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Undergraduate Nursing Students' Palliative Care Knowledge and Attitudes: A Single-Center Cross-Sectional Study

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Abstract

Background: The growing elderly population and prevalence of chronic diseases have elevated palliative care as a global public health concern. The knowledge and attitudes of undergraduate nursing students regarding palliative care will impact the quality of care in the future.

Aim: This study was conducted with aim to evaluate the knowledge and attitudes of nursing students towards palliative care among at Tehran University of Medical Sciences.

Method: This cross-sectional descriptive study was conducted in 204 on nursing students in their 5th to 8th academic semesters at Tehran University of Medical Sciences in 2022. Data was collected using the Palliative Care Quiz for Nursing (PCQN) and a researcher-developed attitude questionnaire through an online survey. Statistical analysis was conducted using SPSS software (version 16.0). $p<0.05$ was considered statistically significant.

Results: The analysis of the attitude questionnaire showed that 87.3% of participants had a positive attitude towards palliative care. Gender was a significant factor in attitude, with women scoring higher ($p=0.0001$). The mean PCQN score was 10.26 ± 2.33, indicating limited knowledge. There was no significant correlation between knowledge and attitude scores.

Implications for Practice: Most undergraduate nursing students had inadequate knowledge about palliative care, but they generally held positive attitudes towards it. Therefore, it is crucial to develop an effective palliative care program for nursing students by implementing a unified curriculum.

Keywords: Attitude, Education, Knowledge, Nursing Students, Palliative Care

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Introduction

The demand for palliative care is rising globally due to longer life expectancies, population growth, and the prevalence of serious conditions (1, 2). The World Health Organization estimates that approximately 40 million people require palliative care annually, but only 14% receive it, with 78% of those residing in low- and middle-income countries (2). In Iran, palliative care is mainly provided through home-based services in a scattered manner with a low ratio of service providers relative to the population (3). According to the 2015 Quality of Death Index by The Economist Intelligence Unit and the Lien Center for Palliative Care, Iran ranked 73rd out of 80 countries. The rankings were based on accessibility (70th), specialized workforce knowledge (78th), cost-effectiveness (56th), and community engagement (77th) in providing quality palliative and end-of-life care (4).

Palliative care is a crucial component of patient-centered care services with aims to alleviate suffering related to serious health condition. It addresses physical, psychological, social, and spiritual needs with clinical expertise, cultural sensitivity, and ethical standards (1, 5). Palliative care provides comprehensive patient care by identifying and assessing conditions such as cancer, organ failure, severe burns, chronic diseases, stroke, birth complications, and frailty in old age. It focuses on early intervention, effective pain management, and support (2, 5). Expanding access to palliative care services has multiple advantages, such as improving the quality of care and life for patients and their families, reducing unnecessary hospitalizations, and cutting healthcare expenses (6, 7). Barriers to meeting the unmet need for palliative care include the lack of integration into healthcare systems and guidelines, scarce access to medications, low awareness about the benefits, cultural and social obstacles, misconceptions (e.g., only for cancer patients), concerns about substance abuse, insufficient education for healthcare professionals and the gap between theoretical knowledge and practical application in nursing education (2, 8, 9).

Palliative care is delivered by an interdisciplinary team of healthcare, with nurses playing a vital role as a key connection between patients, families, and healthcare providers. They contribute to palliative care through research, education, symptom management, and emotional support (1, 10). Previous studies in other countries indicate that nurses and nursing students have insufficient knowledge regarding palliative care (11-13). Lack of knowledge can cause emotional distress, worry, and a feeling of powerlessness when faced with challenges in providing care for clients (14). These feelings can exacerbate a negative attitude, directly lowering the quality of care for patients (15).

Studies on attitudes towards palliative care have shown inconsistent results. Jiang et al. discovered negative perceptions of palliative care among nursing students in China (16). Another study indicated that education can enhance attitudes towards death and dying (17). Nourian et al. observed a positive attitude among nurses in neonatal care units (18). Iranmanesh et al. reported low level of knowledge and moderately negative to neutral attitudes toward palliative care in nurses, as measured by Palliative Care Quiz for Nursing (PCQN) and a self-administered attitudes questionnaire (19). Exploring the knowledge and attitude of undergraduate nursing students is essential to identify all critical issues and acquiring the skills to deliver high-quality palliative care (15). In this regard, 80% of nurses and nursing students in Iran have expressed a growing demand for palliative care education and training (20). Since 2021, the Nursing Deputy in Iran has been prioritizing the development of palliative care services. Shahid Beheshti University of Medical Sciences and Shiraz University are serving as pilot centers for these programs (3). Based on searches of reputable databases, there is currently a lack of reports on Iranian nursing students' knowledge and attitudes towards palliative care. Given the significance of nursing students as future contributors to palliative care, the present study was conducted with aim evaluate the knowledge and attitudes of nursing students towards palliative care among at Tehran University of Medical Sciences.

Methods

This cross-sectional descriptive study was conducted in 2022 at the Nursing and Midwifery School of Tehran University of Medical Sciences. A sample of 204 students from August to October was selected via a convenience sampling method to assess their knowledge and attitudes towards palliative care. The inclusion criteria were third- and fourth-year undergraduate nursing students (in semesters 5-8) who have received palliative care education as part of their curriculum and have prior knowledge of the subject. Exclusion criteria included unwillingness to participate in the study and incomplete questionnaire.

The questionnaire consisted of demographic information, the Palliative Care Quiz for Nursing (PCQN), and researcher-developed attitudes tests. Students were informed about the research purpose and consent was obtained from participants before distributing questionnaires for voluntary completion. Confidentiality of responses was guaranteed. Data collection was done online to accommodate the COVID-19 pandemic, enabling participants to access the questionnaire electronically. The sample size was calculated using the formula for correlation studies provided in the reference, with a 95% confidence level and 80% test power, assuming a minimum correlation coefficient of 0.2 between knowledge and attitude for statistical significance; the formula yielded a minimum sample size of 200 that regarding potential attrition for more assurance, the sample size continued to 204 participants (21).The demographic information included age, gender, marital status, and academic semester. The Palliative Care Quiz for Nurses (PCQN) consists of 20 questions with three Likert scale options (1=correct, 0=incorrect, and I don't know), divided into three subsets: 1. Philosophy and principles of palliative care (items: 1, 9, 12, and 17), 2. Pain and symptom management (items: 2-4, 6-8, 10, 13-16, 18, and 20), and 3. Psychosocial and spiritual care (items: 5, 11, and 19). Scores range from 0 to 20, with higher scores indicating greater knowledge. The subsequent section contains 34 questions designed to assess attitudes towards palliative care using a 5-point Likert scale (strongly agree=5, agree=4, have no opinion=3, disagree=2, strongly disagree=1). The questionnaire is categorized into six sections: truth-telling (items: 1-7), communication (items: 8-12), advance directives (items: 13-16), life-prolonging care (items: 18-24), patient preferences (items: 26-31), and withholding and with-drawing treatment (items: 32-34, 17, and 25). There are 11 negative items and 23 positive items, with reverse scores for negative items. Mean scores above 3 indicate a positive attitude, while scores below 3 indicate a negative attitude.

Attitude questionnaire was developed by Iranmanesh et al. (19) and the items were formulated based on previous literatures, analysis of similar questionnaires, and the first author's experience in conducting qualitative studies in this area. The initial version of the attitude questionnaire was given to 10 experts in palliative care to assess its face and content validity, and then it was applied after reviewing their feedback. Content validity was calculated quantitatively by calculating content validity ratio (CVR=0.96). The internal consistency reliability of the questionnaire was also calculated (Cronbach's alpha=0.92) (19). According to Ross et al. (22), PCQN indicated high content validity and reasonable reliability (test retest= 0.56 and Kuder-Richardson 20= 0.78). The Persian version of the PCQN, as translated by Iranmanesh et al. (19) and Heydari et al. (23), demonstrated high content validity and reasonable reliability. The cross-cultural adaptation process resulted in a 20-item questionnaire with a CVR of 0.83 and a CVI of 0.87 for each item, with an overall S-CVI/Ave exceeding 90%. The reliability of was confirmed by a Cronbach's alpha coefficient of 0.97 and a KR-20 test result of 0.72. (22, 23).

The data's normality was evaluated using the Kolmogorov-Smirnov test, also based on the Central Limit Theorem, with a sample size of 204 participants, the sampling distribution of the mean approximates normality. Descriptive statistics, such as mean, standard deviation, and frequency were used to present the data. Inferential statistics, including independent-sample t-test, Chi-square test, and Pearson correlation coefficient were employed. Multiple linear regression was conducted to explore the association between covariates and total PCQN and Attitude scores. The data were analyzed using SPSS software (version 16.0). $p<0.05$ was considered statistically significant.

Ethical Consideration

Ethical permission was obtained from the Faculty of Nursing and Midwifery Joint Ethics Committee and the Rehabilitation Faculty at Tehran University of Medical Sciences (ethical code: IR.TUMS.MEDICINE.REC.1400.1357).

Results

Out of the 204 completed questionnaires, 48 were 5th-semester students, 45 were 6th-semester students, 66 were 7th-semester students, and 45 were 8th-semester students. The mean age of students was 22.6 ± 2.12 years. The distribution of male and female students was almost equal. Moreover, 93.6% of students were single, with 6.4% of them being married (Table 1).

The statistical analysis of the palliative care knowledge questionnaire revealed that the total score was 10.26 ± 2.33. Only 2.9% of respondents surpassed a cut-off score of 15, which is considered a

sufficient level of palliative care knowledge; 35.7% had total PCQN scores lower than 10. For most respondents, total PCQN scores were between 10 and 15 (61.2%). The results showed no statistically significant relationship between the total score of the palliative care knowledge questionnaire with demographic characteristics (Table 2).

Table 1. Demographic characteristics of the participants

Variable	Frequency	Percent
Gender		
Male	99	48.5
Female	105	51.5
Marital status		
Single	191	6.4
Married	13	93.6
Semester		
5	48	23.5
6	45	22.1
7	66	32.4
8	45	22.1

Table 2. PCQN scores and relationship with demographic characteristics

Variable	Mean (SD)	Min-Max	Statistics	P-value
PCQN total score (possible range 0-20)	10.26 (2.33)	2-19	-	-
Philosophy and principles			-	-
(#1, 9, 12, 17; possible range 0-4)	2.02 (0.9)	0-4		
pain and symptoms management			-	-
(#2-4, 6-8, 10, 13-16, 18, 20; possible range 0-13)	6.79 (1.66)	2-12		
Psychosocial and spiritual care			-	-
(#5, 11, 19; possible range 0-3)	1.44 (0.81)	0-3		
Gender	-	-	t = 0.312	0.755*
Marital status	-	-	t = 1.925	0.056*
Age	-	-	r = 0.087	0.217**
Semester			r = -0.025	0.727**

*Independent-sample t test; **Pearson correlation test

The results revealed that 87.3% of participants had a positive attitude towards palliative care. The highest mean score was for advance directives, while the lowest was for withholding and withdrawing treatment subset. There was no significant relationship between total attitude score and academic semester, marital status, or age. However, gender was significantly related to attitude score, with women scoring higher and having a more positive attitude (*p*=0.0001) (Table 3).

We investigated assumptions relating to the normal distribution of errors and multicollinearity; no modifications to the analysis were required. So, hierarchical regression analysis was used to investigate the effects of students' knowledge on students' attitudes, controlling for the effects of other covariates entered in previous steps and reporting the relevant R2. Age, gender, marital status and academic semester did not significantly predict knowledge levels. The model's R² value was 0.021, suggesting that only 2.1% of variance in palliative care knowledge scores can be explained by predictor variables. This indicates a weak model fit and the limited predictive power of these variables on knowledge scores. Gender was the strongest predictor of positive attitudes towards palliative care (b=0.207, *p*=0.001). Age, marital status and academic semester were not significant predictors. R² value for this model is 0.157, showing that 15.7% of variance in attitude scores can be explained by the predictor variables. This value is higher than in the previous model, suggesting that the variables in this model have a more substantial impact on attitudes (Table 4).

Table 3. Attitude scores and relationship with demographic characteristics

Variable		Mean (SD)	Min-Max	Statistics	P value
Attitude total score (possible range1-5)		3.27 (0.27)	2.62-4.11	-	-
truth-telling (#1-7)		2.97 (0.32)	2.14-4	-	-
communication (#8-12)		3.26 (0.58)	1.8-4	-	-
advance directives (#13-16)		3.77 (0.62)	1.75-5	-	-
life-prolonging care (#18-24)		3.09 (0.51)	1.5-4.33	-	-
patient preferences (#26-31)		3.67 (0.61)	2-5	-	-
withholding and with-drawing treatment (#32-34, 17, and 25)		2.87 (0.48)	1.75-4.5	-	-
Attitude score	Gender	-	-	t = 5.857	0.0001*
	Marital status	-	-	t = 1.006	0.316*
	Age	-	-	r = 0.134	0.055**
	Semester	-	-	r = 0.045	0.526**
Attitude level	Gender	-	-	χ^2 = 19.022	0.0001***
	Marital status	-	-	χ^2 = 0.319	0.707***
	Age	-	-	r = -0.215	0.830**
	Semester	-	-	r = -0.731	0.466**

*Independent-sample t test; **Pearson correlation test; ***Chi-square test

The correlation test results indicate that there was no significant relationship between knowledge scores and attitudes. The mean scores for knowledge dimensions did not differ significantly between positive and negative attitude levels ($p>0.05$).

Table 4. Multivariate linear regression models of PCQN and Attitude scores

Predictor variable	Knowledge about palliative care					Attitudes				
	b	SE	B	t	p	b	SE	B	t	p
Constant	9.537	1.995		4.779	0.0001	2.827	0.219		12.928	0.0001
Age	0.052	0.085	0.048	0.621	0.536	0.015	0.009	0.114	1.588	0.114
Gender (ref: male)	-0.004	0.332	-0.001	-0.012	0.991	0.207	0.06	0.377	5.697	0.0001
Married (ref: single)	1.117	0.733	0.117	1.524	0.129	-0.044	0.08	-0.039	-0.545	0.587
Academic semester	-0.081	0.154	-0.038	-0.526	0.6	0.002	0.017	0.008	0.121	0.904
Model statistics	Overall R2 =0.021; Adjusted R2 =0.001; F (4,199) = 1.057					Overall R2 =0.157; Adjusted R2 =0.140; F (4,199) = 9.232				

*$p<0.05$; **$p<0.001$

b-unstandardized beta, SE -standard error, β- standardized beta, t:t-test statistic, R2- coefficient of determination, p - probability value

Discussion

The purpose of the present study was to examine the knowledge and attitudes towards palliative care in nursing students at Tehran University of Medical Sciences. The results revealed that students had a

positive attitude towards palliative care but they lacked in-depth knowledge on the subject. The mean total knowledge score was 10.26, indicating a limited level of knowledge similar to previous studies. This may be due to the absence of comprehensive palliative care courses in undergraduate nursing programs (16, 24, 25). Although there is no specific Iranian study on students' palliative care knowledge, research by Farmani et al. and Iranmanesh et al. found that nurses have inadequate knowledge and practice in palliative care due to the absence of specialized departments and high workloads. These findings emphasize the importance and need of integrating palliative care into nursing school curricula (19, 26). The current study found no statistically significant relationship between scores of PCQN and demographic characteristics. Previous research had consistently shown a positive correlation between palliative care knowledge and educational attainment, suggesting that knowledge increases with higher levels of education (11, 16, 27).

According to the results of the present study, 87.3% of participants had a positive attitude towards the proposed concepts, aligning with previous studies (11, 24, 25, 27). However, there were also contradictions in this area. Jiang et al. found that the majority of Chinese undergraduate nursing students hold a negative or pessimistic attitude toward palliative care (16). Jafari et al. reported neutral attitudes and demonstrated that education had a positive effect on students' attitudes (28). Noorian et al. discovered that Iranian nurses in neonatal intensive care units had a positive attitude towards palliative care for newborns. They suggested that additional training, including theoretical and practical components, could enhance nurses' positive outlook (18). Iranmanesh et al. observed that Iranian nurses had a positive attitude due to their strong sense of empathy and kinship (19).

The present study also found a significant relationship between gender and total attitude score, with women scoring higher on average. The effects of gender on attitude are difficult to explain; however, there are similar findings reported by other studies (11, 27). Having a positive attitude demonstrates an understanding of the significance of learning and applying palliative care knowledge. Fortunately, there is no need to alter people's perspectives; the key is to eliminate obstacles in this process. Additionally, developing guidelines and policies for the implementation of palliative care had been shown to be an effective solution (18, 29).

One of the limitations of the present study was that sampling began during the COVID-19 pandemic, leading to online completion of the questionnaire by participants due to the lack of physical presence. Future research should consider conducting similar studies in multiple universities with a larger sample size to further explore the topic.

Implications for practice
While most students had a positive attitude towards palliative care, there is a noticeable lack of knowledge among nursing students. This gap in knowledge, despite the topic being included in the university curriculum, may suggest that the content is insufficient to meet the educational needs of nursing students. To address this issue, it is recommended to provide more comprehensive and continuous training, and implement a unified curriculum to ensure nursing students receive a strong foundation in palliative care.

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Conflicts of interest
The authors declare that they have no competing interests.

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Authors' Contributions
The study's conceptualization and design: P.M, F.Q.T, H.Q, and K.T. Data curation: F.Q.T, H.Q, K.T. Statistical analysis, methodology, writing–review & editing: P.M, F.Q.T. Supervision: P.M. Writing–original draft: F.Q.T. Finally, all authors read and approved the final version for publication.

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