ACC Acute and Critical Care

Acute and Critical Care 2023 November 38(4):469-478
https://doi.org/10.4266/acc.2023.00430

| pISSN 2586-6052 | eISSN 2586-6060

Palliative care knowledge and attitudes toward end-of-life care among intensive care unit nurses in Jordan

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Background: There is a growing need for palliative care globally due to the rapid aging of the population and improvement in cancer survival rates. Adequate knowledge and a positive attitude are vital for palliative care nurses. The study's purpose was to examine nurses' knowledge and attitudes toward palliative care.
Methods: A cross-sectional design with convenience sampling was used. The study included 182 intensive care unit (ICU) nurses from Jordanian hospitals in all sectors. Self-administered questionnaires were used to assess nurses' knowledge and attitudes toward palliative care. Descriptive statistics, analysis of variance, and the Kruskal-Wallis H test were used to analyze the data.
Results: We measured nurses' knowledge using the Palliative Care Quiz for Nursing, and we measured nurses' attitudes using the Frommelt Attitude Toward Care of the Dying scale. The mean total knowledge and attitude scores were 8.88 (standard deviation [SD], 2.52) and 103.14 (SD, 12.31), respectively. The lowest level of knowledge was in psychosocial and spiritual care (mean±SD, 0.51±0.70). The percentage of nurses with unfavorable attitudes was 53.3%. Significant differences in knowledge and attitude levels were observed according to educational level, experience, and hospital type.
Conclusions: ICU nurses have insufficient knowledge and inappropriate attitudes toward palliative care. Knowledge of psychological and spiritual aspects of palliative care was particularly lacking as were appropriate attitudes towards communication with dying patients. Improving knowledge and attitudes toward palliative care in nursing schools and hospitals would help overcome this problem.

Key Words: attitudes; Jordan; knowledge; nurses; palliative care

Original Article

Received: February 15, 2023
Revised: April 26, 2023
Accepted: August 3, 2023

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INTRODUCTION

Palliative care is an integrated health approach aimed at relieving suffering in those with serious health problems by identifying and treating physical, psychological, social, or spiritual problems [1]. According to the World Health Organization, 40 million people require

palliative care each year, 78% of whom reside in low- and middle-income nations. This need for palliative care is expected to increase due to the increase in the older population and the burden of communicable and non-communicable diseases [2]. Only one in ten of those requiring palliative care services are receiving these services [3]. Previous studies found that early delivery of palliative care reduces hospital admissions and healthcare costs [4,5].

A multidisciplinary team provides palliative care, including nurses, physicians, physiotherapists, pharmacists, and others [6]. Among healthcare professionals, nurses spend the greatest amount of time with patients suffering serious illnesses and their families [7]. Nurses' knowledge and attitudes toward palliative care affect their willingness and competence to provide quality patient care [8-10]. However, many studies have shown that nurses have insufficient knowledge and unfavorable attitudes towards palliative care [11-14].

We used the Palliative Care Quiz for Nursing (PCQN) to assess nurses' knowledge about palliative care. Other researchers have also used the PCQN to quantify nurses' palliative care knowledge. Iranmanesh et al. [11] assessed palliative care knowledge among a sample of oncology and intensive care unit (ICU) nurses in Iran and found the PCQN mean score was 7.59 (standard deviation [SD], 2.28), indicating that nurses had insufficient knowledge. The management of pain and other symptoms dimension (46.07%) had the most accurate responses. The psychological and spiritual care factor had the fewest correct responses (19.3%). Aso, no correlation was found between nurses' knowledge and attitudes toward palliative care [15]. Another study using the PCQN was conducted in Greece. The knowledge level of nurses in a major public hospital was assessed. The mean PCQN score was 8.9 (SD, 2.6), indicating poor knowledge. The same study found that nurses' palliative care knowledge was significantly associated with gender, age, work experience, and level of education [16]. In a study conducted in Ethiopia, most nurses had insufficient palliative care knowledge; the mean PCQN score was 9.34. Nurses' experience was associated with nurses' palliative care knowledge [17]. In China, in a study that included nurses from oncology departments, the PCQN mean was 10.3 (SD, 1.9), which was increased to 11.1 (SD, 2.2) as a result of a palliative care training intervention [12]. Another study that included nurses working in a facility for the elderly in Ireland found that the mean PCQN score was 11.85 (SD, 2.82). The study also examined nurses' attitudes toward palliative care using the thanatophobia scale and found that palliative knowledge significantly correlated with attitudes towards palliative care and years of experience [13]. In a survey that included nurses from Addis Ababa hospitals, only 30.5% had solid palliative care knowledge [18]. Another study conducted in Iran found that 19.3%, 56.1%, and 24.6% of the nurses were reported to have good, moderate, and poor levels of palliative care knowledge, respectively [19]. The PCQN was also used in a study that included 122 nurses in Nepal. There the mean PCQN was 8.82 (SD, 1.95). Only 29.5% had adequate knowledge; the remaining 70.5% had poor knowledge. No significant correlation was found between nurses' knowledge and attitudes toward palliative care [14] in that study. However, Chover-Sierra et al. [20] examined the palliative care knowledge of nurses in Spain and found that nurses had sufficient knowledge. Significant differences in palliative care knowledge were found in relation to nurses' level of education and experience in palliative care. Similarly, another study that included nurses from Ethiopia found that 62.8% had good palliative care knowledge [21]. The results of these studies indicate a wide range of nursing knowledge in different settings, policies, and cultures. Therefore, we believe in the importance of examining the level of knowledge of ICU nurses in Jordanian hospitals.

KEY MESSAGES

- Intensive care unit (ICU) nurses in this study have insufficient palliative care knowledge, and >50% of the nurses had unfavorable attitudes toward palliative care.
- Attitudes of ICU nurses toward end-of-life care positively and highly correlated with their palliative care knowledge.
- Nurses' palliative care knowledge significantly differed based on their level of education, hospital sector, and ICU years of experience.

We used the Frommelt Attitude Toward Care of the Dying (FATCOD) scale to measure nurses' attitudes toward palliative care. This scale has been used in many other studies. Hao et al. [12] found that the FATCOD mean increased from 100.6 (SD, 7.9) to 102.9 (SD, 8.9) after the application of a training intervention. In another study, the mean total FATCOD score was 74.98 (SD, 8.18); 85.3% of the nurses had favorable attitudes toward palliative care, and only 14.7% had unfavorable attitudes toward palliative care. Nursing attitudes toward palliative care were significantly associated with the nurse's level of education [19]. Kassa et al. [18] found that 259 (76%) nurses

had a favorable attitude toward palliative care. Hospital type and nurses' education level were also significantly associated with the nurses' attitudes. However, another study conducted in Ethiopia found that the mean total FATCOD score was 79.58 (SD, 6.33). More than half (51.8%) of the nurses held unfavorable attitudes toward palliative care. Nurses' experience was significantly associated with nurses' attitudes toward palliative care [17]. Also, another study in which nursing attitudes were associated with years of experience, found that 43.7% of the nurses had unfavorable attitudes toward palliative care [21]. In a study conducted in Nepal, most nurses (71.3%) had unfavorable attitudes toward palliative care. The mean FATCOD score was 107.36 (SD, 9.17) [14]. Nurses' attitudes toward palliative care were inconsistent in previous studies, ranging from unfavorable to favorable attitudes. This indicates the need to examine attitudes and factors that may affect these attitudes within a Middle Eastern cultural context.

In Jordan, the introduction of palliative care was started along with the launching of the Jordan Palliative Care Initiative in 2001. As a result of this initiative, nurses were recognized as part of the multidisciplinary palliative care team and received training and educational activities related to palliative care. Despite that initiative, no national palliative care policy is currently in place in Jordan. This leaves many cancer patients in Jordan without access to necessary palliative care services [22]. In Jordan, only a few studies have examined knowledge and attitudes toward palliative care; and those studies were among nursing students. Al Qadire [23] used the PCQN to examine nursing students' palliative care knowledge. The mean PCQN was low (mean, 8.0; SD, 3.1). Another study by Zahran et al. [24] assessed nursing students' attitudes toward death and caring for dying patients. Nursing students held positive attitudes toward studied concepts. Examining nurses' knowledge and attitudes toward palliative care is essential to inform policymakers and nurse managers on areas that need improvement. Thus, this study aimed to examine ICU nurses' palliative care knowledge and their attitudes toward end-of-life (EOL) care and to determine if the two are correlated. Moreover, this study assessed the differences in ICU nurses' palliative care knowledge and their attitudes toward EOL care based on selected characteristics of the nurses.

MATERIALS AND METHODS

Design and Setting

A correlational cross-sectional design was used in this study. The study was conducted in Jordanian hospitals. Jordanian hospitals are classified based on the healthcare sector: private hospitals (57%), governmental hospitals (30%), military hospitals (11%), and university hospitals (2%.) All Jordanian hospitals that contain ICUs were targeted in this study.

Sample and Sampling

A convenience sampling technique was used to include 182 ICU nurses from Jordanian hospitals. The inclusion criteria for nurses were being a full-time registered nurse and having at least 1 year of ICU experience. The G-power program 3.0.10. was used to calculate the required sample size. The F test was utilized using an alpha level of 0.05, a medium effect size of 0.25, and a power of 0.8. The estimated required sample size was at least 180 ICU nurses.

Ethical Considerations

The Scientific and Research Committee at the affiliated institution approved the study. Since the data collection took place through an electronic self-administered questionnaire using networking and snowballing, institutional approval for this study was not required. The survey included a description that provides the participant information about the study purpose, data collection procedure, and rights of the participants, followed by a consent statement that required participant completion before answering the instrument questions. Participation was entirely voluntary, and participants were assured that their responses would be confidential. Confidentiality was ensured throughout the study. Data were secured in a password-protected computer. The front page of the questionnaire contains the study objectives, confidentiality issues, and anonymity and privacy statements for the respondents. The authors granted permission for the use of the questionnaires.

Data Collection

Data collection began after obtaining ethical approval. A computerized self-administered questionnaire was used to collect the data. Networking and snowballing techniques were used to reach the target population. Also, nurses' social media groups were used to distribute the questionnaire. Google Forms was used for data collection, and all submitted questionnaires were automatically saved in the researcher's private Google Drive. Data collection took place between March 2021 and October 2021.

Measures

Demographic information

This information was acquired through questions on participants' age, years of experience in the ICU, total years of experience, gender, level of education, and hospital sector.

Palliative care knowledge

This was measured using the PCQN developed by Ross et al. [25]. The PCQN comprises 20 questions with three possible responses: true, false, or do not know. Scores were obtained by summing the correct answers. The range of total possible scores was from 0 to 20. Higher scores corresponded to higher levels of palliative care knowledge. The PCQN is subdivided into three theoretical dimensions: pain and symptoms management (items 2–4, 6–8, 10, 13–16, 18, and 20), philosophy and principles of palliative care (items 1, 9, 12, and 17), and psychosocial and spiritual care (items 5, 11, and 19) [25,26]. The tool's validity and reliability were previously ensured; a 0.78 internal consistency was demonstrated [25]. In this study, Cronbach's alpha coefficient was 0.72.

Attitudes toward EOL care

This was measured using the Frommelt Attitude Toward Care of the Dying (FATCOD) scale developed by Frommelt [27]. The tool is composed of 30 items using a five-point Likert scale to indicate respondents' attitudes toward caring for dying patients. The scale consists of an equal number of positively and negatively worded statements. The response options were strongly disagree, disagree, uncertain, agree, and strongly agree (1, 2, 3, 4, and 5, respectively) for positive items. Negative items were reverse coded and appear in Table 1. The total possible score ranges from 30 to 150. A higher score indicated a more positive attitude toward caring for dying patients. The scale showed a satisfactory Cronbach's alpha coefficient of 0.75 [28]. In this study, Cronbach's alpha coefficient was 0.82.

Data Analysis

Data were analyzed using the IBM SPSS ver. 24 (IBM Corp.). Preliminary data analysis was conducted to describe the demographic data of the study sample via the mean and SD. The t-test, analysis of variance, and Kruskal-Wallis H test were used to examine and compare participants' knowledge of palliative care, attitudes toward EOL care, and demographic factors.

RESULTS

The sample comprised 182 ICU nurses. The individuals' average age was 30.3 years (SD, 6.2 years), and their average experience in the ICU was 4.9 years (SD, 4.4 years). The majority were females (51.1%), had a bachelor's degree (75.8%), and worked in a private hospital (54.9%). Table 2 shows more details about participants' demographics and other relevant characteristics.

Table 3 shows the responses of ICU nurses toward palliative care knowledge. The mean total PCQN score was 8.88 (SD, 2.52). The majority of the nurses correctly answered that adjuvant therapies are important in managing pain (80%), individuals who are taking opioids should also follow a bowel regime (79.1%), and morphine is the standard used to compare the analgesic effect of other opioids (77.5%). This shows that the three highest reported correct responses were related to the pain and symptoms management domain. Most nurses incorrectly answered questions about caregiver “burnout” (12.6%); family presence during death (14.3%); and the relationship between the degree of loss feelings and type of bond, distant or close, to the deceased (14.3%).

Table 1 demonstrates the attitudes of ICU nurses toward EOL care. The mean total FATCOD score was 103.14 (SD, 12.31). The most positive (favorable) attitudes among the ICU nurses included talking about permitting dying patients more resilient schedule of visits (77.5%), family involvement in providing care to the patient (76.9%), the importance for the dying person to verbalize his/her feelings (76.9%), and the importance of the learning experience gained from giving nursing care to the dying person (76.4%). However, the most negative (unfavorable) attitudes appeared when nurses agreed with not feeling comfortable seeing the terminally ill patient when entering his/her room (64.8%). Also, the nurses did not feel comfortable talking with dying patients about death (55.5%), nurses felt upset if their dying patients lose hope (57.1%), and the nurses believed that someone else should talk with the dying patients about death (54.4%). The percentage of disagreement with a positive attitude was 53.3%.

ICU nurses' knowledge of palliative care and their attitudes toward EOL care were significantly and positively correlated ($r=0.215$, $P<0.01$). In addition, Table 4 demonstrates the differences in palliative care knowledge and attitudes toward EOL care according to ICU nurses' demographics. Palliative care knowledge significantly differed based on the level of education, hospital sector, and ICU years of experience, while

Table 1. Attitudes of ICU nurses toward end-of-life care (FATCOD scale) (n=182)

Item	Disagreement (strongly disagree & disagree)	Neutral	Agreement (agree & strongly agree)
1. Giving nursing care to the dying person is a worthwhile learning experience.	25 (13.7)	18 (9.9)	139 (76.4)
2. Death is not the worst thing that can happen to a person.	41 (22.5)	54 (29.7)	87 (47.8)
3. I would be uncomfortable talking about impending death with the dying person.[a]	28 (15.4)	53 (29.1)	101 (55.5)
4. Nursing care for the patient's family should continue throughout the period of grief and bereavement.	24 (13.2)	29 (15.9)	129 (70.9)
5. I would not want to be assigned to care for a dying person.[a]	69 (37.9)	58 (31.9)	55 (30.2)
6. The nurse should not be the one to talk about death with the dying person.[a]	36 (19.8)	47 (25.8)	99 (54.4)
7. The length of time required to give nursing care to a dying person would frustrate me.[a]	60 (33.0)	52 (28.6)	70 (38.5)
8. I would be upset when the dying person I was caring for gave up hope of getting better.[a]	21 (11.5)	57 (31.3)	104 (57.1)
9. It is difficult to form a close relationship with the family of a dying person.[a]	59 (32.4)	36 (19.8)	87 (47.8)
10. There are times when death is welcomed by the dying person.	50 (27.5)	45 (24.7)	87 (47.8)
11. When a patient asks, "Nurse am I dying?", I think it is best to change the subject to something cheerful.[a]	58 (31.9)	32 (17.6)	92 (50.5)
12. The family should be involved in the physical care of the dying person.	25 (13.7)	17 (9.3)	140 (76.9)
13. I would hope the person I'm caring for dies when I am not present.[a]	45 (24.7)	58 (31.9)	79 (43.4)
14. I am afraid to become friends with a dying person.[a]	47 (25.8)	43 (23.6)	92 (50.5)
15. I would feel like running away when the person actually died.[a]	69 (37.9)	41 (22.5)	72 (39.6)
16. Families need emotional support to accept the behavior changes of the dying person.	19 (10.4)	25 (13.7)	99 (54.4)
17. As a patient nears death, the nurse should withdraw from his/her involvement with the patient.[a]	87 (47.8)	34 (18.7)	61 (33.5)
18. Families should be concerned about helping their dying member make the best of his/her remaining life.	18 (9.9)	28 (15.4)	8136 (74.7)
19. The dying person should not be allowed to make decisions about his/her physical care.[a]	92 (50.5)	41 (22.5)	49 (26.9)
20. Families should maintain as normal an environment as possible for their dying member.	18 (9.9)	29 (15.9)	135 (74.2)
21. It is beneficial for the dying person to verbalize his/her feelings.	14 (7.7)	28 (15.4)	140 (76.9)
22. Nursing care should extend to the family of the dying person.	23 (12.6)	35 (19.2)	124 (68.1)
23. Nurses should permit dying persons to have flexible visiting schedules.	15 (8.2)	26 (14.3)	141 (77.5)
24. The dying person and his/her family should be the in-charge decision-makers.	28 (15.4)	47 (25.8)	107 (58.8)
25. Addiction to pain relieving medication should not be a nursing concern when dealing with a dying person.	41 (22.5)	51 (28.0)	90 (49.5)
26. I would be uncomfortable if I entered the room of a terminally ill person and found him/her crying.[a]	32 (17.6)	32 (17.6)	117 (64.8)
27. Dying persons should be given honest answers about their condition.	20 (11.0)	62 (34.1)	100 (54.9)
28. Educating families about death and dying is not a nursing responsibility.[a]	57 (31.3)	58 (31.9)	67 (36.8)
29. Family members who stay close to a dying person often interfere with the professionals' job with the patient.[a]	38 (20.9)	56 (30.8)	88 (48.4)
30. It is possible for nurses to help patients prepare for death.	28 (15.4)	58 (31.9)	96 (52.7)
Scale		Mean±SD	Median (IQR)
FATCOD total score		103.14±12.31	103.00 (97.00–109.25)

Values are presented as number (%) unless otherwise indicated.
ICU: intensive care unit; FATCOD: Frommelt Attitude Toward Care of the Dying; SD: standard deviation; IQR: interquartile range.
a) Negative items were reverse coded.

attitudes toward EOL care significantly differed based on the level of education and hospital sector. Finally, palliative care knowledge and attitudes toward EOL did not significantly differ based on the nurses' gender.

DISCUSSION

This study examined palliative care knowledge and attitudes of ICU nurses in Jordanian hospitals. The results showed that

Table 2. Participants characteristics (n=182)

Characteristics	Value (n=182)
Age (yr)	30.3±6.2
<30	97 (53.3)
30–39	66 (36.3)
≥40	19 (10.4)
Total years of nursing experience	7.8±6.0
ICU years of experience	4.9±4.4
1	51 (28.0)
2–5	73 (40.1)
6–9	28 (15.4)
≥10	30 (16.5)
Sex	
Male	89 (48.9)
Female	93 (51.1)
Level of education	
Diploma	5 (2.7)
Bachelor	139 (75.8)
Master	34 (18.7)
PhD	5 (2.7)
Hospital sector	
Governmental	51 (28.0)
Private	100 (54.9)
Military	11 (6.0)
Educational	20 (11.0)

Values are presented as mean±standard deviation or number (%).
ICU: intensive care unit; PhD: doctor of philosophy.

these nurses have insufficient levels of knowledge. However, the levels of pain and symptom management knowledge were the highest across the three dimensions. The majority of the nurses had unfavorable attitudes about palliative care, including communication with a dying patient and the nursing role in talking about death. Palliative care knowledge differed significantly according to the level of education, hospital type, and years of experience. Attitudes toward palliative care differed significantly based on the level of education and hospital type.

ICU nurses' knowledge of palliative care in this study was consistent with the findings of Iranmanesh et al. [11], Razban et al. [15], Maria et al. [16], and Etafa et al. [17] on samples of nurses in Iran, Greece, and Ethiopia. All results of these studies agreed with the current study by reporting insufficient palliative care knowledge. In Jordan, the undergraduate nursing curriculum does not address palliative care subjects and topics. These topics are sometimes integrated into other undergraduate nursing subjects. This might explain the nurses' insufficient knowledge of palliative care. In addition, palliative care services are provided by only two institutions in the capital, Amman, which indicates the scarcity of these services and the lack of knowledge about these services [29].

The current results revealed that the highest levels of palliative care knowledge concerned pain and symptom management, which was consistent with a previous study on palliative care knowledge among nurses in Jordan [30]. In addition, Iranian nurses also showed the highest levels of knowledge in pain and symptom management [15]. This finding could be attributed to the country's emphasis in nursing education on the physical examination that includes managing pain and other symptoms. The poorest knowledge level was in the psychosocial and spiritual care dimension. This indicates the lack of addressing these issues in the nursing schools and hospitals in the country.

The majority of the nurses had unfavorable attitudes toward palliative care. This finding was consistent with the attitudes among nurses in Ethiopia [17]. However, while nurses in the current study showed the most favorable attitudes in some areas of palliative care, such as family involvement in the physical care and the benefits of verbalizing the feelings of a dying person, Etafa et al. [17] indicated better attitudes than ours in the same areas. These favorable attitudes can be attributed to nurses' understanding of the importance of family members' presence and the significance of the dying person's expression of their feelings. Arab culture supports the involvement of family members in caring for a dying person in the family, which indicates the nurses' high level of acceptance of this attitude. The percentage of nurses who felt uncomfortable discussing imminent death with a dying individual in the current study was smaller than the proportion of these poor attitudes observed by Etafa et al. [17]. This outcome can be explained by the evidence that healthcare providers are generally not encouraged to talk about death as these providers feel that dealing with death is a negative side of their profession. Talking about death is perceived as destroying the patient's hope and bringing guilt to the providers. In addition, healthcare providers are hesitant to give bad news to their patients because of the inability to predict the patients' reactions [31].

Nurses with a PhD level of education, nurses with 2–5 years of ICU experience, and nurses who work in educational hospitals showed the significantly highest levels of EOL palliative care knowledge. A previous study [16] indicated that nurses with Master's degrees and nurses with an experience of more than 10 years showed the significantly highest levels of knowledge. In our study, we expected that a higher level

Table 3. Palliative care knowledge of ICU nurses (PCQN scale) (n=182)

Item	Correct answer	Wrong answer
1. Palliative care is appropriate only in situations where there is evidence of a downhill trajectory or deterioration. (F)	56 (30.8)	126 (69.2)
2. Morphine is the standard used to compare the analgesic effect of other opioids. (T)	141 (77.5)	41 (22.5)
3. The extent of the disease determines the method of pain treatment. (F)	31 (17.0)	151 (83.0)
4. Adjuvant therapies are important in managing pain. (T)	147 (80.8)	35 (19.2)
5. It is crucial for family members to remain at the bedside until death occurs. (F)	26 (14.3)	156 (85.7)
6. During the last days of life, the drowsiness associated with electrolyte imbalance may decrease the need for sedation. (T)	101 (55.5)	81 (44.5)
7. Drug addiction is a major problem when morphine is used on a long-term basis for the management of pain. (F)	75 (41.2)	107 (58.8)
8. Individuals who are taking opioids should also follow a bowel regime. (T)	144 (79.1)	38 (20.9)
9. The provision of palliative care requires emotional detachment. (F)	83 (45.6)	99 (54.4)
10. During the terminal stages of an illness, drugs that can cause respiratory depression are appropriate for the treatment for severe dyspnea. (T)	69 (37.9)	113 (62.1)
11. Men generally reconcile their grief more quickly than women. (F)	40 (22.0)	142 (78.0)
12. The philosophy of palliative care is compatible with that of aggressive treatment. (T)	99 (54.4)	83 (45.6)
13. The use of placebos is appropriate in the treatment of some types of pain. (F)	79 (43.4)	103 (56.6)
14. In high doses, codeine causes more nausea and vomiting than morphine. (T)	113 (62.1)	69 (37.9)
15. Suffering and physical pain are synonymous. (F)	42 (23.1)	140 (76.9)
16. Demerol is not an effective analgesic in the control of chronic pain. (T)	90 (49.5)	92 (50.5)
17. The accumulation of losses renders burnout inevitable for those who seek work in palliative care. (F)	23 (12.6)	159 (87.4)
18. Manifestations of chronic pain are different from those of acute pain. (T)	125 (68.7)	57 (31.3)
19. The loss of a distant or contentious relationship is easier to resolve than the loss of one that is close or intimate. (F)	26 (14.3)	156 (85.7)
20. The pain threshold is lowered by anxiety or fatigue. (T)	107 (58.8)	75 (41.2)
Scales/subscales	Mean±SD	Median (IQR)
PCQN total score	8.88±2.52	9.00 (7.75–11.00)
Philosophy and principles of palliative care	1.43±0.84	1.00 (1.00–2.00)
Pain and symptoms management	6.95±2.19	7.00 (6.00–9.00)
Psychosocial and spiritual care	0.51±0.70	0.00 (0.00–1.00)

Values are presented as number (%) unless otherwise indicated.
ICU: intensive care unit; PCQN: Palliative Care Quiz for Nursing; F: false; T: true; SD: standard deviation; IQR: interquartile range.

of education would bring more knowledge. However, the knowledge differences based on experience were inconsistent with previous research. This study also indicated that nurses with PhD degrees and who work in private hospitals showed significantly better attitudes toward EOL care. The significant association between knowledge and attitudes helps explain the better attitude among nurses with PhD degrees. Last, the single private hospital in Jordan that provides specialized palliative care is included in the study. This could contribute to the finding that nurses in private hospitals showed better attitudes [29].

One of the study's drawbacks was utilizing self-administered questionnaires through an online survey. The study employed a cross-sectional design, which prevented identification of causal relationships. Future qualitative research might help understand this phenomenon. The knowledge and attitudes of nurses with a doctoral degree were higher than nurses with lower educational levels. However, this result should be carefully interpreted as the number of nurses with a doctoral degree in this study was small.

This study showed that ICU nurses have insufficient palliative care knowledge and inappropriate attitudes. The lowest levels of knowledge were in psychological and spiritual care, while the poor attitudes were found in communication with a dying patient, particularly in talking about death. Improving palliative care knowledge would help enhance appropriate attitudes toward palliative care. Nursing educational institutions should focus on palliative care within the nursing

Table 4. Comparison of PCQN and FATCOD scores across participants' characteristics (n=182)

Characteristics	n	Mean±SD	Rank mean	Kruskal-Wallis H	df	P-value
PCQN score						
Age (yr)				0.05	2	0.977
<30	97	8.9±2.5	92.2			
30–39	66	8.8±2.6	90.9			
≥40	19	9.0±2.6	89.9			
Level of education				7.80	3	0.050
Diploma	5	10.2±2.1	120.6			
Bachelor	138	8.7±2.6	88.4			
Master	34	9.0±2.0	91.4			
PhD	5	11.6±2.2	147.6			
ICU's years of experience				12.33	3	0.006
1	51	8.1±2.2	71.7			
2–5	73	9.3±2.9	103.5			
6–9	28	9.5±1.6	101.0			
≥10	30	8.7±2.4	87.1			
Type of hospital				9.44	3	0.024
Governmental	51	8.1±2.7	75.5			
Private	100	9.3±2.4	99.8			
Military	11	8.2±2.2	72.8			
Educational	20	9.4±2.2	101.4			
FATCOD score						
Age (yr)				2.86	2	0.239
< 30	97	103.7±9.8	94.3			
30–39	66	101.1±15.0	83.7			
≥40	19	107.4±12.7	104.5			
Level of education				12.98	3	0.005
Diploma	5	102.4±5.2	85.3			
Bachelor	138	102.6±12.8	89.7			
Master	34	102.8±9.7	87.4			
PhD	5	122.2±3.2	174.9			
ICU's years of experience				1.54	3	0.673
1	51	102.0±9.1	86.2			
2–5	73	103.5±14.7	94.1			
6–9	28	103.9±9.2	99.3			
≥10	30	103.6±13.5	86.9			
Type of hospital				7.86	3	0.049
Governmental	51	101.6±12.0	84.5			
Private	100	105.0±13.4	100.8			
Military	11	100.0±10.2	75.5			
Educational	20	100.2±6.9	71.7			

PCQN: Palliative Care Quiz for Nursing; PhD: doctor of philosophy; FATCOD: Frommelt Attitude Toward Care of the Dying; SD: standard deviation; ICU: intensive care unit.

curricula. In addition, hospitals are required to add palliative care topics to their continuous education strategies to ensure that nurses have adequate competency to provide this type of nursing care. Future studies that compare nurses who work in hospitals offering palliative care services to nurses from hospitals that do not provide these services are needed.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

FUNDING

None.

ACKNOWLEDGMENTS

None.

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Conceptualization: KMH, MAA. Methodology: KMH, MAA. Formal analysis: KMH, AMA. Data curation: KMH, AMA, MAD, AMS. Visualization: all authors. Project administration: KMH. Writing–original draft: KMH, AMA, ARS, MAA, AMS. Writing–review & editing: KMH, AMA, ARS, MAA, AMS.

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