ORIGINAL ARTICLE

Knowledge, Attitudes, and Self-Efficacy of Towards Palliative Care in Indonesian Pre-Registration Nursing Students: A Cross-Sectional and Multicenter Study

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ABSTRACT

Introduction: Palliative care education at the undergraduate level offers nursing students a solid foundation for clinical practice. Knowledge, support, and skilled nurses are essential when caring for patients with life-limiting conditions and their families. Current palliative care education focuses mainly on academic learning with limited clinical learning. This study aimed to identify knowledge, attitudes, and self-efficacy towards palliative and end-of-life care among nursing students who received palliative care education at three undergraduate nurse training institutions in Indonesia. **Materials and Methods:** This cross-sectional study utilized non-probability sampling to recruit 152 respondents from Bandung, Yogyakarta, and Jember nursing schools. Three instruments were used for data collection: the Palliative Care Quiz for Nursing (PCQN), the Frommelt Attitude Toward Care of the Dying (FATCOD-B), and the Self-Efficacy in Palliative Care (SPEC) scale. The data was analyzed using the Spearman correlation. **Results**: Findings suggest that all students have positive attitudes towards death and caring for dying patients. However, over half of the students demonstrated low knowledge and self-efficacy (52%). Such deficiencies can lead to suboptimal care for those at the end of life. **Conclusion**: Palliative care education should be taught theoretically in the classroom and incorporated into clinical internships to strengthen students' self-efficacy and clinical skills. The current palliative care nursing curriculum in Indonesia needs to be modified to address this gap.
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INTRODUCTION

The demand for a comprehensive spectrum of medical care, which encompasses preventative, therapeutic, rehabilitative, and palliative treatments, is on the rise for both adults and children afflicted with life-limiting diseases. According to the World Health Organization's estimates, approximately 57 million individuals globally require palliative care—76% adults and 7% children (1). By 2060, 45% of those 57 million end-of-life patients are projected to necessitate palliative care interventions (2). Additionally, most % of the palliative care demand—76% to be precise—is found within low- and middle-income nations (2).

The World Health Organization defines palliative care as an approach that aims to improve the quality of life for patients and their families in the face of life-threatening illnesses. This is achieved by early identification, assessment, and treatment of pain and other issues – whether they are physical, psychosocial, or spiritual (3). Enhancing the competence of health professionals in palliative care is therefore essential, and must be addressed through formal education, continuing professional development, and structured clinical training (2).

The Indonesian Undergraduate Nursing Core Curriculum was introduced in 2015, and nursing students must undertake palliative and end-of-life care courses for three credits. This course aims to equip students with a comprehensive understanding of palliative care, inclusive of its nursing perspectives and concepts, ethics and policies, communication protocols with patients and families, pathophysiology of terminal diseases, as well as the capabilities to perform comprehensive assessments and provide care that addresses the bio-psycho-social-spiritual, and cultural needs of patients with terminal illnesses (4).

In response to this demand, the Indonesian Undergraduate Nursing Core Curriculum was implemented in 2015, mandating nursing students to take a three-credit palliative and end-of-life care course. This course is intended to provide students with a comprehensive understanding of palliative care, including ethical and policy frameworks, communication strategies, pathophysiology of terminal illnesses, and the ability to provide holistic care that addresses patients' and families' bio-psychosocial-spiritual and cultural needs (4).

While the incorporation of palliative care education into Indonesian nursing curricula represents significant progress, previous research has primarily focused on evaluating learning outcomes, without delving into the broader and more complex aspects of curriculum delivery, student preparedness, or the contextual influences that shape student learning (5,6). There is still a lack of research that completely examines nursing students' palliative care competency, notably in terms of knowledge, attitude, and self-efficacy. Furthermore, there is little empirical information on how disparities in institutional curricula and cultural contexts affect the efficacy of palliative care teaching in Indonesia. Therefore, this study aimed to identify knowledge, attitude, and self-efficacy towards palliative and end-of-life care among students who have attended palliative care education at three nursing schools in Indonesia. The findings are likely to help improve palliative care education and inform the development of culturally sensitive and context-relevant teaching methodologies in nursing programs.

MATERIALS AND METHODS

Design

This research was conducted using a cross-sectional design. This research was conducted using a cross-sectional design. Cross-sectional design was chosen for this research to captures data at a single point in time for each variable and describe students' readiness for palliative care across multiple centres.

Sample and setting

The non-probability purposive sampling method, in which a total of 152 respondents were recruited from three nursing schools, including Universitas A, Universitas B, and C. Universities A and C are state universities, and University B is a private university, all located in Java Island. They follow a new national nursing curriculum of 2015 in which palliative care is offered as a mandatory subject that earns three credits within 16 weeks duration. The researchers consisted of all university representatives who were responsible for contacting each participant at their respective universities. These participants are final-year nursing students currently in the professional clinical learning stages (Program Pendidikan Profesi Ners). Only active enrolled students who have completed pre-clinical palliative care courses in each school were eligible to participate in this study.

Variable

The main variables examined include knowledge of palliative care, attitudes towards palliative care, and self-efficacy in the context of palliative care. These variables are measured to understand the relationship between nursing students' knowledge, attitudes, and self-efficacy with their preparedness to provide palliative care, interest in pursuing a career in palliative care, and intention to integrate palliative care into their future practice.

Instruments

This study incorporated the Indonesian version of the Palliative Care Quiz for Nurses (PCQN-I), which is an outcome of translating and culturally adapting the original PCQN by Ross et al., (1996) into Indonesian, carried out by Hertanti et al., (2020) (7). The PCQN-I consists of 20 statements divided into three domains: the philosophy and principles of palliative care, pain and symptom management, and psychosocial and spiritual care. Each correct response is scored as 1, while incorrect or "don't know" responses are scored as 0, measuring participants' knowledge of palliative care. The third section employed the Indonesian adaptation of the Frommelt Attitude Toward Care of the Dying Scale Form B (FATCOD-B-I) (8), measuring attitudes towards providing care to end-of-life patients, consisting of 30 items rated on a 5-point Likert scale, ranging from strongly disagree to strongly agree. The final part of the questionnaire utilized the Self-Efficacy in Palliative Care (SEPC) scale, initially developed by Mason & Ellershaw (2004) (9) and translated into Indonesian by Sipayung et al., (2019) (10). The SEPC consists of 23 items includes domains of communication, patient management, and multidisciplinary teamwork, with each item rated on a 0–10 cm Visual Analog Scale (VAS), anchored by "very anxious" and "very confident."

Data collection

Data collection for this study occurred from June to October 2022. The researchers used self-reported instruments that were distributed online to the recruited participants. The survey instrument was structured into four distinct

sections. The initial section gathered demographic data, including participants' age, gender, student registration number, religion, ethnicity, prior experience with loss of family members or close friends, involvement in caring for palliative and end-of-life patients, and prior attendance at training or seminars relevant to palliative and end-of-life care. The second section of the survey incorporated the Indonesian version of the Palliative Care Quiz for Nurses (PCQN-I). This component was designed to evaluate knowledge of palliative care. The third section employed the Indonesian adaptation of the Frommelt Attitude Toward Care of the Dying Scale Form B (FATCOD-B-I) by A'la (2016) (8). The final part of the questionnaire utilized the Self-Efficacy in Palliative Care (SEPC) scale (9), which evaluates healthcare providers' self-perceived competency across communication, patient management, and interdisciplinary teamwork within palliative care.

Data analysis

Data analysis began with a univariate approach to outline the essential characteristics of respondents' knowledge and attitudes. Subsequently, univariate and multivariate tests, specifically the Spearman correlation statistical test, were conducted to explore the relationship among the study's multivariate variables: students' knowledge, attitudes, and self-efficacy in palliative care.

Ethical consideration

Data collection was conducted with research permits from the Faculty of Nursing at Universitas Padjadjaran, Universitas Muhammadiyah Yogyakarta, and Universitas Jember, and was approved by the Research Ethics Committee of Universitas Padjadjaran 963/UN6.KEP/EC/2022. All participants received clear information about the study and gave written informed consent. They were informed of the study's purpose, benefits, and potential risks. Participation was voluntary, and confidentiality was ensured by anonymizing data and omitting any personal identifiers in the final report.

RESULTS

The results of the research have been carried out about the knowledge, attitude, and self-efficacy towards palliative care among preregistration nursing students in three institutions, namely the Faculty of Nursing A at Bandung City, the Faculty of Nursing B at Yogyakarta, and the Faculty of Nursing C at Jember. Results are presented as a distribution table of characteristics of students, as well as the results of data analysis obtained from all instruments. This research focuses on the analytical quantitative descriptive to determine the level of knowledge, attitude, and self-efficacy towards palliative care and the relationship between these variables. Demographic data such as age, gender, institution, and year of entry to the clinical learning program were presented in Table 1.

Table I: Demography characteristics of preregistration nursing students at Faculty A, B and C (n = 152)

Characteristics of Respondents	Frequency (*f*)	Percentage (%)
Gender		
Female	130	85.5
Male	22	14.5
Age		
20 - 22 years	52	34.2
>23 years	100	65.8
Academic Entry Year		
2015	2	1.3
2016	7	4.6
2017	95	62.5
2018	48	31.6
Institution		
Univ. A	51	33.6
Univ. B	82	53.9
Univ. C	19	12.5
Knowledge		
Poor	30	19.7
Good	122	80.3
Attitude		
Unfavourable	0	0.00
Favourable	152	100
Self-Efficacy		
Low Self-Efficacy	79	52.0
High Self-Efficacy	73	48.0

Palliative Care Knowledge of Preregistration Nursing Students

The results were obtained using the Indonesian version of the Palliative Care Quiz for Nurses instrument adapted Hertanti et al., (2020) (7) from Ross et al., (1996).

Table 2 shows the average score of students' knowledge about palliative care in three domains. The total mean score of all students was 12.68 (SD = 2.72), with a score range of 6 - 20 out of a maximum score of 20. The domains with the highest mean score of 8.46 were pain and symptom management (SD = 1.96), while the palliative care philosophy and principles domain had the lowest score of 1.91 (SD = 0.89).

Table II: Palliative Care Knowledge of Nursing Professional Students from Faculty A, B and C (N=152)

Variable	Min	Max	Mean	SD
Knowledge	6	20	12.68	2.72
Philosophy and Principles of Palliative Care (4 items)	0	4	1.91	0.89
Pain and Symptom Management (13 items)	4	13	8.46	1.96
Psychosocial and Spiritual Treatment (3 items)	0	3	2.31	0.80

The acquisition of correct answers for each question item based on each domain in the PCQN questionnaire is described in Table 3. The results show that the question items in the pain and symptom management domain that were mostly answered correctly were items 7 and 18 (91.4%). Meanwhile, the most incorrect answers were recorded in the domain of philosophy and principles of care on item 9 (92.8%).

Table III: Knowledge of Palliative Care of Nursing Profession Students at Faculty A, B and C (n=152) based on Question Items (N=152) (CONT.)

Question	Frequency of Correct Answers (%)	Frequency of Wrong Answers (%)
PHILOSOPHY AND PRINCIPLES OF PALLIATIVE CARE		
1.Palliative care is appropriate for patients whose condition is decreasing or deteriorating	110 (72.4%)	42 (27.6%)
9.Providing palliative care does not require empathy	11 (7.2%)	141 (92.8%)
12.The philosophy of palliative care is consistent with the principles of aggressive therapy	61 (40.1%)	91 (59.9%)
17.Burnout of the health workers working in palliative units is caused by an accumulated sense of loss due to patient death	109 (71.7%)	43 (28.3%)
PAIN AND SYMPTOM MANAGEMENT		
2 Morphine is the standard used to compare the analgesic effects of other classes of opioids	123 (80.9%)	29 (19.1%)
3.The severity of the disease determines the method of pain management	137 (90.1%)	15 (9.9%)
4.Adjuvant (additional) therapy is important in pain management	146 (96.1%)	6 (3.9%)
6. During the final days before death, the drowsiness experienced by the patient due to electrolyte imbalance may reduce the need for sedative drugs	99 (65.1%)	53 (34.9%)
7.Drug dependence is one of the main problems that occurs if morphine is used long term for pain management	139 (91.4%)	13 (8.6%)
8.Patients receiving opioid therapy should also be given gastrointestinal therapy	99 (65.1%)	53 (34.9%)
10.During the late stages of the disease, drugs that cause respiratory depression are appropriate for the management of severe dyspnea	62 (40.8%)	90 (59.2%)
13.Placebo (empty medication) can be used in the management of some types of pain	64 (42.1%)	88 (57.9%)

CONTINUE

Table III: Knowledge of Palliative Care of Nursing Profession Students at Faculty A, B and C (n=152) based on Question Items (N=152)

Question	Frequency of Correct Answers (%)	Frequency of Wrong Answers (%)
PAIN AND SYMPTOM MANAGEMENT		
14.High doses of codeine cause nausea and vomiting more often than morphine	99 (65.1%)	53 (34.9%)
15.Suffering and physical pain are the same thing	43 (28.3%)	109 (71.7%)
16.Pethidine (opioid analgesic) is not an effective analgesic for controlling chronic pain	67 (44.1%)	85 (55.9%)
18.Manifestations of chronic pain differ from acute pain	139 (91.4%)	13 (8.6%)
20.The pain threshold can be lowered through anxiety or fatigue	69 (45.4%)	83 (54.6%)
PSYCHOSOCIAL AND SPIRITUAL TREATMENT		
5.Family members must be by the patient's side until the patient dies	138 (90.8%)	14 (9.2%)
11.In general, men get rid of grief more quickly than women	92 (60.5%)	92 (60.5%)
19.The grief resulting from losing a distant relative is easier to overcome than losing a close relative	121 (79.6%)	31 (20.4%)

Attitudes Towards End-of-Life Care Among Preregistration Nursing Students

Table 4 shows the results related to student attitudes toward the care of the dying using the Indonesian version of the FATCOD-B questionnaire. The FATCOB-B questionnaire comprises thirty questions, including favourable and unfavourable questions. In Table 4, the favourable questions are labelled F, and the unfavourable questions are labelled U.

Table IV: Attitudes of Nursing Professional Students towards the care of dying patients based on questions (N=152)

Statement	Min	Max	Mean	SD
Attitudes				
Attitudes of Nursing Professional Students from the Faculty of Nursing, Padjadjaran University, Jember University, and Muhammadiyah University of Yogjakarta in Carrying Out Palliative Care	**85.00**	**150.00**	**105.93**	**13.287**
1. Providing dying care is a valuable experience			4.61	.653
2. Death is not the worst thing that can happen to an individual			3.05	4.214
3. I would feel uncomfortable discussing death with a dying patient			3.80	1.017
4. Caring for the patient's family should be continuous until the period of grief and mourning			3.92	.967
5. I don't want to treat patients who are nearing death			2.01	1.070
6. Caregivers who are not the patient's family do not need to discuss death with the dying patient			3.23	1.188
7. Long hours in caring for dying patients can frustrate me			2.78	1.093
8. I will become sad when the dying patient I care for gives up hope of a better one			4.00	.869
9. Creating an open relationship with a patient who is nearing death is something that is difficult			3.62	.976
10. Patients who are nearing death need time to die			3.98	.723
11. When patients ask "am I dead?" I think turning the conversation towards something fun is the best choice			3.69	1.117
12. Families should be involved in the care of dying patients			4.68	.520
13. I hope the patient I care for dies when I'm not there			2.49	1.157
14. I am afraid to accompany patients who are dying			2.60	1.214
15. When the patient died, I felt like running away from the problem			2.34	1.061
16. The family needs emotional support to accept changes in the patient's behavior near death			4.50	.630
17. Non-family caregivers should withdraw from patient involvement when the patient is close to death			2.83	1.109
18. The family should focus on the best/most beautiful memories of the dying patient			4.01	.917
19. Dying patients do not need to be involved in making decisions about the care they receive			2.43	1.137
20. The family should maintain as normal an environment as possible for the immediate family members of the dying patient			4.06	.702
21. Patients nearing death are better off if they are able to express their feelings			4.33	.698
22. The care process must include the family with the dying patient			4.44	.606
23. Caregivers should allow dying patients to visit at flexible times			3.90	.859
24. Dying patients and families should be the primary decision makers			4.23	.776
25. Dependence on painkillers should not be the subject of discussion when communicating with dying patients			3.56	1.0096
26. I would feel uncomfortable if I entered a patient's room with a terminal patient and found the patient crying			3.12	1.115
27. Patients nearing death must be given actual information regarding their condition			4.26	.836
28. Education for families regarding death and the death process is not the responsibility of non-family caregivers			2.97	1.212
29. Family members who live close to the dying patient often interfere with their work with the patient			2.74	1.084
30. Non-family caregivers may help the patient in preparing for the patient's death			3.77	.945

The total mean score of student attitudes towards end-of-life patient care was 105.93 (SD = 13.28), with all respondents (100%) showing a supportive attitude. The highest score shown was 150, and the lowest score was 85, with the score range of the FATCOD-B-I instrument being 30-150. The highest average score is displayed on items such as supportive attitude related to providing valuable experiences to palliative patients (item 1), the care process should include families with dying patients (item 22), dying patients and families should be the primary decision makers (item 23), and dying patients should be given actual information related to their condition (item 27). Meanwhile, question items 5, 13, and 19 showed the lowest average score.

Self-efficacy in Performing Palliative Care in Preregistration Nursing Students

Below is a description of the self-efficacy of professional nursing students (PPN) at the Faculty of Nursing A, B, and C in Performing Palliative Care. Based on the total score obtained, students' self-efficacy demonstrated in the low category, as much as more than half (52.0%).

Table V: Self-Efficacy of PPN Students at the Faculty A, B and C in Carrying out Palliative Care (N=152)

Category	Frequency (*f*)	Percentage (%)
Low Self-Efficacy	79	52.0%
High Self-Efficacy	73	48.0%

Relationship between Knowledge, Attitudes and Self-efficacy of Preregistration Nursing Students

The relationship between knowledge, attitude, and self-efficacy variables was calculated using the Spearman test because not all variables were normally distributed. The results of the Kolmogorov–Smirnov normality test showed that the knowledge and attitude variables had significance values of 0.000 ($p < 0.05$), indicating that they were not normally distributed. In contrast, the self-efficacy variable had a significance value of 0.200 ($p > 0.05$), indicating a normal distribution. Since at least two variables violated the assumption of normality, the non-parametric Spearman test was considered more appropriate for analyzing the relationships among the three variables.

Table VI: Mean value of Self-Efficacy level of PPN students at the Faculty A, B and C (n=152)

Variable	Range of SEPC Score	Mean	SD	Min.	Max.
Self-efficacy	0-230	105.93	13.28	85	150
Communication	0-80	48.72	12.42	16	80
Patient Management	0-80	61.61	10.69	24	80
Multidiscipline collaboration	0-70	54.97	8.71	32	70

The Spearman correlation test (Table 7) revealed that knowledge had a significant weak association between knowledge and both attitude ($r = 0.243$, $p = 0.003$) and self-efficacy ($r = 0.196$, $p = 0.015$). This suggests that higher levels of knowledge among students are linked to more positive attitudes and more confidence in providing palliative care.

Table VII: Spearman Correlation Test Results between Knowledge, Attitudes and Self-Efficacy of Nursing Professional Students at the Faculty of Nursing, Padjadjaran University, Jember University, and Muhammadiyah University of Yogjakarta in Carrying Out Palliative Care (N= 152)

Variable	Attitude		Self-Efficacy	
	(p-value)	r	(p-value)	r
Knowledge	0.003	0.243*	0.015	0.196*

**Correlation is significant at the 0.01 level (2-tailed).*

Table 8 shows the results of the cross-tabulation test between the variables of knowledge, attitude, and self-efficacy of students (N = 152). For knowledge and attitude level, it was found that students with poor knowledge had a supportive attitude in as many as 30 respondents. Respondents with good knowledge scores and supportive attitudes were 133 (100%). As for the categories of knowledge and self-efficacy, it was found that lack of knowledge tended to have a low level of efficacy (66.7%), while for good knowledge, most had high self-efficacy (51.6%).

Table VIII: Cross Tabulation Test Results Between Knowledge, Attitudes and Self-Efficacy of Nursing Professional Students at the Faculty of Nursing, Padjadjaran University, Jember University, and Muhammadiyah University of Yogjakarta in Carrying out Palliative Care (N=152)

Knowledge	Attitudes		Self-efficacy	
	Unfavourable	Favourable	Low	High
Poor	0 (0%)	30 (100%)	20 (66.7%)	10 (33.3%)
Good	0 (0%)	122 (100%)	59 (48.4%)	63 (51.6%)

DISCUSSION

This study is the first to evaluate palliative care readiness among pre-registration nursing students in three nursing higher education institutions in Indonesia. The quantitative research results showed that although all participants showed a favourable attitude towards end-of-life care, most participants had inadequate knowledge about palliative care and low self-efficacy regarding the implementation of palliative care.

Students' knowledge of palliative and end-of-life care

The study indicates most participants were female students (85.5%), and their ages ranged from 20-23 years, with more than half being in the > 23-year age range (65.8%). More than half of these students enrolled in the class of 2017 (62.5%), and most participants were from the University of Jember (53.9%). In this study,

the PCQN scores for the three identified conceptual subcategories revealed that "management of pain and other symptoms" received the highest correct responses, whereas "psychosocial and spiritual care" had the lowest. This pattern aligns with findings from prior research (11,12) and may indicate the prevailing emphasis on end-of-life (EOL) care within the Indonesian context. Nonetheless, a holistic approach to palliative care is fundamental, encompassing psychological and spiritual support crucial for comprehensive EOL care. Nurses must possess proficiency in delivering care that addresses psychological and spiritual needs (6,13). There is an apparent necessity for additional measures to bridge the knowledge gap in these areas among nursing professionals in Indonesia.

In the research conducted, a significant number (96.5%) of participants agreed with the statement, "It is vital for family members to remain at the bedside until death occurs" from the PCQN, categorising it as "true," which contrasts with the original classification by the creators of the PCQN, who marked it as false. This finding echoes a Korean study, where all surveyed nurses considered the same statement false (14). Such discrepancies highlight the need for a culturally sensitive understanding of this PCQN item. Within Asian cultural contexts, the presence of family during the dying process is often integral to what is considered a "good death." From a Mongolian cultural standpoint, this ideal necessitates further exploration and adaptation in EOL care to ensure cultural relevance and appropriateness.

Previous study indicates that several factors contribute to healthcare professionals' hesitation in prescribing opioids for pain management. These factors range from insufficient training for healthcare providers and cultural and attitudinal barriers to financial considerations and strict national regulations driven by worries over abuse and dependence (15,16). There is a recognized need for additional research to demystify opioid utilization and to understand the obstacles that prevent Indonesian healthcare practitioners from utilizing opioids effectively. Palliative care educational programs effectively enhance knowledge of end-of-life care among nursing leaders (11). Since knowledge strongly influences self-efficacy in palliative care, there is an urgent need to refine educational quality in this field (15). Additional research should examine the substance of palliative care education throughout Asia. The quality of palliative and end-of-life care instruction can benefit from implementing guidelines ELNEC recommends (11). Nursing education in Indonesia is thus expected to adjust the palliative care educational framework to align with the local healthcare system, societal needs, and cultural nuances (6). Given the status of Indonesia as the largest archipelago country with a diverse population across various ethnic groups and distinct geographic challenges, the provision of high-quality palliative care education, especially in remote or rural locations, could be enhanced through the development of online courses. These could be supported by the Ministry of National Education and Culture alongside reputable universities, leveraging platforms such as Massive Open Online Courses (MOOCs) and initiating Training of Trainers (TOT) programs.

Students' attitudes towards palliative and end-of-life care

Previous studies revealed that the mean FATCOD (Frommelt Attitude Toward Care of the Dying) score, expressed as a percentage of the possible total, was greater than that observed in nursing students from the United States (11), Iran (17), and China (15). The results demonstrated generally favourable attitudes towards palliative and end-of-life care among the participants. This finding might reflect a greater baseline acceptance and integration of palliative and end-of-life care education within the curricula of Indonesian educational institutions, especially when compared to other low and middle-income countries (LMICs).

Communication skills are crucial for providing high-quality care at the end of life (5). However, in this research, communication between nurses, dying patients, and their families received lower scores on the FATCOD than other evaluated aspects. Additionally, the item concerning the lowest self-efficacy among participants was "Discussing patients' wishes after their deaths." Several factors explain these findings. One possible reason is the influence of Indonesian and broader Asian cultural norms, which often view discussions around death with discomfort (6,15). Even in Mongolia, where nurses recognize patients' rights to understand their diagnosis and prognosis, there may be cultural resistance to openly sharing bad news. Consequently, there is a need for communication training that is not only effective but also culturally sensitive and family-oriented, acknowledging the cultural nuances around discussing death and dying. Other factors that may contribute to these findings include potential gaps in communication-related content within curricula and the need to update and make learning methods more relevant and effective.

End-of-life care content is pivotal to Indonesia's palliative care education curriculum. Upgrading education on communication with patients nearing death and their families may improve the attitudes and self-efficacy of nurses in palliative settings (15). Nonetheless, the current strategies need to be sufficiently impactful in enhancing skills for end-of-life patient interactions. Prior studies have indicated that more engaging and interactive methods, such as small group activities, interactive exercises, and role-playing, teach complex communication skills required for end-of-life care (6,18). Considering these findings, it becomes clear that it is imperative to integrate more effective training approaches into end-of-life communication education,

tailored to equip healthcare professionals with the necessary skills to navigate the sensitive and emotionally charged contexts they will face.

Students' Self-Efficacy for Palliative and End-of-Life Care

The reported average total score on the Self-Efficacy in Palliative Care (SEPC) scale was 125.64 out of a potential 196.9, highlighting the need for additional support for students in delivering palliative care within hospital settings. Such a result aligns with prior studies conducted by Mason & Ellershaw (2004) (9) which demonstrated that nurses who participated in palliative care educational interventions showed an improvement in self-efficacy compared to those who did not.

Despite delirium being commonly encountered among palliative care patients, the study revealed that students had a deficient sense of self-efficacy in responding to and managing terminal delirium. This supports the findings from similar research in Japan (19), which cited the challenge of managing delirium as a significant hurdle in nurse-led palliative care. Hosie et al., (2014) (20) further suggest that increased knowledge about delirium correlates with higher self-efficacy and improved practices in palliative care.

The study's findings, illustrated through the mean total self-efficacy score of 125.64 (with a standard deviation of 25.42), indicate an overall low self-efficacy among students in palliative care disciplines. Breaking down the self-efficacy score into specific areas for the students of the PPNI (Indonesian National Nurses Association), the means in the domains of communication, patient management, and multidisciplinary cooperation were 38.24, 48.18, and 39.21, respectively. This underscores the areas that require targeted educational interventions to enhance confidence and competence in palliative care among nursing students.

The Relationship Between Knowledge, Attitudes and Self-Efficacy Toward Palliative and End-of-Life Care

The study outcomes highlight a juxtaposition within nursing education. While there is a positive attitude toward providing end-of-life care among nursing students, they concurrently exhibit deficiencies in both knowledge and self-efficacy in palliative care. These observations are consistent with those made in the study of Chinese undergraduate nursing students, who demonstrated a similar pattern of positive attitudes but limited knowledge and self-efficacy (15). Complementarily, Nguyen et al., (2014) (21) uncovered parallel findings among oncology nurses in Vietnam, reinforcing that while the intentions and attitudes toward end-of-life care are commendable, a significant gap exists in practical knowledge and self-perceived competency in palliative care. These findings underscore an educational necessity: enhanced training and continuous education broaden the knowledge base of nurses and nursing students and focus on improving their confidence and capability to implement palliative care effectively. This indicates the importance of developing well-rounded educational programs to foster theoretical understanding and practical self-assurance for proficient palliative care delivery (22).

Limitation of study

The Association of Indonesian Nurses Education Centre (AINEC) initiative in launching the palliative care course in 2015 reflects a strategic response to the growing necessity for palliative skills among healthcare professionals. Motivation plays a pivotal role in nursing education, and the impetus for students enrolled in compulsory courses as part of their undergraduate or professional studies may vary considerably. Mandatory courses inspire a baseline level of knowledge and skill. In contrast, elective courses might attract those with an innate interest in the subject matter, possibly leading to different levels of engagement and learning outcomes. Thus, a valuable opportunity exists for research into the disparities in knowledge, attitudes, and self-efficacy concerning palliative and end-of-life care between academically inclined nursing students and those with practical, hands-on experience. Investigating these differences can provide deeper insights into how educational strategies can be tailored to maximize motivation and efficacy across diverse student populations, enhancing palliative care education and ultimately improving patient care outcomes. Adopting a cross-sectional design and self-report instruments in this study to assess knowledge, attitudes, and self-efficacy is insightful yet highlights the potential for methodological expansion in future research. Exploring additional data collection techniques, such as in-depth interviews, would complement the existing instruments and provide a richer, more nuanced understanding of the impacts of palliative care education programs.

In pursuing a more holistic evaluation of palliative care education, subsequent studies might consider employing diverse and comprehensive methodologies. These could assess knowledge, attitudes, self-efficacy and other crucial facets, such as the effectiveness of learning methods, their impact on the learners' personalities and professional identities, and how these factors correlate with the proficiency of care provided. Further examination of how learning in palliative and end-of-life care influences long-term professional practice. Research could extend to include recent alumni as well as those who have transitioned into novice healthcare practitioners. Tracking these individuals across various healthcare settings, especially those focusing on palliative care, end-of-life scenarios, and bereavement support, could provide valuable longitudinal data on the lasting effects of educational interventions. By using quantitative and qualitative methods, future studies could evaluate the curricular content, teaching methodologies, and overall education strategies within the field of palliative care in Indonesia, as well as nursing

and health professional education.

Another significant limitation of this research involves the use of Western culture-based instruments, which might not fully encapsulate the intricate cultural perspectives and practices towards dying and death prevalent in Indonesia. Future research would benefit from developing and validating culturally sensitive scales to more accurately measure end-of-life care perceptions within the Indonesian context. Furthermore, Indonesia's rich tapestry of ethnic diversity means that a study focusing on a subset of nursing schools on Java Island might not reflect the diversity of traditions and beliefs held by various Indigenous groups across the country. This limitation suggests caution when representing the study's conclusions, universally applicable in Indonesia. The study presents valuable insights into nursing students' knowledge, attitudes, and self-efficacy regarding palliative care on Java Island. However, the inherent limitations must be weighed cautiously when attempting to extrapolate these insights to broader contexts. With the research being a cross-sectional survey from three nursing schools in a specific geographic area, the findings may only directly transfer to other populations, especially those outside of Java, with further corroboration.

The potential relevance of the study's conclusions to other low- and middle-income countries (LMICs) or Asian countries sharing similar socio-cultural dynamics is worth noting. Still, these parallels should be drawn with an understanding of each region's unique cultural, social, and economic factors. Another significant limitation of this research involves the use of Western culture-based instruments, which might not fully encapsulate the intricate cultural perspectives and practices towards dying and death prevalent in Indonesia. Future research would benefit from developing and validating culturally sensitive scales to more accurately measure end-of-life care perceptions within the Indonesian context. Furthermore, Indonesia's rich tapestry of ethnic diversity means that a study focusing on a subset of nursing schools on Java Island might not reflect the diversity of traditions and beliefs held by various Indigenous groups across the country. This limitation suggests caution when representing the study's conclusions, universally applicable in Indonesia.

CONCLUSIONS

Findings identified nursing students' positive attitudes towards end-of-life care, juxtaposed with their limited knowledge and self-efficacy, highlighting an educational gap in palliative care. The critical connection between educational attainment in palliative care and practical patient care outcomes underscores the necessity for an academic trajectory that ensures competencies are not just learned but are also sufficiently practised and applied in clinical settings. Given Indonesia's culturally and religiously diverse fabric, the study's findings strongly indicate the need for a culturally congruent palliative care curriculum. Adjustments that honour local cultural and religious nuances can enhance the relevance and effectiveness of palliative care education, leading to improved student knowledge and competencies in this field.

The study's findings have implications for curriculum improvement by including a particular module on palliative care in order to improve student understanding. Furthermore, needs to be a policy to provide equitable training for students on one of the competency achievements of palliative care. Future research should systematically evaluate and refine the palliative care curriculum to develop culturally sensitive educational materials, teaching strategies, and assessments that measure students' theoretical knowledge and practical skills. Moreover, improving clinical placement sites as effective learning environments is essential. These sites should be well-equipped to support knowledge transfer, fostering an educational continuum from the classroom to the bedside. Findings further suggest a path towards improving palliative care provision globally, particularly in nations grappling with limited resources. Tailoring education to sociocultural contexts, enhancing academic and professional collaboration, and focusing on applied competencies in clinical practice may raise the standard of palliative care and ensure that all individuals receive the compassionate and comprehensive care they deserve at the end of their lives.

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