researcher used The researcher used self-administrated questionnaire used to assess nurses' level of knowledge regarding pressure ulcer prevention it included (30) items. The characteristics of the subjects under study included age, gender, level of education, years of experience, Education program on pressure ulcer prevention and Specific guideline regarding pressure ulcers. The attitudes and barriers questionnaire used the 5 points Likert's scale model, however, the scoring system is not much different than the 3 points scales but the higher scores given to the more positive attitudes and high barriers.

RESULTS:**Table (1):** Distribution of the participants (Study sample) according to their Demographic Characteristics

Demographic Data	Rating and Intervals	Frequency	Percent
Age / Years	<= 29	109	83.8
	30 – 39	13	10
	40 – 49	7	5.4
	50 – 59	1	0.8
	Total	130	100.0
Gender	Male	67	51.5
	Female	63	48.5
	Total	130	100.0
Levels of Education	Secondary School	Nursing 15	11.5
	Diploma	41	31.5
	Bachelor	67	51.5
	Master	7	5.4
	Total	130	100.0
Years of Experience as a Nurse	1-5	99	76.2
	6 – 10	18	13.8
	11 – 15	4	3.1
	16 – 20	5	3.8
	21+	4	3.1
	Total	130	100.0
Years of Experience in Critical Care Unit	1-5	122	93.8
	6 – 10	5	3.8
	11 – 15	3	2.3
	Total	130	100.0
Education Program on Pressure Ulcer Prevention?	Yes	35	26.9
	No	95	73.1
	Total	130	100.0
Specific Guideline Regarding Pressure Ulcers?	Yes	70	53.8
	No	60	46.2
	Total	130	100.0

Table (4-1) demonstrate the frequency count for selected demographic data of the study sample relative to intensive care unit nursing staff, the study results showed that the predominant age group of nursing staff was within less than or equal twenty-nine years old (29; 83%). Regarding participants' gender, (67; 51%) of the sample is male. Additionally, (67; 51 %) have a bachelor's degree. Furthermore, the highest percentage (99; 76%) and (122; 93%) concerning participant's years of experience in the nursing field and years of experience in ICU respectively have less than or equal five years. Also, the majority (95; 73%) of nurses had not participated in training courses

regarding pressure ulcer prevention, and the minority (70; 53%) they follow specific guideline regarding pressure ulcers.

Table (4.2) Assessment of Nurses’ Knowledge

Nurses’ Knowledge Levels	Frequency	Percent	Overall Mean
Low	42	32.3	.3800
Fair	87	66.9	
Good	1	.8	
Total	130	100.0	

Low knowledge (mean 0-0.33), fair knowledge (mean 0.34=0.67), good knowledge (mean 0.78-1)

Table (4-2) demonstrates the knowledge level for the majority of intensive care unit nursing staff concerning all pressure ulcer prevention domains (A etiology, classification and observation, risk assessment, nutrition, prevention of pressure ulcers, specific patient groups,) This table shows that the overall level of Knowledge of Nurses about pressure ulcer prevention is **Fair level 66.9 %** with mean of score (0.38), while (32.3%) of nurses had low level of knowledge and (0.8%) possessed good level of knowledge about pressure ulcer prevention.

Table (4.3) Assessment of Nurses’ Attitudes

Types of Nurses’ Attitudes	Frequency	Percent	Overall Mean
Negative Attitudes	2	1.5	3.4294
Positive Attitudes	128	98.5	
Total	130	100.0	

Negative attitudes (mean 1-2.5), positive attitudes (mean more than 2.5)

This table reveals that there are positive Attitude among Nurses about pressure ulcer toward their pressure ulcer prevention, with mean of score (3.42 >2.5). 98.5 % of Nurses have positive attitudes.

Table (4.4) Assessment of Nurses' barriers

Levels of Barriers	Frequency	Percent	Overall Mean
Low	3	2.3	3.6038
Moderate	4	3.1	
High	123	94.6	
Total	130	100.0	

Low barriers (mean 1-2.33), moderate barriers (mean 2.34-3.67), high barriers (3.68-5)

This table shows that the overall level of barriers of Nurses about pressure ulcer prevention is high level 94.6 % with mean of score (3.6038), while (3.1%) of nurses had moderate level of barriers and (2.3%) possessed low level of barriers about pressure ulcer prevention.

DISCUSSION

Pressure ulcer (PU) arises with a lengthy hospital stay and therefore a financial burden on the health care system, patients, and family; PU also contribute to the mortality and psychosocial effects. Although PU prevention remains a challenge for all healthcare practitioners, it is specifically the task of nurses to maintain skin integrity and PU prevention that results in PU avoidance.

In this study, the demographic characteristics discussed are included age, gender, level of educational or qualification, total experience as a nurse, total experience in critical units, education program on pressure ulcer prevention and specific guideline regarding pressure ulcers?

The results showed that there is none statistical significant correlation between nurses' knowledge with their demographic characteristics at (p value > 0.05). This result is identical with the study achieved by ⁸

Through the data analysis distribution of demographic variables, the percentage distribution of participants according to their age groups of this study reveal that the most ($n=109$; 83.8%) nurses were within thirty years for the study sample as shown in (Table 4.1); this indicates that the majority of nurses is from the youth category, and this might be due to almost of nurses were newly graduates.

These results are concordant with a study conducted by ⁹ at the ICU in Iran, which revealed that the highest percentage ($n=55$; 61.80%) of participants was within thirty years. Moreover, these finding was consistent with the study performed in Oman by ¹⁰ the result of this study revealed that the highest percentage ($n=229$; 56.3%) of participants was within thirty years. Also, these findings agreed with the study carried out by ¹¹ at Gondar University Hospital in Africa, which revealed the majority ($n=206$; 83.1%) of participants were the same results of this study.

The most common role of nursing staff in the CCUs is preventing the occurrence of pressure ulcer in bedridden patients; this ulcer happens when the nurse has inadequate knowledge of the following domains: skin anatomy, knowledge of the basic concept of pressure ulcer, assessment skin and PU risk assessment, and PU preventive measures. Moreover, poor nursing staffs' knowledge regarding

PU prevention leads significantly to a higher prevalence of PU; prevention is considered better than treatment, so it is very important to incorporate preventive measures for PU prevention to investigate any patient who is at risk for developing a PU and to enforce optimal nursing intervention to prevent the incidence of PU. This study provides detailed information on optimal training in preventing PU at CCUs in Al-Najaf Hospitals.

The present study revealed that the knowledge of the nursing staff prior was fair level with respect to all domains of knowledge concerning the prevention of pressure ulcers in the mean score (0.63) as shown in (Table 4.2)

Related to the current study, findings illustrated a descriptive assessment of the first domain of nurses' knowledge concerning (the anatomy of the skin) for study sample. Without understanding the anatomy of the skin cannot perform optimal assessment and put optimal preventative measures plans. The results of this study showed that the majority (n=87; 66.9%) of participants' responses were fair level and only (n=1; 0.8%) had a good level about this domain in while (n= 42; 32.3%) had a poor level (Table 4.2).

The results of the current study are supported by a study conducted by ¹² which showed that the overall level of PU prevention knowledge of the nursing staff was inadequate. Additionally, the results of the current study also agreed with the study performed in Oman by ¹³ which stated also that the nurses had insufficient knowledge.

With regard nurse's attitude toward PU prevention, the existing study found that overall assessment of participants' attitude was positive with mean of score (2.5) and nurse's responses ranged from moderate to very high. (Table 4.3)

While the result of the current study disagrees with a cross sectional study conducted by¹⁴ in Iran, that stated that most of (n=61; 75.3 %) of participants have negative attitude toward PU prevention in CCUs.

Among the staff nurses participated in the study (n = 130), only 2.3% of them had not reported any challenge for preventing pressure ulcer while majority (94.6%) of them had reported different challenges. As stated earlier, there is a lack of research in Iraq concerning the perceived barriers to PU prevention in critical care units. Within this study, the most frequently documented barriers were: 1) a shortage of staff, 2) priorities for dealing with severely ill patients, 3) lack of use of the risk assessment scale, and 4) lack of satisfaction with nursing leadership (Table 4.4)

CONCLUSION:

The majority of ICUs nursing staff had poor knowledge regarding pressure ulcer prevention when assessed and positive attitudes nursing staff toward PU prevention while high level barriers about PU prevention, and the study revealed there was no statistically significant association between nursing staff's knowledge, barriers and their selected socio-demographic characteristics.

RECOMMENDATIONS:

The nurses in the ICUs should have sufficient updated knowledge about prevention of pressure ulcer. The necessity of conducting further studies in the different settings with consideration to a wide-range sample to be representative; Special training should be constructed for nurses to reinforce their skills and enhance their experience in the prevention of pressure ulcers.

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