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Original Article

Nurses' Assessment Practices of Pain Among Critically Ill Patients

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ABSTRACT

Background: Systematic pain assessment is necessary to ensure effective pain management. Despite the availability of recommendations, guidelines, and valid tools for pain assessment, the actual implementation in clinical practice is inconsistent.
Aims: The purpose of this study was to investigate intensive care nurses' pain assessment practices among critically ill patients in Jordanian hospitals.
Design: A descriptive cross sectional design was used in this study.
Settings: This study was conducted in 22 intensive care unites located in eight hospitals in Jordan.
Participants/Subjects: Convenience sampling was used to recruit a sample of 300 nurses working in intensive care units.
Methods: The Pain Assessment and Management for the Critically Ill survey was used to collect data. Descriptive statistics, χ^2, and correlational analysis were used to analyze data.
Results: A total of 89.7% of nurses (N = 300) used pain assessment tools with patients able to communicate, and the numeric rating scale was the most commonly used tool. A total of 81.7% of the nurses used a pain assessment tool with patients unable to communicate, and the Adult Nonverbal Pain Scale was the most commonly used tool. Nurses' perceived importance of pain assessment was positively associated with frequent use of pain assessment tools. Nurses perceived the use of pain assessment tools for patients able to communicate as being more important than the use of pain assessment tools for patients unable to communicate.
Conclusions: The majority of intensive care unit nurses used pain assessment tools for patients both able and unable to communicate; however, the most valid and reliable tools were not used often. Nurses were not aware of the pain behaviors most indicative of pain among critically ill patients.

Pain is a major problem in critically ill patients. Pain is defined as "a distressing experience associated with actual or potential tissue damage with sensory, emotional, cognitive, and social components" (Williams & Craig, 2016). Critical care patients in medical, surgical, or intensive care units (ICUs) experience pain at rest, during routine care, and during different procedures (Devlin et al., 2018). Many survivors of critical illness recall experiencing severe pain while they were in critical care areas (Darawad, Al-Hussami, Saleh, & Al-Sutari, 2014). Although pain is a common symptom among critically ill patients, assessment of pain remains a significant challenge.

The Society of Critical Care Medicine recommends that pain should be routinely monitored in all adult ICU patients (Devlin et al., 2018). Systematic approaches to pain assessment using validated behavioral pain tools can result in effective pain management and accurate documentation of pain. In addition, pain assessment has positive effects on the duration of mechanical ventilation and the length of ICU stay, along with increased recognition of pain, a decrease in the intensity and incidence of pain, and a reduction in the use of analgesic medications, mortality, and complications (Devlin et al., 2018; Georgiou, Hadjibalassi, Lambrinou, Andreou, & Papathanassoglou, 2015; Haslam, Dale, Knechtel, & Rose, 2012).

Although recommendations, guidelines, and valid pain assessment tools are available, their implementation in clinical practice is inconsistent or nonexistent (Burry et al., 2014; Rose et al., 2012). Nurses reported that frequent assessment and documentation of pain are equally important for patients who are able to communicate and those who are not, but they were less likely to use behavioral pain assessment tools for patients who are unable to communicate than for patients able to communicate (Kizza & Muliira, 2015; Rose et al., 2011, 2012; Strode, Seimane, & Biksāne, 2012).

A patient's self-report is the gold standard measure for pain. However, when a person is unable to verbally communicate, he or

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she may be in pain and in need of pain treatment (International Association for the Study of Pain, 2012). In the intensive care unit, many patients are unable to verbalize their needs for different reasons, such as being on a mechanical ventilator or because their critical condition has altered their level of consciousness (Darawad et al., 2014; Haslam et al., 2012).

Nurses' awareness of pain assessment guidelines and the availability of pain assessment tools affect nurses' competency in assessing pain for patients unable to communicate (Rose et al., 2012). The use of valid and reliable tools for pain assessment will enhance nurses' ability to assess pain in patients unable to communicate, which will consequently facilitate appropriate analgesic management (Haslam et al., 2012; Kizza & Muliira, 2015). When a patient is unable to communicate, behavioral descriptors are used to indicate the presence of pain. The behavioral descriptors that are most commonly used to describe the presence of pain are grimacing, wincing, and agitation (Haslam et al., 2012; Rose et al., 2011). Physiologic indicators such as vital signs can indicate the presence of pain; however, they are not specific to pain and may be influenced by many other factors (Arbour, Choinière, Topolovec-Vranic, Loiselle, & Gélinas, 2014; Gélinas, 2016; Herr, Coyne, McCaffery, Manworren, & Merkel, 2011).

Many barriers impede nurses' assessment of pain in critically ill patients unable to communicate. A lack of knowledge and training regarding pain assessment and management was identified by nurses as an important barrier (Al-Khawaldeh et al., 2013; Al Qadire & Al Khalaileh, 2014; Rose et al., 2011). Also, hemodynamic instability, nurses' workload, and patients' inability to communicate interfere often with nurses' ability to assess and manage pain in critical care units (Rose et al., 2011). Some studies revealed that nurses' clinical experience, the area of clinical practice, nurses' educational level, the clinical competence level, and hospital accreditation may affect nurses' pain assessment and management practices (Al-Shaer, Hill, & Anderson, 2011; Pölkki et al., 2010; Wang & Tsai, 2010).

Few studies have been conducted in Jordan to assess nurses' knowledge and attitude regarding pain assessment and management. Al Qadire and Al Khalaileh (2014) found that 52% of nurses reported no previous pain education in the past 5 years. Nursing students were also found to have inadequate knowledge and attitudes related to pain assessment and management (Al-Khawaldeh, Al-Hussami, & Darawad, 2013). Nuseir and Almomani, 2016 reported insufficient knowledge of pain assessment and management among health care providers. Interestingly, nurses had the lowest score for knowledge of pain assessment and management among health care providers.

Structured pain assessment is a fundamental basis for effective pain management. The availability of clinical guidelines and recommendations does not necessarily guarantee consistent implementation in actual clinical settings. Consequently, this study will provide a detailed description of pain assessment methods used by ICU nurses for patients who are able to communicate and those who are not. The results may help in the development of strategic interventions to improve nurses' practices, which may be reflected in health outcomes for patients and the reduction of their suffering from pain. The main purpose of this study was to investigate intensive care nurses' pain assessment practices among critically ill patients. The specific objectives were as follows:

- To describe the current nurses' pain assessment practices in ICUs for critically ill patients who are able to communicate
- To describe the current nurses' pain assessment practices in ICUs for critically ill patients who are unable to communicate
- To investigate patients' behavioral indicators of pain used by ICU nurses
- To assess the relationship between nurses' pain assessment practices and their demographic characteristics, including age, gender, hospital type, and years of experience in the ICU

Methods

Design

A descriptive cross-sectional design was used to explore intensive care unit nurses' pain assessment practices in critically ill patients.

Settings and Sample

The target population of this study was all registered nurses working in adult intensive care units in Jordan. There are four health sectors in Jordan: private, governmental, military, and educational (Ministry of Health, 2018). Military hospitals were excluded from this study because researchers did not have security permission to access this sector. This study was conducted in 22 ICUs located in eight hospitals in Jordan: two from the governmental sector, two from the educational sector, and four from the private sector. The two educational hospitals and the four private hospitals that were included in the study are accredited by the Joint Commission International, which is an organization that partners with hospitals to promote rigorous standards of care and to improve performance and patient outcomes (Joint Commission International, 2018).

The convenience sampling technique was used to select the hospitals included in this study. Convenience sampling is a non-probability sampling technique in which the researcher selects the most accessible subjects (Polit & Beck, 2010). All registered nurses working in the selected ICUs for at least 3 months were invited to participate in the study.

Ethical Considerations

Permission was obtained from the authors of the instrument to adopt and use it in the study. Ethical approval was obtained from the Scientific Research Committee at the Faculty of Nursing where the researcher works. Further ethical approval was obtained from the selected hospitals before collecting the data. For the private and educational hospitals, approval was granted directly by their research committees, and the approval from the governmental hospitals was granted by the main research committee at the Ministry of Health. After that, approval from some of the governmental hospitals was also obtained based on their internal policies. A written informed consent was obtained from each nurse who agreed to participate in the study as well.

The confidentiality of the data was ensured throughout the study. Data were secured correctly—saved in the researcher's password-protected computer. The questionnaires and any other hard copies related to the study were secured in a cabinet in a locked space. The questionnaires were coded by numbers related to the hospitals, and no one except the researcher knows the coding system or has access to the data.

Data Collection

After obtaining the required approval, the selected hospitals were contacted to seek their permission to collect data from nurses working in ICUs. The selected hospitals were requested to assign a private room where nurses could complete the survey if possible. The researcher visited the ICUs in each hospital to meet nurses from these units and provided them with information about the purpose of the study and the procedure for data collection, and invited them to participate in the study.

Data were collected through a self-administered survey. The survey consisted of two parts. The first part included a cover letter describing the study aims and the rights of the participants. The second part contained the survey. The nurses were instructed to submit the completed survey in sealed envelopes that were provided by the researcher. The nurses had the choice of handing the envelope to the researcher or to the head nurse of their departments. The nurses were reassured that participation in the study was voluntary and would not affect their performance evaluation.

Survey Description

Demographic Data

Demographic data, including years of ICU experience, highest educational degree, employment status, shift rotation, ICU-type experience, hospital type, age, and sex, were obtained via the survey demographic sheet (Rose et al., 2011).

Pain Assessment Practices for Critically Ill Patients

The study used the Pain Assessment and Management for the Critically Ill survey to describe nurses' pain assessment practices in critically ill patients. The survey was tested for clarity, content validity, and comprehensiveness by 10 experts in pain, critical care, and the survey methodology (Rose et al., 2011).

The survey included items that assessed perceived pain assessment practices with patients able and unable to self-report pain. The items included information about the person who provides the most accurate rating for pain assessment, the use of pain assessment tools, the frequency of using pain assessment tools, the importance of pain assessment tools, the frequency of pain assessment and documentation, and the importance of frequent pain assessment and documentation. The survey also included questions about the perceived frequency of using various pain assessment tools. A list of 25 behaviors included in seven behavioral pain assessment tools was included in the survey. Nurses were asked to rate the frequency of using these behaviors on a 5-point scale ranging from never to routinely.

Data Analyses

Data were analyzed using the Statistical Package for the Social Sciences Version 17 (IBM Corporation, 2012). Descriptive statistics, including frequencies and percentages, were calculated to describe years of experience as a critical care nurse, highest qualification, employment status, shift rotation, ICU-type experience, hospital type, and gender. Mean and standard deviation were calculated to describe the sample age.

The responses addressing questions about the importance of using pain assessment tools were clustered into two categories: not important at all, minimally important, and somewhat important versus moderately important and extremely important. The responses to the questions addressing the frequency of using pain assessment tools were clustered into two categories: often and routinely versus never, seldom, and sometimes. A χ^2 test was used to assess differences in the importance of using pain assessment tools for patients' able and unable to self-report. Spearman correlation was used to assess the relationships between the frequency of using pain assessment tools and the importance of pain assessment tools, the frequency of pain assessment and documentation, and the importance of frequent pain assessment and documentation because all these variables are at the ordinal level. An independent-samples *t* test was used to assess differences in pain assessment practices among ICU nurses in relation to their age. A χ^2 test was used to assess differences in pain assessment practices according to nurses' gender, hospital type, and ICU experience. The results were considered statistically significant if $\alpha \leq .05$.

Results

Demographic Characteristics

Out of all the nurses who were eligible to participate (n = 492), 300 completed the survey (response rate = 60.1%). Demographic characteristics of the study sample are presented in Table 1. The average age of the participants was 27.7 (standard deviation = 4.5). Most of the participants (67.4%, n = 202) had less than 5 years of ICU experience. Regarding qualifications, 88.7% (n = 266) had a baccalaureate degree in nursing and 94.3% (n = 283) worked as full-time employees in the ICU.

Nurses' Pain Assessment Practices with Critically Ill Patients

The pain assessment practices used by nurses in the ICU with patients who were able to self-report pain and those who were not able to self-report pain are presented in Table 2.

The results indicate that a pain assessment tool was used by 269 nurses (89.7%) with patients able to self-report, with 104 nurses (34.5%) indicating that they used more than one tool. The Numeric Rating Scale for Pain (NRS) was used most often (80.3%, n = 241) by the nurses. There was a statistically significant positive correlation between nurses' perceived importance of pain assessment tools and the frequency of using a pain assessment tool with patients able to self-report: $r_s\,(298) = 0.35$, $p < .01$. In addition, there was a statistically significant positive correlation between the frequency

Table 1
Sample Characteristics

Variables (N = 300)	N (%)
ICU experience	
<2 years	110 (36.7)
2-5 years	92 (30.7)
>5-10 years	74 (24.7)
>10 years	24 (8)
Employment status	
Full-time	283 (94.3)
Part-time	12 (4)
Casual	59 (1.7)
Qualifications	
Diploma	4 (1.3)
Baccalaureate	266 (88.7)
Masters	27 (9)
Doctorate	2 (0.7)
Critical care certificate	1 (0.3)
Shift Rotation	
Days only	22 (7.3)
Evenings only	16 (5.3)
Nights only	23 (7.7)
Rotating shifts	239 (79.7)
ICU type experience	
Surgical (only)	9 (3)
Medical (only)	8 (2.7)
Cardiovascular (only)	44 (14.7)
Neuroscience (only)	4 (1.3)
Burns (only)	5 (1.7)
Trauma (only)	4 (1.3)
Combined specialty	226 (75.3)
Hospital type	
Educational	93 (31)
Private	135 (45)
Governmental	72 (24)
Sex	
Male	154 (51.3)
Female	146 (48.7)

ICU = intensive care unit.

Table 2
Nurses' Pain Assessment Practices for Critically Ill Patients Able and Unable to Self-Report

Nurse Variables	N (%)	
	Patient Able to Self-Report	Patient Unable to Self-Report
Person Provides the Most Accurate Rating of Pain Intensity		
Physicians	5 (1.7)	21 (7)
Nurses	35 (11.7)	252 (84)
Relatives	2 (0.7)	27 (9)
Patients	258 (86)	
Use of pain assessment tool		
Yes	269 (89.7)	245 (81.7)
No	31 (10.3)	55 (18.3)
Tool used for pain assessment		
	0-10 Numeric Rating Scale for Pain (NRS) 241 (80.3)	Adult Nonverbal Pain Scale (NVPS) 96 (32)
	Visual analog scale (VAS) 28 (9.3)	Behavioral Pain Scale (BPS) 46 (15.3)
	Verbal rating scale (VRS) 51 (17)	PAIN algorithm 12 (4)
	FACES scale 92 (30.7)	Pain Behavior Assessment Tool (PBAT) 31 (10.3)
	McGill Pain Questionnaire (short form) 9 (3)	Behavioral Pain Rating Scale (BPRS) 31 (10.3)
	Brief Pain Inventory 5 (1.7)	Critical-Care Pain Observation Tool (CPOT) 60 (20)
		Checklist of Nonverbal Pain Indicators (CNPI) 18 (6)
		Other tools 39 (13)
Frequency of use of pain assessment tool		
Never	9 (3)	12 (4)
Seldom	26 (8.7)	33 (11)
Sometimes	61 (20.3)	63 (21)
Often	108 (36)	109 (36.3)
Routinely	96 (32)	83 (27.7)
Importance of pain assessment tool		
Not at all important	0	3 (1)
Minimally important	11 (3.7)	9 (3)
Somewhat important	45 (15)	46 (15.3)
Moderately important	46 (15.3)	61 (20.3)
Extremely important	198 (66)	181 (60.3)
The frequency of pain assessment and documentation		
≤Q1H	18 (6)	26 (8.7)
Q1H to ≤4QH	88 (29.3)	96 (32)
Q4H to ≤ Q8H	107 (35.7)	89 (29.7)
Once Q12H shift	25 (8.3)	36 (12)
Never	7 (2.3)	9 (3)
PRN only	55 (18.3)	44 (14.7)
Importance of frequent pain assessment and documentation		
Not important at all	1 (0.3)	2 (0.7)
Minimally important	13 (4.3)	10 (3.3)
Somewhat important	52 (17.3)	61 (20.3)
Moderately important	49 (16.3)	54 (18)
Extremely important	185 (61.7)	173 (57.7)

Q1H = every hour; Q4H = every 4 hours; Q8H = every 8 hours; Q12H = every 12 hours; PRN = pro re nata (as needed).

and perceived importance of frequent pain assessment and documentation for patients able to self-report: $r_s(298) = 0.127$, $p = .028$.

Regarding assessment of pain with patients who were unable to self-report, the results revealed that 18.3% (n = 55) of the nurses did not use any pain assessment tool, whereas a single pain assessment tool was used by 245 (81.7%) nurses, with 57 (18.9%) indicating that they used more than one tool. The Adult Nonverbal Pain Scale (NVPS) was used most often by the nurses (32%). There was a statistically significant positive correlation between nurses' perceived importance of pain assessment tools and the frequency of using the pain assessment tools with patients unable to self-report: $r_s(298) = 0.42$, $p < .01$. In addition, there was a statistically significant positive correlation between nurses' perceived importance of frequent pain assessment and documentation and the frequency of pain assessment and documentation for patients unable to self-report: $r_s(298) = 0.174$, $p = .003$.

Nurses perceived the use of pain assessment tools with patients able to self-report as being more important than the use of pain assessment tools with patients unable to self-report: $\chi^2(1) = 12.85$, $p = .001$.

Pain Behaviors

Table 3 displays nurses' ratings of different behaviors indicative of pain. The results indicate that the behaviors most often rated as routinely indicative of pain were fighting the ventilator, clenching fists or teeth, and vocalization. On the other hand, the behaviors most often rated as being never to seldom indicative of pain were splinting, withdrawing, and wincing.

Relationship Between Nurses' Pain Assessment Practices and Their Demographic Characteristics

The results of this study indicated a significant relationship between nurses' pain assessment practices and nurses' age, hospital type, and ICU experience, whereas nurses' sex was not significantly related to pain assessment practices.

Age

There was a significant difference between groups in terms of the importance of frequent pain assessment and documentation for

Table 3
Nurses' Ratings of Behaviors Indicative of Pain (N = 300)

Behaviors Potentially Indicative of Pain	Never to Sometimes ≤50%	Often 51%-75%	Routinely >75%
Vocalization (producing voice)	67 (22.3)	137 (45.7)	96 (32.0)
Clenching fists/teeth	85 (28.3)	112 (37.3)	103 (34.3)
Fighting ventilator/activation of alarms	85 (28.3)	111 (37)	104 (34.7)
Repetitive touching of area of the body	105 (35)	107 (35.7)	88 (29.3)
Brow lowering/frowning	115 (38.3)	122 (40.7)	63 (21.0)
Pulling ET tube	124 (41.3)	99 (33.0)	77 (25.7)
Guarding (involuntary reaction to protect area of pain)	138 (46.0)	100 (33.3)	62 (20.7)
Grimacing (a sharp contortion of the face)	142 (47.3)	101 (33.7)	57 (19.0)
Retraction (withdraws) of upper limbs	142 (47.3)	100 (33.3)	58 (19.3)
Rigidity	147 (49.0)	105 (35)	48 (16)
Seeking attention through movements	145 (48.3)	91 (30.3)	64 (21.3)
Trying to climb out of bed	147 (49.0)	100 (33.3)	53 (17.7)
Closing eyes	151 (50.3)	97 (32.3)	52 (17.3)
Thrashing (hitting) limbs	155 (51.7)	91 (30.3)	54 (18.0)
Sighing (a long, deep, audible breath)	158 (52.7)	99 (33.0)	43 (14.3)
Resistance to passive movements	165 (55)	85 (28.3)	50 (16.7)
Attempting to sit up	169 (56.3)	90 (30.0)	41 (13.7)
Arching (curving)	187 (62.3)	80 (26.7)	33 (11.0)
Not following commands	182 (60.7)	79 (26.3)	39 (13.0)
Striking staff (attracting attention)	181 (60.3)	70 (23.3)	49 (16.3)
Wincing (involuntary shrinking movement of the body)	195 (65.0)	71 (23.7)	34 (11.3)
Slow cautious movements	182 (60.7)	89 (29.7)	29 (9.7)
Restlessness	191 (63.7)	86 (28.7)	23 (7.7)
Withdrawing	195 (65.0)	73 (24.3)	32 (10.7)
Splinting (temporary immobilization)	223 (74.3)	55 (18.3)	22 (7.3)

ET = endotracheal.

patients unable to self-report and nurses' age: t (298) = 2.20, $p = .028$. Older nurses considered frequent pain assessment and documentation with patients unable to self-report as being less important than younger nurses. Other pain assessment practices did not differ by age.

Hospital Type

The use of pain assessment tools with patients who were able and unable to self-report differed significantly by hospital type (Table 4). Nurses in educational hospitals used pain assessment tools more often than private hospital nurses and governmental hospital nurses. Nurses in private hospitals perceived the use of pain assessment tools as being more important and used them more often than educational hospital and governmental hospital nurses. Also, nurses in private hospitals perceived the frequency of pain assessment and documentation with patients unable to self-report as being more important than governmental hospital nurses and educational hospital nurses. The importance of frequent pain assessment and documentation for patients able to self-report did not differ significantly according to hospital type.

ICU Experience

The frequency of using pain assessment tools with patients unable to self-report differed significantly according to ICU experience: χ^2 (1) = 3.920, $p = .048$. Nurses with less than 5 years of experience used a tool more often than nurses with more than 5 years of experience. The importance of frequent pain assessment and documentation for patients unable to self-report differed significantly according to ICU experience: χ^2 (1) = 4.212, $p = .04$. Nurses with less than 5 years of experience perceived frequent pain assessment and documentation as being more important than nurses with more than 5 years of experience. Other pain assessment practices did not differ according to ICU experience.

Discussion

This study described current pain assessment practices used by ICU nurses in critically ill patients both able and unable to self-report. It also described nurses' perceptions of behaviors most indicative of pain. Finally, it assessed relationships between nurses' characteristics and pain assessment practices.

The results indicated that the majority of the nurses used pain assessment tools for patients whether they were able to self-report or not. This was expected because most of the hospitals in Jordan currently follow accreditation requirement measures that indicate the importance of using pain assessment tools to measure patients' pain in different clinical settings. The assessment rates in this study were higher than those reported in a previous study (Payen & Chanques, 2012). A study that included 842 ICU nurses in Canada found that 33% of the nurses used a pain assessment tool with patients unable to communicate and 89% with patients able to communicate (Rose et al., 2012). The nurses in the present study used pain assessment tools for patients unable to communicate at higher rates.

In the present study, nurses used the NRS most often to assess pain in patients able to communicate, followed by the FACES scale and a verbal rating scale. The preference for using different pain scales for critically ill patients was investigated by previous studies. For example, one study recommended the use of the visual analog scale, the verbal descriptor scale, and the 0-10 NRS to assess pain in patients able to self-report (Payen & Chanques, 2012). Similarly, in a previous study comparing different self-report tools (e.g., visual analog scale, verbal descriptor scale, 0-10 oral NRS, and 0-10 visually enlarged laminated NRS), the visually enlarged 0-10 NRS was found to be the most feasible and discriminative self-report tool to use with critically ill patients (Chanques et al., 2010). It is pertinent to mention that the use of an appropriate pain scale is important because patients' self-report is the gold standard for pain assessment; however, the tool should be accurately used and communicated with other health care members to facilitate appropriate management of pain.

On the other hand, the results of this study revealed that the NVPS was the tool most often used by nurses to assess pain in patients unable to communicate, followed by the Critical-Care Pain Observation Tool (CPOT) and the Behavioral Pain Scale. The Society of Critical Care Medicine recommends the use of the Behavioral

Table 4
Differences in Nurses' Pain Assessment Practices According to Hospital Type

Nurses' Pain Assessment Practices	Hospital Type			χ^2	φ
	Educational	Private	Governmental		
The Use of Pain Assessment Tool for Patient Able to Communicate					
Yes	86	124	59	6.120	0.047
	92.5%	91.9%	81.9%		
No	7	11	13		
	7.5%	8.1%	18.1%		
The use of pain assessment tool for patient unable to communicate					
Yes	85	113	47	19.173	<0.001
	91.4%	83.7%	65.3%		
No	8	22	25		
	8.6%	16.3%	34.7%		
The frequency of using pain assessment tool for patient able to communicate					
Never, seldom, and sometimes	26	37	33	8.339	0.015
	28.0%	27.4%	45.8%		
Often and routinely	67	98	39		
	72.0%	72.6%	54.2%		
The frequency of using pain assessment tool for patient unable to communicate					
Never, seldom, and sometimes	35	34	39	17.274	<0.001
	37.6%	25.2%	54.2%		
Often and routinely	58	101	33		
	62.4%	74.8%	45.8%		
The importance of using pain assessment tool for patient able to communicate					
Not important at all, minimally important, and somewhat important	26	37	33	8.339	0.015
	28.0%	27.4%	45.8%		
Moderately important and extremely important	67	98	39		
	72.0%	72.6%	54.2%		
The importance of using pain assessment tool for patient unable to communicate					
Not important at all, minimally important, and somewhat important	22	17	19	7.346	0.025
	23.7%	12.6%	26.4%		
Moderately important and extremely important	71	118	53		
	76.3%	87.4%	73.6%		
The importance of frequent pain assessment and documentation for patient able to communicate					
Not important at all, minimally important, and somewhat important	18	27	21	2.849	0.241
	19.4%	20.0%	29.2%		
Moderately important and extremely	75	108	51		
	80.6%	80.0%	70.8%		
The importance of frequent pain assessment and documentation for patient unable to communicate					
Not important at all, minimally important, and somewhat important	32	19	22	14.358	0.001
	34.4%	14.1%	30.6%		
Moderately important and extremely important	61	116	50		
	65.6%	85.9%	69.4%		

χ^2 = chi squared; ϕ = phi.

Pain Scale and the CPOT for monitoring pain in adult ICU patients who are unable to communicate because they are the most valid and reliable behavioral pain scales (Devlin et al., 2018). In spite of these recommendations, the NVPS was the tool most commonly used by the nurses in this study. One study that examined the effect of implementing the NVPS in an intensive care unit revealed that most of the staff (78%) ranked the tool as easy to use and the implementation of the tool increased staff confidence in assessing pain in nonverbal patients (Topolovec-Vranic et al., 2010). One study that described nurses' evaluation of the use of the CPOT after 12 months of its implementation found that CPOT use was feasible and nurses considered it quick to use, simple to understand, and easy to complete. Nurses evaluated the CPOT as being relevant in daily practice; however, it did not necessarily help them communicate effectively with other ICU care team members (Gélinas et al., 2014). Another study that investigated the feasibility and clinical utility of the CPOT in assessing pain in critically ill ventilated adults found that 90% of the nurses (n = 33) agreed that the directives regarding the use of the CPOT were clear, simple to understand, and easy to complete. In addition, 70% of the nurses thought that the tool was helpful and recommended its use routinely (Gélinas, 2010).

Nurses caring for critically ill patients should be aware of pain-related behaviors in order to facilitate detection and management of pain (Gélinas & Arbour, 2009). In this study the behaviors most often rated by nurses as routinely indicative of pain were fighting the ventilator, clenching fists or teeth, and vocalization. In the present study, grimacing, a descriptor used in seven behavioral tools (Rose et al., 2012), was most often rated as never to sometimes indicative of pain by 142 nurses (47.3%). Studies that examined behavioral indicators of pain in ICU populations revealed that grimacing is a commonly observed behavior in reacting to pain (Arbour & Gélinas, 2014; Rahu et al., 2013; Randen, Lerdal, & Bjørk, 2013). However, the nurses in the present study did not perceive grimacing as the behavior most indicative of pain. Nurses need more awareness regarding the role of facial expressions, especially grimacing, in indicating pain.

A patient's self-report is the gold standard measure for pain (International Association for the Study of Pain, 2012). Interestingly, 14% of the nurses did not believe that a patient able to self-report provides an accurate rating of pain intensity. A previous study conducted to identify whether nurses and patients assessed pain intensity equally found that there was a moderate agreement between patients and nurses on the assessment of pain intensity

(Dequeker, Van Lancker, & Van Hecke, 2018). Another study that was conducted to compare the symptoms reported by patients after palliative surgery and mechanical ventilation in an ICU with their primary nurses' perception of the symptoms revealed that patients reported more pain than the nurses perceived (Guner, Akin, & Durna, 2014). Another study, which aimed to determine levels of agreement among ICU patients and their family members, nurses, and physicians regarding patients' symptoms, including pain, revealed that some family members, nurses, and physicians overestimate and others underestimate patients' symptoms (Puntillo et al., 2012).

In the present study, more than 80% of the nurses used pain assessment tools for both patients able and unable to communicate and more than 60% used these tools often and routinely. In the same way, previous studies that examined the effect of implementing pain assessment tools in ICU nursing practice revealed more frequent documentation of pain assessments after implementation (Arbour, Gélinas, & Michaud, 2011; Gélinas, Arbour, Michaud, Vaillant, & Desjardins, 2011).

In the present study, 81% of nurses rated behavioral pain assessment tools as moderately to extremely important for patients able to communicate compared with 80% for patients unable to communicate. In a Canadian study that included nurses from critical care units, fewer respondents rated behavioral pain assessment tools as moderately to extremely important for patients unable to communicate (595 nurses, 74%) compared with self-report tools (703 nurses, 88%) (Rose et al., 2012).

In the present study, older nurses considered frequent pain assessment and documentation for patients unable to self-report as being less important than younger nurses. Also, nurses with less than 5 years of experience used a tool to assess pain in patients unable to communicate more frequently than nurses with more than 5 years of experience. It seems that older nurses were not up to date with recent pain assessment and management guidelines that suggest using pain assessment as frequently as measuring the vital signs. The guidelines state that pain assessment is the fifth vital sign and should be measured regularly, and the frequency should increase if the patient is subjected to painful stimuli. Similar results were found by a study that described strategies used by nurses and physicians in their assessment of postoperative pain, which found that the ratings of pain by experienced nurses were less accurate and tended to underestimate pain (Sjötröm, Haljamäe, Dahlgren, & Lindström, 1997).

Recommendations

ICU nurses should use pain assessment tools for all patients who are able to communicate. If patients are unable to communicate their pain, nurses should use assessment tools and behavioral indicators of pain as a valid approach to pain assessment. In addition, ICU nurses should be encouraged to keep up to date regarding the most reliable and valid tools for pain assessment in both patients able and unable to communicate. Health care institutions need to state protocols and policies regarding the use of pain assessment measures, particularly in intensive care units, to support efficient assessment and management of pain among critically ill patients. Further studies need to investigate the feasibility and clinical utility of different pain assessment tools for critically ill patients.

Limitations

Because of the cross-sectional nature of the study we cannot infer causality among study variables. One limitation of the survey that was used in this study was the lack of information about the clinical utility of using pain assessment tools. However, this is one of the pioneer studies to examine pain assessment practices among Jordanian ICU nurses.

Conclusions

Pain is a real problem in critically ill patients, and to be efficiently treated, it should be accurately assessed using the most appropriate pain assessment tools for the specific condition of each patient. The results of this study indicated that the majority of intensive care unit nurses used pain assessment tools for patients both able and unable to communicate; however, the most valid and reliable tools were not commonly used. Nurses were not aware of the pain behaviors most indicative of pain among critically ill patients.

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