

ORIGINAL ARTICLE

Attitudes of intensive care nurses towards pressure ulcer prevention

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ABSTRACT

Background: The development of pressure ulcer is a common problem across a full range of healthcare settings, including intensive care units. Nurses' attitudes towards pressure ulcer prevention have an important influence on their ability to deliver this practice. Aim: To assess nurses' attitude towards pressure ulcer prevention and to identify any factors that could affect these attitudes.

Methods: A descriptive cross-sectional study was conducted in the ICUs of three conveniently selected hospitals in Jordan. Data were collected from 112 nurses working in intensive care units in three hospitals in Jordan by means of a self-administered questionnaire. An attitudes towards pressure ulcer prevention tool designed by Moore and Price was used to collect the data.

Results: Intensive care nurses hold positive attitudes towards pressure ulcer prevention. Both nurses' experience and previous training on pressure ulcer prevention were the most significant predictors of these attitudes.

Conclusions: Positive attitudes should be supported since nurses with a positive attitude will be more willing to implement pressure ulcer prevention measures. Any barriers which exist to prevent nurses who have a positive attitude from delivering the prevention strategies should be investigated.

Key Words: Attitude, Intensive care, Pressure ulcer, Prevention, Nurses

1. INTRODUCTION

Pressure ulcers (PU) are a prevalent problem that exists in various healthcare settings. They can lead to morbidity,^[1] lengthy hospital stays,^[2] higher costs of treatment,^[3] and negative impact on patients' quality of life.^[4] Intensive care units (ICUs) are reported to be among the hospital settings with the highest PU prevalence rates^[5,6] since critically ill patients are likely to suffer from several morbidities that increase the risk of PU development.^[7] As ulcers are considered to be avoidable problem, nurses who are in direct contact with these patients have a major role in preventing them from developing.^[8]

The economic burden of this health problem is huge. For example, the cost of treating PU in the USA is estimated to be \$11.6 billion annually and, in the UK, it ranges from £1,214 for category I to £14,108 for category IV ulcers.^[9] Demarre et al.^[10] reported an estimated cost range of between 1.71€ and 470.5€ per day of treating PUs. Due to this high cost of treatment, it is essential to prevent the occurrence of these ulcers.

Since it is very important to minimize the risk of occurrence of PU, and nurses adherence to prevention guidelines is essential, it is crucial to examine nurses' attitudes and compliance with these guidelines regarding prevention.^[2] If the nurses

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have a positive attitude, it is assumed that they would adhere to the guidelines and would provide the required nursing care. In previous studies, nurses' attitudes have been reported as a strong predictor of PU development.^[11] Positive attitudes regarding PU prevention (PUP) have been reported to have a positive effect on appropriate preventive care being provided to patients.^[12] Additionally, negative attitudes about PUP could reduce the quality of preventive care.^[13]

Ajzen's^[14] theory of planned behavior states that a person's behavior is impacted by the intention to perform that behavior, the latter resulting from attitudes, where attitude is the predictor of intention. Considering the present study problem, it could be assumed that nurses with a more positive attitude towards PUP will provide preventive care adequately, and those with a negative attitude would be expected to be less likely to maintain an appropriate standard of care.

The number of previous studies about attitudes towards PUP is limited^[2, 11, 15] and most research has been conducted in mixed care settings, not exclusively in ICUs. Although the majority of these studies reported a positive attitude towards PUP,^[1, 7, 12, 16-18] it is inappropriate to make comparisons between these studies, since they used different data collection procedures and tools.^[2] Moreover, no information is available about the psychometric properties of the scales that have been used in these studies.^[11]

In Jordan, where the current study took place, PU is recognized as a significant problem. PU prevalence rates have been recorded as 16% in general hospitalized inpatients,^[19] 16.9% in long-term care settings^[20] and 6.6% in the pediatrics population.^[21] Therefore, preventative measures are needed, especially in a country with such limited medical resources as Jordan. Even though a variety of PU prevention equipment is available in health care settings, nurses also need to possess a positive attitude towards PUP before they can put such equipment into meaningful practice. If an ICU nurse lacks motivation toward PUP, he or she may not provide an acceptable level of patient care.

The main aim of this study was to assess nurses' attitudes towards PUP in Jordanian intensive care units. ICUs were the focus of this work because of the high reported PU prevalence rates.^[7] and because ICU patients have lengthier hospital stays so they are likely to be in greater need of PUP than inpatients in other wards.^[6] For these reasons, the study of ICU nurses' attitude towards the PUP of a paramount importance.^[22, 23]

2. METHODS

2.1 Design

A descriptive, cross-sectional study.

2.2 Settings

This study was conducted in the ICUs of three conveniently selected hospitals in Jordan. One of these hospitals is university affiliated, while the remaining two are governmental hospitals.

2.3 Sample

Registered nurses working in the intensive care units in the selected hospitals were invited to participate. Each hospital had at least three intensive care wards with a total number of nurses ranging from 40-60. The inclusion criteria was set so that, in order to take part, a nurse had to be working full time in one of the determined intensive care wards in the selected hospitals, and had to agree to participate. Non-bedside nurses were excluded from the study since they were not in direct contact with patients generally and PU patients specifically.

2.4 Instrument

Previously, no specific instrument designed to measure attitudes to PU prevention has been reported as valid and reliable.^[13] However, the data collection tool used in this study was adopted from Moore and Price^[16] and had been deemed to be valid and reliable when tested by the developers. Also, it had previously been translated into Arabic by Tubaishat et al.,^[17] and showed a reliability of 0.84. Face and content validity was assessed by a panel of experts.^[16, 17]

The tool consisted of two main parts. In the first part demographic data were collected – namely, age, gender, experience and qualifications of the participating nurses. This section also gathered data on professional development such as whether or not the nurses had previously undertaken PUP training, or had read research on the topic. The second part of the tool dealt with attitudes towards PUP. Nurses were instructed to indicate the extent of their agreement with eleven-items based on a 5-point likert type scale, ranging from “strongly disagree” to “strongly agree”. Negatively-worded items were reverse coded for the purpose of analysis.

2.5 Procedure

The researcher visited each hospital and handed the questionnaires to the head nurse of each unit. The exact number of provided questionnaires was equal to the total number of nurses in each unit. Head nurses distributed the questionnaire to their nurses in different shifts. Key information about the study's purposes and procedures was outlined on the first page of the questionnaire, and the act of completing the questionnaire was considered proof of consent. Nurses were instructed to return the completed questionnaire to their head nurses' offices and, over the course of a month, they were subsequently collected by the researcher.

2.6 Ethical considerations

Ethical approval was attained from the ethical committee of each target hospital. Participation in the study was voluntary and anonymous; no names of either nurses or hospitals were sought. Nurses were assured that they would have the right to withdraw from the study at any time without any consequences.

2.7 Statistical analysis

Data were entered into SPSS version 17 and descriptive and inferential statistics were run. The frequency and percentages of demographic data and questionnaire items were computed. The mean score for attitude was calculated, where a higher score would indicate a more positive attitude. This obtained mean was compared between different demographics. The level of significance was set to ($p < .05$).

3. RESULTS

3.1 Sample characteristics

The questionnaire was distributed to 170 ICU nurses working in three hospitals, by their head nurses. Of these, 112 were returned completed, giving a response rate of 66%. The mean age of participating nurses was 30.3 (5.96) with a range of age from 22 to above 40 years old, and the majority were female (63.1%, $n = 70$). Nurses who held a bachelor's degree were 88 (78.6%), 15 diploma (13.4%) and 9 held a master degree (8%). Most nurses worked in governmental hospitals (62.5%, $n = 70$), and had less than 5 years of experience (56.9%, $n = 58$), around quarter of the nurses had experience

more than 10 years ($n = 25$, 24.5%). Regarding the professional development of the participating nurses, around half had never received training on PU prevention (48.2%, $n = 54$), nor read a research article on the subject (51.8%, $n = 58$).

3.2 Attitude towards PU prevention

The overall mean score for attitude towards PUP was 3.8 (0.42). This value falls in the positive end of the continuum, meaning that Jordanian ICU nurses hold a generally positive attitude towards PUP. As shown in Table 1, most of the responses gave a similar positive attitude score. The majority of nurses (86.5%, $n = 96$) thought that continuous assessment of patients would give an accurate account of their risk of developing PU. While 61.3% ($n = 68$) felt that all patients were at potential risk of developing PUs (61.3%, $n = 68$), around three-quarters of nurses (75.7%, $n = 84$) believed that most PUs could be avoided. More than half of the nurses (58.3%, $n = 62$) thought that the use of their own clinical judgment was a better indicator of PU risk than any pressure ulcer risk assessment tool (see Table 1).

Nearly half of the participants (46.3%, $n = 51$) believed that PU prevention is time consuming. Also, many nurses (56.1%, $n = 55$) surprisingly many believed that ICU patients are not even at risk of PU development and a small proportion (15.9%, $n = 16$) did not consider PU prevention to be enough of a priority in their daily practice in ICU to necessitate any action (see Table 1).

Table 1. Attitude towards PU prevention

Questionnaire Item	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	Mean (SD)
In my opinion patients tend not to get as many PUs nowadays	3 (3.1)	29 (29.6)	11 (11.2)	34 (34.7)	21 (21.4)	3.4 (1.21)
PU prevention is time consuming for me to carry out	3 (2.7)	43 (39.1)	13 (11.8)	46 (41.8)	5 (4.5)	3.1 (1.05)
PU treatment is a greater priority than PU prevention	3 (3.0)	28 (28.0)	11 (11.0)	37 (37.0)	21 (21.0)	3.5 (1.19)
Pressure ulcer risk assessment should be regularly carried out on all patients during their stay in hospital	14 (12.6)	29 (26.1)	14 (12.6)	39 (35.1)	15 (13.5)	3.1 (1.29)
All patients are at potential risk of developing PUs	3 (2.7)	34 (30.6)	6 (5.4)	58 (52.3)	10 (9.0)	3.3 (1.09)
Most PUs can be avoided	4 (3.6)	10 (9.0)	13 (11.7)	61 (55.0)	23 (20.7)	3.8 (0.99)
I do not need to concern myself with PU prevention in my practice	30 (29.7)	49 (48.5)	6 (5.9)	15 (14.9)	1 (1.0)	3.9 (1.02)
Continuous nursing assessment of patients will give an accurate account of their PU risk	4 (3.6)	8 (7.2)	3 (2.7)	60 (54.1)	36 (32.4)	4.1 (0.99)
I am less interested in pressure ulcer prevention than other aspects of nursing care	28 (25.5)	43 (39.1)	9 (8.2)	21 (23.1)	9 (8.2)	3.8 (1.21)
In comparison with other areas of nursing care, pressure ulcer prevention is a low priority for me	26 (24.3)	39 (36.4)	11 (10.3)	19 (17.8)	12 (11.2)	4.0 (1.12)
My clinical judgment is better than any pressure ulcer risk assessment tool available to me	22 (20.6)	40 (37.7)	13 (12.3)	23 (21.7)	8 (7.6)	3.9 (0.98)

3.3 Attitudes and sample characteristics

Inferential tests were run to establish the effect of certain characteristics of the sample on their attitude towards PUP (see Table 2). *T*-test results demonstrated that gender has a significant effect on nurses' attitude towards PU prevention ($t[109] = -2.470, p = .02$) with female nurses ($M = 3.68, SD = 0.41$) holding a more positive attitude than their male counterparts ($M = 3.48, SD = 0.39$). The same test showed that receiving training on PUP influences nurses' attitudes towards PU prevention ($t[110] = -0.706, p = .03$); nurses who had received such training had a higher attitude score ($M = 3.69, SD = 0.41$) than nurses who had not ($M = 3.52,$

$SD = 0.41$). A one-way ANOVA test revealed that nurses' experience was also a significant factor ($F[3, 20] = 1.881, p = .03$) as nurses with more experience were found to have higher attitude scores than those who were less experienced (see Table 2).

The other variables tested were found to have no significant effect on nurses' attitudes towards PU prevention. These characteristics were age of nurses ($p = .40$), their academic level ($p = .59$), their hospital type ($p = .27$), and whether they had previously read an article about PUP or not ($p = .48$) (see Table 2).

Table 2. Demographics and attitudes

Characteristic	Attitude Mean (SD)	Statistics (t/F)	Attitude significance level
Age group		1.071 (20)	0.40
• 22-30 years	3.56 (0.44)		
• 31-40 years	3.63 (0.39)		
• > 40 years	3.59 (0.26)		
Gender		-2.47 (109)	0.22
• Male	3.58 (0.39)		
• Female	3.63 (0.41)		
Academic Level		0.901 (21)	0.59
• Diploma	3.56 (0.33)		
• Bachelor degree	3.62 (0.43)		
• Master degree	3.65 (0.37)		
Years of experience		1.881 (20)	0.03*
• 1-5 years	3.58 (0.42)		
• 6-10 years	3.62 (0.41)		
• > 10 years	3.72 (0.35)		
Hospital Type		-2.22 (110)	0.27
• University hospital	3.62 (0.43)		
• Public hospitals	3.69 (0.93)		
Received training on PU prevention		-0.706 (110)	0.03*
• Yes	3.69 (0.41)		
• No	3.52 (0.41)		
Read an article about PU prevention		-2.279 (110)	0.48
• Yes	3.63 (0.43)		
• No	3.57 (0.40)		

Note. * $p < .05$ means the level of significance

4. DISCUSSION

A descriptive cross-sectional study was conducted in Jordanian ICUs to investigate the attitude of nurses working in these settings towards PUP. The ICU was chosen due to the high prevalence of the problem previously reported in this setting.^[5,24] ICU patients tend to be sedated, on mechanical ventilation and bed-bound for long periods.^[25] Consequently, their physical activity is severely limited and their intake of nutrients is likely to be insufficient.^[26] All of these factors could place ICU patients at greater risk of PU development.

Moreover, the epidemiological parameters of this problem in ICU settings have been reported to be high and serious since the prevalence rate has been reported to range from 1.4% to 32.7%, and the incidence rate between 5.4% and 53.4%.^[5]

A prior study reported prevalence to range from 4% to 49%, and incidence from 38% to 124%.^[24] These numbers open our eyes to the extent of this problem in this setting specifically. In Jordan, the prevalence of PU in generalized hospitalized patients was found to be 16%, with 44% of PU patients residing in intensive care units.^[19] In addition, an incidence

rate of 9% for pediatric ICU patients was reported in one university hospital,^[27] and, in a separate study, 11 of 166 pediatric patients had developed 16 ulcers with a prevalence of 6.6%. Of these, 90% were observed in the ICUs.^[21]

The high percentages of PU occurrence in ICUs may indicate either that preventative measures are not implemented for patients in this setting, or that the preventive care provided is inadequate in view of their condition.^[11] In turn, this may reveal that there are barriers to providing PUP which need to be explored. Understanding staff attitudes towards PUP is essential if the prevalence is to be reduced. For this reason, in this study, the attitude of nurses towards PUP was investigated and the findings suggest that ICU nurses hold positive attitudes. This is in harmony with many other studies that have sought to assess this attitude in the general nursing population.^[1,7,12,16-18] However, negative attitudes of nurses towards PUP have also been previously reported.^[2]

Considering the differences in the studies reviewed above (type of sample, setting, instrument used) comparison of findings with the present investigation are difficult. First of all, some of the studies reviewed were conducted in general units and not specifically in ICUs. For example, in the study carried out in Jordan,^[17] only 16% of participants were ICU nurses. In Aslan and Yavuz van Giersbergen,^[12] ICU nurses accounted for 36.9% of the sample, meaning that this study's generalizability is questionable, especially since the sample was drawn from a single university hospital in Turkey. Secondly, from another perspective, the sample of a number of other studies on this subject was composed of physicians or other healthcare professionals rather than nurses.^[6] Lastly, a further few studies were conducted in different healthcare settings, such as nursing homes.^[2]

Numerous responses regarding nurses' attitudes towards PUP were noted in this study and the studies which used a similar data collection tool. In the current study, it was found that the majority of nurses were convinced that continuous assessment of a patient will generate an accurate judgment of PU risk, and this in accord with Tubaishat et al.^[17] and Kallman and Suserud.^[11] Moreover, the current study along with a number of others, found that participants believed that PU is an avoidable problem.^[1,17] Nurses should be aware of the crucial need to avoid this problem, since its occurrence is thought to be an indicator of poor quality health care being provided to the patients.^[28]

Though nurses in the current study felt that PUP is a priority in their practice, this may not be enough to actually prevent PU occurrence. Kallman and Suserud^[11] found that only 6.8% of patients deemed to be at risk of developing PU had actually received PUP, despite the fact that almost all

the participating nurses (95.4%) recognized the importance of delivering PUP in their practice. In a previous study conducted in Jordan, only 17% of patients who were reported as being at risk of developing PU had received adequate preventive care although most of the nurses also believed in the importance of PUP.^[29]

Regarding factors that may affect nurses' attitude towards PUP, the findings of the current study showed that having more experience and receiving training on PUP were most influential. Experience was also found to have a positive effect on nurses' attitude in a previous study,^[17] where the most experienced nurses (> 10 years) had the highest attitude scores. However, this is contradicted by Moore and Price,^[1] who found that attitude was not affected by nurses' experience. The current findings also indicated that, while receiving training on PU prevention affects attitudes towards PUP, reading research articles on the topic does not. This is supported by several previous studies,^[15,17,30] but also contradicted by Aslan and Yavuz van Giersbergen.^[12] This difference may be explained by the type of training received by the nurses in our study compared to other studies; while nurses usually undergo more traditional training, interactive learning is needed if we need to improve attitudes.^[17]

In fact, this conclusion leads to an administrative level-recommendation. It is thought that Jordanian settings should incorporate an interactive learning module on PUP into their continuous education programs for the nurses working in the clinical field. Moreover, nurse educators should be encouraged to incorporate a PUP component into the curriculum in nursing school to prepare nurses to act effectively in this area in their future careers.

Another factor that has been discussed in the literature is the level of academic achievement of nurses, and the effect this has on their attitudes towards PUP. No difference between the attitude scores of nurses with different highest qualification levels were reported in the current work, a finding which has been supported by other researchers.^[1,2,17] This may be due to that fact that nurses are expected to provide appropriate preventative care to patients whom are deemed to be at risk of PU development, regardless of their professional rank or academic qualifications.

As is the case with similar research, the results obtained in this study should be interpreted with caution due to the existence of a number of limitations. Firstly, the study used a convenient non-random sampling technique, which could constitute a threat to the external validity of the results. In addition, data were collected by means of a self-administered questionnaire, increasing the likelihood of respondents giv-

ing socially acceptable, rather than entirely truthful, replies to the attitude questions.

5. CONCLUSIONS

This study was the first in Jordan to investigate the attitude of nurses towards PUP in a very important setting, the ICU. The findings suggest that nurses in this setting hold positive attitudes towards PUP. The factors which influence attitude the most are nurses' experience and whether or not they have received adequate training on PUP. However, despite

the positive attitude reported in this study as well as many others, there is no evidence that the prevalence and incidence rates in general, and in these units in particular, are reducing. Therefore, policy makers should seek to enhance this positive attitude, since it can lead to more prevention being deployed to patients. Moreover, any barrier that may delay the provision of prevention measures in this setting should be investigated.

CONFLICTS OF INTEREST DISCLOSURE

The author declares no conflicts of interest.

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