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Association Between Critical-Care Nurses' Attitudes, Knowledge, and Barriers of Pressure Ulcers With Their Demographical Variables

[1]A. F. Abd-Alameer, [2]J. J. Kadhim

[1&2] *Community Health Nursing, Faculty of Nursing, University of Kufa, Iraq.*

alif.mohammed@student.uokufa.edu.iq

Abstract When the force applied to a particular place of the body exceeds the pressure that the capillaries there can withstand, a pressure ulcer will develop. In some circumstances, even a negligibly little pressure may be sufficient to obstruct blood flow and reduce oxygenation of the surrounding tissues. In patients who are extremely unwell, this can result in the development of a pressure ulcer in as little as two to six hours To assess knowledge, attitudes, and barriers among critical-care nurses on pressure ulcer prevention with their demographical variables A non-probability (purposive) sampling of (130) nurses working in the intensive care unit has been conducted. The study employed The researcher employed a 30-item self-administrated questionnaire to gauge nurses' level of expertise in pressure ulcer prevention. Age, gender, degree of education, years of experience, and specific guidelines for pressure ulcers were among the features of the study subjects. The 5-point scale was utilized in the attitudes and barriers questionnaire. However, the scoring mechanism for the Likert scale model is not much different from the three-point scales, with greater scores going to attitudes with higher levels of positivity and obstacles. The current study features a descriptive cross-sectional quantitative design. 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.

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Keywords: *pressure ulcers, knowledge, attitudes, barriers, critical care units.*

1. 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 require critical care units typically experience skin problems as a result of spending too much time in bed. However, when pressure is applied on the skin and underlying tissues for an extended period of time, pressure ulcers, also referred to as bedsores, develop. Patients who are bedridden, immobile, or have limited mobility are more likely to experience them, and they increase the risk of pressure ulcers on bony prominences such the heels, hips, and sacrum. Pressure ulcers have a considerable negative influence on patient morbidity and death. Pressure ulcers can result in serious side effects like infections, sepsis, and even death in addition to pain and suffering. Malnutrition is more likely to occur in pressure ulcer patients.(1) The best way to lessen the effects of pressure ulcers on individuals and the healthcare system is to prevent them. Regular patient repositioning, the use of pressure-relieving cushions and beds, and keeping good skin hygiene are all preventative measures. To provide prompt and proper care, healthcare workers should also be trained in the recognition and treatment of pressure ulcers. (2). The mucous membranes that cover the surface of the body are joined by the skin, which is the biggest organ in the human body. The epidermis, dermis, and subcutaneous tissue make up its three layers. Although bacteria, fungus, viruses, and parasites can contribute to the normal microbiota, they can also harm or kill skin. Pressure ulcers (PUs), often referred to as bedsores, decubitus ulcers, and pressure injuries, are a common skin condition. These ulcers are a significant issue for hospital patients and can lead to microbial infection. Degenerative changes in the skin and subcutaneous tissue, which happen when a region of injured skin and the tissues below owing to pressure that reduces blood flow, are characteristic of PUs. PUs commonly form on bony body parts such the heels, ankles, hips, backs or sides of the skull, and tailbones. Changes in skin tone or texture, swelling, pus-like discharge, and a patch of skin that feels warmer or fresher to the touch than surrounding skin are all signs of PUs. Pressure, friction, and shear are the main causes of PUs. Age, low tissue oxygen tension, lack of sensory perception, inadequate nourishment and hydration, physical immobility, low tissue oxygen tension, and wetness are risk factors for PUs. (3) The critical care nurses' understanding of the causes, staging, and prevention of these ulcers can have an impact on the prevalence of pressure ulcers as well as the patients' prognosis. Therefore, it is essential for nursing personnel to be able to effectively assess and anticipate the risk of developing pressure ulcers, stage them appropriately, and implement the necessary therapies in order to minimize the occurrence of pressure ulcers in critically sick patients. (4)

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number of evaluations and measures are necessary to prevent pressure ulcers; as medical professionals have known for a long time. A point score is given using a technique called a Risk Assessment Scale (RAS) based on a number of elements that are known risk factors for the emergence of PUs. By identifying individuals who are at risk of PUs, these scales allow healthcare professionals to execute focused intervention strategies to reduce the likelihood of these injuries. Nurses can identify patients who are at risk of pressure injuries by utilizing a risk assessment scale and take the necessary precautions to prevent them. (5) Because anesthesia and mechanical respiration can cause immobility and extended pressure on specific body parts, critically ill patients in the ICU are more likely to develop pressure ulcers. Bedsores may develop as a result of this and other health issues. Effective prevention and resource management depend on recognizing and resolving risk factors.(6) .Healthcare professionals should frequently change patients' positions, utilize specialized equipment, maintain good hygiene, and take care of their skin to prevent pressure ulcers in critically ill patients. Age, hunger, incontinence, and poor circulation are additional risk factors for pressure ulcers. Pressure ulcer prevention enhances patient outcomes while also making the most use of ICU healthcare resources. It's crucial to evaluate patients' pressure ulcer risk and involve a multidisciplinary team, including nurses, doctors, and wound care specialists, in prevention and management.(7)

2. MATERIALS AND METHODS\

2.1 Design of the Study

A descriptive Cross-Sectional Design used in the current study to achieve the study objectives. The study started from 1st of November 2022 and the 1st of June 2023

2.2 Setting of The Study

The study is conducted at Al-Najaf City/Al-Najaf Al-Ashraf Health Directorate - Al-Sadder Medical City AL-Hakim hospitals, AL-Najaf hospitals in critical care units

2.3 Ethical Considerations

This is one of the most basic principles before gathering the data, to keep the patient's values and self-respect. The researcher achieved this agreement from the Ethical committee at the Faculty of medicine / University of Kufa. The researcher promised to keep the nursing staff information confidential, and use this data for the purpose of study only then she explained the purpose of this study to each participant without affecting the routine visiting and care.

2.3 Sample of The Study

A Non-Probability (Purposive Sample) of (130) nurses working in the intensive care unit has been conducted.

2.4 Study Instrument

An assessment tool is adopted and developed by the researcher to assess knowledge, attitudes and barriers of nursing staff in critical care units. The complete instrument of the study consists of (3) parts:

Part one: Demographic Data:

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?

Part two: Self-Administrated Questionnaire

This questionnaire is constructed by the researcher in the Arabic language based on the review of relevant literature, it is used to assess nurses' level of knowledge regarding pressure ulcer prevention and it consists of 30 questions in the form of multiple-choice questions (MCQs) The 30 questions are divided into 6 categories or items were categorized into six relevant themes: (1) 'A etiology' (7 items); (2) 'Classification and observation' (6items); (3) 'Risk assessment' (2 items); (4)'Nutrition' (3 items); (5) 'Prevention of PU' (8 items) and (6) 'Specific patient groups' (4 items).

Part three: Likert's Scale Model

The attitude and barriers 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 attitude, and high level of barriers and the lower score given to the least negative attitude with a score ranged 1 – 5. then the responses of participants assessed according to these scores and given a suitable score.

2.5 Rating and Scoring

The following patterns have been used to rate and score the items:

1 .Closed questions are used to assess the nurses' knowledge. The true answer scored as (1) and the false answer scored as.(0)

2. Likert scale are used for rating the nurses' attitude and barriers items as apply scored as (5) and not apply scored as (1).

3. RESULTS

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Table (4-1): *Distribution of the participants (Study sample) according to their Demographic Characteristics (N=130).*

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 Nursing School	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) *Relationship between the Nurses' Knowledge and their Demographic Data*

Demographic Data	Rating and Intervals	Nurses' Knowledge			Chi-square Value	d.f.	p-value
		Low	Fair	Good			
Age / Years	<= 29	38	70	1	5.453	6	0.301 NS
	30 – 39	2	11	0			
	40 – 49	1	6	0			
	50 – 59	1	0	0			
Total		42	87	1			
Gender	Male	17	50	0	4.347	2	.078

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	Female	25	37	1			NS
Total		42	87	1			
Levels of Education	Secondary Nursing School	6	9	0	3.067	6	0.686 NS
	Diploma	10	31	0			
	Bachelor	24	42	1			
	Master	2	5	0			
Total		42	87	1			
Years of Experience as a Nurse	1-5	35	63	1	2.213	8	.881 NS
	6 – 10	4	14	0			
	11 – 15	1	3	0			
	16 – 20	1	4	0			
	21+	1	3	0			
Total		42	87	1			
Years Of Experience in Critical Care Unit	1-5	40	81	1	.443	4	.979 NS
	6 – 10	1	4	0			
	11 – 15	1	2	0			
Total		42	87	1			
Education Program on Pressure Ulcer Prevention?	Yes	10	25	0	.721	2	.760 NS
	No	32	62	1			
Total		42	87	1			
Specific Guideline Regarding Pressure Ulcers?	Yes	24	46	0	1.383	2	.571 NS
	No	18	41	1			
Total		42	87	1			

Table (4-2) shows that there is no statistically significant association between nurses' knowledge and their demographic characteristic (age, gender, levels of education and years of experience as a nurse, years of experience in ICU, education program on pressure ulcer prevention and specific guideline regarding pressure ulcers).

Table (4.3) *Relationship between the Nurses' Attitudes and their Demographic Data*

Demographic Data	Rating and Intervals	Nurses' Attitudes		Chi-square Value	d.f.	p-value
		Negative attitudes	Positive attitudes			
Age / Years	<= 29	0	109	35.692	3	.003 S
	30 – 39	0	13			
	40 – 49	2	5			
	50 – 59	0	1			
Total			128			
Gender	Male	2	65	1.910	1	.497 NS
	Female	0	63			
Total			128			
Levels of Education	Secondary Nursing School	2	13	15.573	3	.027 S
	Diploma	0	41			
	Bachelor	0	67			
	Master	0	7			
Total			128			
Years of Experience as a Nurse	1-5	0	99	27.676	4	.011 S
	6 – 10	0	18			
	11 – 15	1	3			
	16 – 20	1	4			

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	21+	0	4			
Total			128			
Years Of Experience in Critical Care Unit	1-5	1	121	11.713	2	.116 NS
	6 – 10	1	4			
	11 – 15	0	3			
Total			128			
Education Program on Pressure Ulcer Prevention?	Yes	2	33	5.513	1	.071 NS
	No	0	95			
Total			128			
Specific Guideline Regarding Pressure Ulcers?	Yes	2	68	1.741	1	.499 NS
	No	0	60			
Total			128			

Table (4-3) shows that there is no statistically significant association between nurses' attitudes and their demographic characteristic (gender, years of experience in critical care unit, education program on pressure ulcer prevention and specific guideline regarding pressure ulcers). While it shows statistically significant association between the age, educational level, and years of experience as a nurse).

Table (4.4) *Relationship between the Nurses' Barriers and their Demographic Data*

Demographic Data	Rating and Intervals	Nurses' Barriers			Chi-square Value	d.f.	p-value
		Low Barriers	Moderate Barriers	High Barriers			
Age / Years	<= 29	3	3	103	32.769	6	.136 NS
	30 – 39	0	0	13			
	40 – 49	0	0	7			
	50 – 59	0	1	0			
Total			4	123			
Gender	Male	0	1	66	4.540	2	.093 NS
	Female	3	3	57			
Total			4	123			
Levels of Education	Secondary Nursing School	0	1	14	7.559	6	.275 NS
	Diploma	3	1	37			
	Bachelor	0	2	65			
	Master	0	0	7			
Total			4	123			
Years of Experience as a Nurse	1-5	3	3	93	8.269	8	.547 NS
	6 - 10	0	0	18			
	11 - 15	0	0	4			
	16 - 20	0	0	5			
	21+	0	1	3			
Total			4	123			
Years Of Experience in Critical Care Unit	1-5	3	4	115	.485	4	.975 NS
	6 - 10	0	0	5			
	11 - 15	0	0	3			
Total			4	123			
Education Program on Pressure Ulcer Prevention?	Yes	1	2	32	1.197	2	.418 NS
	No	2	2	91			

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Total			4	123			
Specific Guideline Regarding Pressure Ulcers?	Yes	2	0	68	4.967	2	.060 NS
	No	1	4	55			
Total			4	123			

Table (4-4) shows that there is no statistically significant association between nurses' barriers and their demographic characteristic (age, gender, levels of education and years of experience as a nurse, years of experience in ICU, education program on pressure ulcer prevention and specific guideline regarding pressure ulcers).

4. 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. 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. 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. 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). The relationship between nurse's knowledge and age. The present study discovered that there is no statistically significant difference between the knowledge of nurses about PU prevention and their age at a p-value > 0.05 as shown in table (4.2). This result goes along with the study (1) . The relationship between nurse's knowledge and gender. This table (4.2) reveals that there is no statistical relationship between nurses' knowledge about PU prevention and their gender at a p-value > 0.05. It may be due to the ease of obtaining information about PU prevention. The result of the current study is concordant with the study carried out by (12) which revealed there was no association found between the nurses' knowledge and their gender regarding prevention of PU. The relationship between nurse's knowledge and educational level. This table (4.2) reveals that there is no statistical relationship between nurses' knowledge about PU prevention and their educational level at a p-value > 0.05. It may be due to the ease of obtaining information about PU prevention. This result comes along with the study achieved by (9) in Iran which revealed there was no significant association between nursing staff`

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knowledge concerning PU prevention and their educational level. Concerning the association between nursing staff' years of experience and the main domains knowledge about the prevention of PU, the study demonstrates that there is no statistically significant difference between the years of experience of the nursing staff` and their knowledge (P > 0.05) as shown in (Tables 4.2). The result of the current study is supported by a study undertaken by (12), which revealed there was no association found between the adequacy of nurses' knowledge regarding PU prevention with their years of experience . Concerning the association between nursing staff' years of experience and the main domains knowledge about the prevention of PU, the study demonstrates that there is no statistically significant difference between the years of experience of the nursing staff` and their knowledge (P > 0.05) as shown in (Tables 4.2). The result of the current study is supported by a study undertaken by (12), which revealed there was no association found between the adequacy of nurses' knowledge regarding PU prevention with their years of experience. As a result of the data analysis, there is no significant association between the nursing staffs' knowledge of the study sample with their exposure to training courses and education program regarding PU prevention and the main domains concerning prevention of pressure ulcers at a p-value > 0.05. It may be due to the ease of obtaining information about PU prevention. This result is concordant with a study undertaken by (13) in Jordon to investigate the nurses` knowledge and practices on the prevention of PUs and their related factors, this is concordant with the current study; which reveals no significant association between nurses' knowledge and their receiving training courses or education program concerning PU prevention. With regard to relationship between respondents 'demographic characteristic and their attitude toward PU prevention the current results exposed that there was no significant relationship between (gender, years 'of experience in CCUs, education program and specific guideline) with nurse's attitudes a p-value > 0.05. It may be due to the ease of obtaining information about PU prevention. While there was a significant relationship between age and positive attitudes a p-value (0.03) This result goes along with the study (14) that found statistically significant correlation between knowledge of nurses and their ages. The results in (Table 4.3) reveals that there is a significant association between nursing staff attitudes and educational level to the study sample about the main domains of PU prevention in at p. value (0.027). The result with respect to educational level. It is found that nurses who graduated from university and higher have the maximum score of attitudes, this may reveal the necessity for nurses to be university graduated to reach the desired level of knowledge because nurses who receive (4 years) of undergraduate education have the opportunity to benefit from than another level of education (primary school and institute). This finding could be supported through the study conducted by(15) in Jordon the researcher reported that the highest educational group (bachelor or higher) is found to have an association of significance with regard to their attitudes, which is concordant with the current study. With regard to relationship between respondents 'demographic characteristic and their barriers toward PU prevention the current results exposed that there was no significant relationship between (Age, gender, level of education, years 'of experience, education program and specific guideline) with nurse's barriers a p-value > 0.05. It may be due to the ease of obtaining information about PU prevention shown in table (4.4). 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. 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).

5. CONCLUSION

The majority of CCUs 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.

6. RECOMMENDATIONS

The nurses in the CCUs 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;

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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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