



Original Research

Predictors of ICU patients' pain management satisfaction: A descriptive cross-sectional survey



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ABSTRACT

Purpose: (1) To assess Jordanian ICU patients' pain characteristics (intensity and interference) and levels of pain management satisfaction; and (2) to determine potential predictors of pain management satisfaction among ICU patients.

Methods: A descriptive cross-sectional design was utilised using the American Pain Society–Patient Outcome Questionnaire to survey 139 Jordanian ICU patients from different health care sectors in Jordan.

Results: High levels of pain and pain interferences were reported by participants, which were higher than those reported by previous studies in other countries. However, participants were relatively satisfied with pain management approaches. Also, the results showed a predictive model of three potential predictors, which accounted for 36% of the variance in participants' satisfaction with pain management (adjusted $R^2 = 0.36$, $F = 12.14$, $df = 7129$, $p < 0.005$). The strongest predictor to participants' satisfaction with pain management was time needed to get analgesia ($\beta = -0.480$, $p < 0.001$), followed by average pain interference ($\beta = 0.218$, $p = 0.02$), and being told about importance of reporting pain ($\beta = 0.198$, $p = 0.006$).

Conclusion: Jordanian ICU patients reported high pain levels, which supports the need for applying a caring attitude in managing patients' pain reports. Also, such a study is among the first pain management studies in Jordan aiming at setting the stage for future research studies. Finally, results can be included in planning pain management strategies and protocols within hospitals.

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1. Background

Pain is a symptom that is common and constitutes a live experience among most patients in hospitals.¹ Such an experience may increase patients' suffering, hinder their recovery, prolong their hospital stay, and decrease their satisfaction.² Furthermore, poor

pain management is associated with impaired health and increased treatment costs,³ and is often mentioned as the most important concern of patients upon admission.⁴ A recent study by Zoëga and colleagues⁵ carried out among general hospitalised patients found that pain prevalence was 83% with the mean worst pain severity being 4.6, and that severe pain (≥ 7 out of 10) was experienced by 35% of the sampled patients.

It is known that pain is highly personal and subjective, with self-reporting of its intensity being the most reliable source of information regarding a patient's pain experience.⁶ The ability of patients to self-report pain varies where patients in intensive care units (ICUs) are frequently found to be unable to communicate their pain verbally due to sedatives, altered level of consciousness, and intubation.⁴ Due to the nature of the ICU as a unit that

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gathers patients who are critically ill, it has several sources of pain including turning, mechanical ventilation, frequent invasive procedures, and suctioning.⁶ Consequently, more than 70% of the ICU patients reported having pain while being in the ICU, of which two-thirds reported having moderate to severe pain.^{7,8} Another study⁹ reported that the incidence of pain in the ICU was 50% at rest for both surgical and medical patients, which increases to 80% during procedures such as suctioning and drain removal. When compared to other stressors, pain was ranked as the second most stressful stressor experienced by ICU patients.¹⁰ Moreover, pain recognition and management among critically ill patients remains challenging.⁹ Such a high level of persistent pain exposes patients to a higher risk of developing severe depressive and post-traumatic stress symptoms¹¹ and suicidal ideation.¹²

Traditionally, the effectiveness of care in ICUs has been evaluated by length of stay, mortality, and measures of administrative efficiency.¹³ However, patient-centred outcomes such as satisfaction started to be increasingly recognised as important outcome measures.¹⁴ Thus, pain management satisfaction, as a patient-centred outcome measure, started to be a focus for health care institutions as an indicator for evaluating quality of care¹⁵ and preventing and relieving pain.¹⁶ On the other hand, improved pain management is evidently correlated with better outcomes for patients. For instance, pain assessment and management that is based on a protocol was correlated with a reduction in duration of mechanical ventilator, rates of nosocomial infections, length of stay, and 30-day mortality.¹⁷ However, patients' satisfaction with pain management was not shown to be strongly correlated with pain relief among patients with persistent pain including ICU patients, which suggests other variables to be responsible for patients' pain management satisfaction.^{18,19}

Factors that predict ICU patients' pain management satisfaction have not yet been investigated and, to the authors' knowledge, no study was conducted within this field in Jordan. Hence, the purpose of this study is to assess the experience of pain among Jordanian ICU patients through examining their pain characteristics (intensity and interference) and levels of pain management satisfaction. Also, this study is trying to determine potential predictors of pain management satisfaction among ICU patients in Jordan.

2. Method

A self-reported cross-sectional survey design was used to collect data from patients who were admitted to the ICU and suffered from pain between November 2010 and April 2011. Out of 104 hospitals in Jordan,²⁰ five hospitals were randomly selected for participation in this study using a simple random technique. These hospitals are located in the cities of Amman and Zarqa, which contain the majority (53.6%) of the Jordanian population,²¹ and approximately 58.5% of the Jordanian hospitals that have 65% of the total bed capacity.²⁰ The targeted ICUs of the selected hospitals were: (1) surgical ICUs (SICUs) that have patients that are undergoing surgery or are post-operative; (2) medical ICUs (MICUs) that have medical patients such as stroke patients; and (3) coronary care units (CCUs) that have patients with cardiac problems such as myocardial infarction.

A non-probability convenience sampling technique was applied to recruit patients for this study through many visits to the selected hospitals. Adult patients from the ICUs within the selected hospitals were invited by trained data collectors to voluntarily participate in the study. Inclusion criteria contained Jordanian patients who: (1) were at least 18 years old; (2) had been admitted to the ICU for at least 24 hr; (3) complained of pain during the last 24 hr; (4) were hemodynamically stable to be interviewed; (5) had no severe mental or cognitive disorders; and (6) could comprehend Arabic language.

Ethical approval was sought and granted by the Research and Ethics Committee at the Faculty of Nursing/the University of Jordan and each hospital involved in this study. Participants' rights were considered throughout the study including voluntary participation and anonymity. Data were collected through answers to the questionnaires during a structured interview. The questionnaires were accompanied by a cover letter, which clarified the purposes of the study and the rights of the participants.

The questionnaire that was used to collect data for this study consisted of two sections. The first section had questions regarding participants' demographic details including age, gender, medical diagnosis, and unit specialty. The second section used the 1995 APS-Patient Outcome Questionnaire¹⁶ (APS-POQ), which asks patients about their pain intensity (0 to 10) in three questions (now [at the time of interview], worst [the highest level of experienced pain], and average [the perceived level of pain that was common during the last 24 hr]), pain interference (0 to 10) with six aspects (the extent to which pain affected the patient's general activity, mood, walking ability, relations with other people, sleep, and recovery from chronic illness/surgery), and satisfaction with pain management (1 to 6) regarding three aspects (satisfaction with how nurses treated your pain complaint, how physicians treated your pain complaint, and satisfaction with the general pain management). McNeill et al.²² reported an internal consistency of 0.75 for pain intensity subscale, 0.82 for interference of pain subscale, and 0.70 for pain management satisfaction subscale among the general patient population. For the current study, the results of Cronbach's alpha were 0.62, 0.74, and 0.80, respectively.

2.1. Data analysis

The Statistical Package for Social Science® (SPSS-17.0) (SPSS Inc., 2007) was utilised for data entry, coding, and analysis. Descriptive statistics (mean and standard deviation) were used to describe average pain intensity, pain management satisfaction, and interference. Standard multiple linear regression was used to identify potential predictors of pain management satisfaction, using a stepwise model as limited studies were found using the same variables in the region. Also, Analysis of Variance (ANOVA) was utilised to compare pain intensity and pain management satisfaction between different types of ICUs. All analyses were conducted using level of significance ≤ 0.05 (two-sided).

3. Results

Out of 200 invited ICU patients, 139 agreed to participate in this study giving a response rate of 70%; the rest refused to participate. Of the total sample, 54.68% ($n=76$) were males with an average age of 43.91 (SD=15.16) ranging from 18 to 80 years. Patients participated from three different ICUs including SICU (41%; $n=57$), MICU (25.9%; $n=36$), and CCU (33.1%; $n=46$). In regard to diagnosis, patients were categorised into cardiovascular patients (49.1%), cancer patients (6.69%), neurological patients (7.53%), orthopaedic patients (8.17%), and other medical patients (28.4%). More than 90% of the study sample said that they had been told by the health care professionals about the importance of reporting pain. When asked about time to get analgesics (the average length of time patients waited for some form of pain relief after requesting it) while in pain, the majority of them (77.70%) reported that they got analgesics within 10 min. Table 1 shows a description of the time needed to have analgesics as reported by the study sample.

Participants were asked questions regarding two pain characteristics (pain intensity and interference). Pain intensity was reported by participants as feeling of pain now, worst pain felt in the past 24 hr, and average pain felt in the past 24 hr. Descriptive statistics (Table 2) showed that worst pain felt in the past 24 hr had the highest level of pain ($M=8.01$, $SD=1.88$) while feeling of

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