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Original Article

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Factors Affecting Psychological Burnout in Nurses Caring for Terminal Cancer Patients

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Purpose: This study aimed to investigate the impacts of end-of-life care competency and ethical dilemmas on psychological burnout in nurses who care for terminal cancer patients. **Methods:** A cross-sectional study of 160 nurses who cared for terminal cancer patients was conducted. The participants were recruited from the hospice-palliative care wards, hematology or oncology wards, or intensive care units of three general hospitals in a single metropolitan area. Data were collected using a self-administered survey to assess end-of-life care competency, ethical dilemmas, psychological burnout, and general sociodemographic characteristics. Data were analyzed using descriptive statistics, the independent t-test, analysis of variance, Pearson correlation coefficients, and hierarchical linear regression analysis using SPSS for Windows (version 26.0). **Results:** Psychological burnout was significantly correlated with end-of-life care competency (r=-0.23, P=0.003) but not with ethical dilemmas. The results of the hierarchical linear regression analysis indicated that end-of-life care competency (β=-0.280, P=0.010) and ethical dilemmas (β=0.275, P=0.037) were significant predictors of psychological burnout, after adjusting for age, religious status, clinical experience, and unit type. **Conclusion:** The current study's findings demonstrate that end-of-life care competency and ethical dilemmas are crucial factors that affect psychological burnout in nurses who care for terminal cancer patients. Substantive education programs must be developed to improve nurses' competencies in end-of-life care and ethical dilemmas to decrease psychological burnout.

Key Words: Clinical competence, Professional burnout, Clinical ethics, Terminal care

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INTRODUCTION

1. Background

Cancer is the top cause of death in South Korea, and the proportion of cancer patients, including terminal cancer patients, increases yearly despite advances in medical technology [1]. Terminal cancer patients require many types of care due to their varied physical symptoms and pain, uncertainty about their prognosis, and psychological grief prompted by changes in their social relationships and roles through treatment. Nurses perform multifaceted roles as practitioners, educators, collaborators, researchers, and advisors who provide direct medical services while interacting with patients and providing complex care for terminal cancer patients [2].

Psychological burnout among nurses is a risk factor that can weaken nurses' identities as professional care providers, impair work performance, and decrease the quality of medical ser-

vices [3,4]. Psychological burnout, which can be aggravated by experiencing repetitive emotional suppression or stress, induces negative emotions, such as hopelessness or helplessness, and causes confusion and conflict over their roles and identities [5]. Nurses caring for terminal cancer patients may experience negative emotions, such as helplessness, disappointment, and psychological burnout, when recognizing the medical limits in alleviating patients' excruciating pain or observing the distress that patients and their families experience regarding uncertainty in therapeutic decisions [6,7]. In addition, the limited availability of personnel and medical resources and the lack of practical opportunities to strengthen professional competencies may weaken self-confidence and increase the psychological burden on nurses caring for terminal cancer patients [4,7]. Therefore, it is essential to identify the characteristics of psychological burnout and related factors in nurses in order to improve the quality of medical services for terminal cancer patients.

Terminal cancer patients and their families have care needs for confusion, conflict, and psychological and social anguish when the patient's death is imminent and when they need to make decisions about life-sustaining treatment. Therefore, nurses caring for terminal cancer patients need professional knowledge, practical skills, and ethical attitudes to care for psychological grief, ethical conflicts over therapeutic decision-making, and spiritual anguish about the meaning and value of life [8,9]. However, nurses often cannot fully demonstrate their competency in a working environment, which makes it difficult to sufficiently coordinate their opinions with the family about unexpected patient emergencies, the complex needs of the family, and administrative tasks beyond patients' care [8,9]. This situation, where nurses cannot fully demonstrate their capabilities, may weaken their confidence in their role and identity as medical professionals. In particular, the deaths of terminal cancer patients they cared for may trigger in nurses a sense of helplessness or guilt about their role. Therefore, practical strategies should be developed to buffer psychological burnout by examining the relationships with nurses' competency in caring for terminally ill patients.

With recent trends in the medical environment that emphasize the rights of patients and quality of life, nurses who care for terminal cancer patients are often faced with ethical dilemmas related to their respect for life and the protection of human rights [10]. Deciding on life-sustaining treatment can prompt ethical dilemmas since the decision is entangled with medical, moral, philosophical, and sociocultural ideas about human dignity, a dignified death, self-determination, and respect for life [9,10]. Health professionals who care for terminal cancer patients play a supportive role in collecting and discussing the opinions of patients and their families for the decision-making process of life-sustaining treatment [10]. However, health professionals may experience internal conflicts related to the limits of their roles or human dignity throughout the entire process of caring for patients undergoing life-sustaining treatment [11]. Also, nurses caring for terminal cancer patients are often faced with ethical conflicts and dilemmas when they witness the decision-making process on life-sustaining treatment [10]. Such experiences can exacerbate physical, psychological, and emotional distress and burnout [11,12]. Furthermore, caring for terminal cancer patients requires collaboration and interaction with colleagues; however, the experience can cause conflicts or confusion about their role. Nurses' ethical dilemmas may become barriers to their care performance and act as a risk factor that lowers job satisfaction and quality of life [13]. Therefore, it is necessary to consider nurses' ethical dilemmas as a factor related to psychological burnout.

Given the essential roles of nurses in caring for terminal cancer patients, it is crucial to identify the factors affecting psychological burnout in nurses to improve the quality of care. Therefore, this study aimed to examine the impacts of end-of-life care competency and ethical dilemmas on psychological burnout in nurses who care for terminal cancer patients. By doing so, it is hoped that this study will contribute to developing approaches to alleviate psychological burnout in nurses and interventions to improve the quality of nursing care for terminally ill cancer patients.

2. Purpose

This study aimed to identify the factors affecting psychological burnout in nurses caring for terminal cancer patients. The specific aims were as follows:

1) To assess the extent to which nurses have end-of-life care competency and experience ethical dilemmas and psychological burnout.

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2) To investigate the differences in psychological burnout according to nurses' general characteristics.

3) To examine the relationships between end-of-life care competency, ethical dilemmas, and psychological burnout.

4) To identify the factors affecting psychological burnout in the participants.

METHODS

1. Study design

This descriptive study was designed to identify the factors affecting psychological burnout in nurses caring for terminal cancer patients.

2. Participants

The study participants were nurses working in a hospice ward, hematology and oncology ward, or intensive care unit in one of three tertiary hospitals in Incheon Metropolitan City. The inclusion criteria were nurses who provided direct nursing care to patients and had worked in their ward for at least 6 months, given that it generally takes approximately 3 to 6 months for nurses to adapt to their working environment and fully recognize patients' characteristics [14].

The sample size required for this study was calculated using G*Power version 3.1.9. Based on empirical evidence on nurses' ethical dilemmas [13], a medium effect size (0.15) was set. With a statistical significance of 0.05, a power of 0.90, and 10 predictors, at least 147 participants were needed for this study. Accounting for a possible dropout rate of 10%, the number for convenience sampling was 162. After completing self-administered surveys, the data of two participants who gave insufficient responses were excluded. Finally, data from 160 participants were analyzed for this study.

3. Research tools

1) End-of-life care competency

We used a scale developed initially by Montagnini et al. [15] to measure nursing competency related to end-of-life patients [15], which was translated into Korean by Lee [16]. The term "intensive care unit" in the original scale was changed to "ward." The scale consists of 28 items, subcategorized into 12 items on knowledge competency, 5 items on attitude competency, and 11 items on behavioral competency. Responses on each item are given using a 5-point Likert scale (1 for "not applicable" or "strongly disagree" to 5 for "strongly agree"). A higher score indicates a higher degree of perceived competency in caring for terminally ill patients. The reliability was shown by Cronbach's α values of 0.89 in the previous study [16] and 0.91 in the current study.

2) Ethical dilemmas

Ethical dilemmas were assessed with a tool developed to measure nurses' experiences of ethical dilemmas [17]. This tool comprises 34 items across sub-categories that include 6 items for nurses and patients, 14 items for nurses and professional work, 7 items for nurses and coworkers, and 7 items for respect for life and human rights. The extent to which a respondent experiences ethical dilemmas is assessed with a 4-point Likert scale (1 point for "not at all," 2 points for "somewhat," 3 points for "severe," and 4 points for "very severe"), indicating that a higher score as more experiences of ethical dilemmas. The reliability was shown by Cronbach's α values of 0.92 in the previous study [17] and 0.91 in the current study.

3) Psychological burnout

Psychological burnout was measured with a modified Korean version [18] of a burnout assessment tool developed by Maslach and Jackson [5]. The tool uses a 7-point Likert scale and comprises 22 items: 9 items on psychological burnout, 5 items on depersonalization of patients, and 8 items on a decreased sense of personal accomplishment. A respondent rates the frequency of experiencing psychological burnout on a scale ranging from 1 for "not at all" to 7 for "every day." A higher score indicates a higher degree of psychological burnout. The reliability was shown by Cronbach's α values of 0.76 in the original study [5] and 0.78 in the current study.

4) Characteristics of the participants

The following general characteristics were assessed in this study: age, sex, marital status, religious status, education level, and the experience of death in the family. Work-related characteristics included the type of work unit, the length of clinical experience, job position, participation in an education program

for hospice palliative care and life-sustaining treatment, the experience of caring for patients who made a decision on life-sustaining treatment, and the presence of a manual on terminal patient care in their unit.

4. Data collection

Data were collected from January 15, 2021, to March 25, 2021. Before data collection, the researchers explained the purpose and methods of this study to the heads of the hospice, hematology and oncology wards, and medical intensive care units at the three tertiary hospitals in Incheon Metropolitan City and asked for their cooperation for data collection. Then, the researchers visited each department in person to explain the purpose and methods of the study, and the questionnaires were distributed after obtaining written consent from the nurses who voluntarily agreed to participate in the study. Data collection was conducted on a self-reported basis, and completed questionnaires were collected after being sealed in anonymous envelopes to ensure confidentiality.

5. Ethical considerations

The purpose and procedure of this study were approved by the Institutional Research Ethics Committee of G tertiary hospital located in Incheon Metropolitan City (No. GDIRB2021-007). Before collecting the research data, the researchers explained the purpose and participation methods of the study and ensured the participants' anonymity and the confidentiality of the data to all the potential participants in the study. The researchers also explained the rights guaranteed to the study participants, including the freedom to suspend and withdraw participation in the study and the potential benefits and harms that may arise from study participation. If a nurse who listened to all of the explanations wished to participate in the study, he or she was asked to join after providing written informed consent.

6. Data analysis

The data were analyzed using SPSS for Windows (version 26.0; IBM Corp., Armonk, NY, USA), and the specific analytic techniques were as follows:

1) The participants' characteristics, end-of-life care competency, the experience of ethical dilemmas, and degree of psychological burnout were presented with descriptive statistics in terms of the frequency and percentage, mean and standard deviation, and range.

2) Differences in psychological burnout according to the participants' general characteristics were tested using the independent t-test, analysis of variance, and the Scheffé test.

3) The reciprocal relationships between end-of-life care competency, the experience of ethical dilemmas, and psychological burnout were tested using Pearson's correlation coefficients.

4) The factors affecting the psychological burnout of the participants were tested using hierarchical linear regression analysis.

RESULTS

1. Characteristics of the participants

The mean age of the participants was 29.9 years. Most of the participants were women (151 participants, 94.4%) and unmarried (125 participants, 78.1%). Seventy-one participants (44.4%) were religious, and 20 (12.5%) participants had a master's degree or higher. Fifty-three (33.1%) participants had experienced death in their families.

The most common type of work unit was the hematology or oncology ward, with 59 participants (36.9%), followed by the intensive care unit, with 56 participants (35.0%), and the hospice ward, with 45 participants (28.1%). The average length of clinical experience was 81.0 months, and 134 participants (83.7%) were staff nurses. Among the participants, 75 (46.9%) had completed an education program for hospice and palliative care, and 97 (60.6%) had received education on life-sustaining treatment. Most of the participants (n=158, 98.7%) had experience caring for patients who decided on life-sustaining treatment, and 69 participants (43.1%) responded that their unit had a care manual for terminally ill patients (Table 1).

2. End-of-life care competency, ethical dilemmas, and psychological burnout

The average score of end-of-life care competency was 3.59 out of 5 points (knowledge competency=3.60; practice competency=3.59; attitude competency=3.56).

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Table 1. General Characteristics of the Participants (N=160).

Characteristics	Mean±SD (range) or n (%)
Age (yr)	29.98±6.64 (23~47)
Sex	
Male	9 (5.6)
Female	151 (94.4)
Marital status	
Married	35 (21.9)
Unmarried or other	125 (78.1)
Religious status	
Yes	71 (44.4)
No	89 (55.6)
Education level	
Bachelor's degree	140 (87.5)
≥ Master's	20 (12.5)
Experience of death in the family	
Yes	53 (33.1)
No	107 (66.9)
Unit type	
Hematology or oncology ward	59 (36.9)
Intensive care unit	56 (35.0)
Hospice ward	45 (28.1)
Clinical experience (months)	81.0±78.35 (7~304)
Job position	
Staff nurse	134 (83.7)
Charge nurse	26 (16.3)
Participation in an education program for hospice palliative care	
Yes	75 (46.9)
No	85 (53.1)
Participation in an education program about life-sustaining treatment	
Yes	97 (60.6)
No	63 (39.4)
Experience providing care for patients who made a decision on life-sustaining treatment	
Yes	158 (98.7)
No	2 (1.3)
The presence of a manual on terminal patient care in their unit	
Yes	69 (43.1)
No	91 (56.9)

The average score for ethical dilemmas was 2.40 out of 4 points (nurses and patients=2.53; nurses and professional work=2.50; respect for life and human rights=2.31; nurses and coworkers=2.18).

Lastly, psychological burnout had an average score of 3.54 out of 7 points (emotional exhaustion, 3.74; depersonalization of patients, 3.55; a decreased sense of personal accomplishment, 3.32) (Table 2).

Table 2. Participants' End-of-Life Care Competencies, Ethical Dilemmas, and Psychological Burnout (N=160).

Variables	Mean±SD	Min	Max
End-of-life care competencies	3.59±0.50	2.07	5.00
Knowledge	3.60±0.61	2.00	5.00
Practice	3.59±0.68	1.27	5.00
Attitudes	3.56±0.64	1.33	5.00
Ethical dilemma	2.40±0.41	1.32	3.44
Nurses and patients	2.53±0.50	1.00	4.00
Nurses and professional work	2.50±0.54	1.00	3.64
Life respect and human rights	2.31±0.43	1.00	4.00
Nurses and coworkers	2.18±0.56	1.00	3.71
Psychological burnout	3.54±0.71	1.50	5.91
Emotional exhaustion	3.74±0.82	1.33	5.78
Depersonalization	3.55±1.10	1.00	6.60
Personal accomplishment	3.32±0.77	1.25	5.75

3. Differences in psychological burnout according to the general characteristics of participants

Psychological burnout differed significantly according to age (F=4.88, P=0.001), religious status (t=−4.21, P=0.001), and the length of total clinical experience (F=4.43, P=0.002).

The mean psychological burnout score for those aged 24 to 29 years was 3.67 points, higher than the average score of 3.24 points for those aged 40 years and older (F=4.88, P=0.001). In addition, non-religious respondents had a higher average burnout score (3.75 points) than religious respondents (3.31 points; t=−4.21, P=0.001). Moreover, those with 3 to 5 years of clinical experience had a higher average psychological burnout score (3.82 points) than those with 10 or more years of clinical experience (3.26 points) (F=4.43, P=0.002) (Table 3).

4. Correlations between end-of-life care competency ethical dilemmas, and psychological burnout

There was a significant negative correlation between end-of-life care competency and psychological burnout (r=−0.23, P=0.003), indicating that a lower degree of end-of-life care competency was associated with a higher degree of psychological burnout (Table 4).

Table 3. Differences in Psychological Burnout according to Participants' General Characteristics (N=160).

Variables	Mean ± SD	t or F (P) Scheffé
Age (yr)		
24~29[a]	3.67 ± 0.69	4.88 (0.001)
30~39[b]	3.38 ± 0.69	a>c
≥40[c]	3.24 ± 0.77	
Sex		
Male	3.55 ± 0.73	0.27 (0.785)
Female	3.48 ± 0.60	
Marital status		
Married	3.35 ± 0.68	1.83 (0.068)
Unmarried or other	3.60 ± 0.72	
Religious status		
Yes	3.31 ± 0.54	−4.21 (0.001)
No	3.75 ± 0.70	
Education level		
Bachelor's degree	3.59 ± 0.70	1.92 (0.055)
Master's or beyond	3.26 ± 0.81	
Experience of death in the family		
Yes	3.55 ± 0.74	0.038 (0.970)
No	3.55 ± 0.71	
Unit type		
Hematology or oncology ward[d]	3.70 ± 0.70	3.04 (0.051)
Intensive care unit[e]	3.38 ± 0.61	d>e
Hospice ward[f]	3.56 ± 0.82	
Clinical experience (yr)		
≤2[g]	3.51 ± 0.60	4.43 (0.002)
3~5[h]	3.82 ± 0.68	h<j
6~9[i]	3.59 ± 0.85	
≥10[j]	3.26 ± 0.68	
Job position		
Staff nurse	3.60 ± 0.72	1.91 (0.058)
Charge nurse	3.30 ± 0.69	
Participation in an education program for hospice palliative care		
Yes	3.40 ± 0.85	0.37 (0.705)
No	3.60 ± 0.78	
Participation in an education program about life-sustaining treatment		
Yes	3.82 ± 0.13	0.25 (0.801)
No	3.54 ± 0.77	
Experience providing care for patients who made a decision on life-sustaining treatment		
Yes	3.53 ± 0.66	53 (0.595)
No	3.55 ± 0.72	
The presence of a manual on terminal patient care in their unit		
Yes	3.57 ± 0.64	0.76 (0.443)
No	3.60 ± 0.77	

Table 4. Relationships between the End-of-Life Care Competencies, Ethical Dilemmas, and Psychological Burnout among the Participants (N=160).

	End-of-life care competencies	Ethical dilemmas
	r (P)	r (P)
Ethical dilemmas	0.08 (0.273)	-
Psychological burnout	−0.23 (0.003)	0.07 (0.322)

Table 5. The Impacts of End-of-Life Care Competencies and Ethical Dilemmas on Psychological Burnout (N=160).

Variables	Psychological burnout			
	β	SE	t	P
Age (yr)	−0.272	0.105	−2.603	0.010
Religious status*[1]	0.325	0.108	3.009	0.003
Clinical experience (mo)	0.046	0.068	0.673	0.502
Unit type*[2]	0.315	0.110	−2.857	0.005
End of life care competencies	−0.280	0.108	−2.600	0.010
Ethical dilemmas	0.275	0.130	2.109	0.037
Adjusted R^2	0.222			
F (P)	7.260 (<0.001)			

*Dummy variable; [1]Reference="yes" for religious status, [2]Reference="intensive care unit" for unit type.

5. Factors affecting psychological burnout

Table 5 shows the results of the hierarchical linear regression analysis to identify the factors that affect psychological burnout in nurses caring for terminal cancer patients. The tolerance between the variables was 0.44~094, which was more than 0.1, and the variance inflation factor was 1.061~2.254, which was less than 10, indicating no multicollinearity problem. In addition, the Durbin-Watson index was 2.474, which was close to 2; therefore, the residuals could be regarded as independent without autocorrelation, satisfying the criteria for regression analysis.

We considered the covariates of age, religious status, and total clinical experience, which corresponded to differences in associations with psychological burnout in the participants. Additionally, the type of work unit, in which a previous study observed a significant relationship with psychological burnout in nurses [19], was included as a covariate. After controlling for these covariates, end-of-life care competency (β=−0.280, P=0.010) and ethical dilemmas (β=0.275, P=0.037) were identified as factors affecting psychological burnout. The over-

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all explanatory power of the model, in which the covariates and the key variables, including end-of-life care competency and ethical dilemmas were entered as predictors, was 22.2% (F=7.260, P<0.001).

DISCUSSION

In this study, the average score for end-of-life care competency in nurses who care for terminal cancer patients was 3.59 points. The average scores for the sub-domains of end-of-life care competency were 3.60 for knowledge, 3.59 for practice, and 3.56 for attitude, indicating that knowledge competency was high and attitude competency was relatively low. The finding is consistent with a previous study reporting that the end-of-life care competency of nurses at long-term care facilities was highest in the knowledge sub-domain, followed by practice and attitude [20]. Meanwhile, a study about intensive care unit nurses in the United States found that attitude competency was higher than practice competency [15]. This trend indicates that compared to nurses in the United States, Korean nurses may have somewhat weaker attitudes and confidence than knowledge and technical competency in caring for terminally ill patients.

The average score for ethical dilemmas was 2.40 points. The score was lower than the average score of 2.60 shown in a previous study about general ward nurses [19] but higher than the average score of 2.22 reported by another study of nurses in long-term care facilities [21]. Therefore, it cannot be concluded that nurses' ethical dilemmas in the clinical field are remarkably different according to the type of work unit. The present study found that nurses caring for terminal cancer patients tended to experience more ethical dilemmas through interactions with patients and the performance of professional roles than ethical dilemmas from their relationships with colleagues.

The current study found that the average score of psychological burnout was 3.54 points, which was lower than the average scores of 3.68 to 3.71 reported in previous studies about general hospital nurses [19,22] but higher than the average score of 2.67 reported in a study of clinical nurses [23]. Although prior research reported that nurses in special care units than those in general wards [24] tended to experience higher levels of psychological burnout, information on psychological burnout in nurses who care for terminal cancer patients is still lacking. The psychological burnout of nurses plays a crucial role in determining the quality of medical care services [19]. Therefore, further studies to clarify the characteristics of psychological burnout and related factors experienced by nurses who care for terminal cancer patients are warranted.

This study confirmed that psychological burnout in nurses who care for terminal cancer patients differed by the levels of end-of-life care competency and ethical dilemmas. In other words, nurses tended to perceive higher levels of psychological burden when they were faced with more ethical dilemmas or when they had less confidence in end-of-life care competency. These findings support empirical evidence reporting that perceived competency in caring for patients among nurses in various care units (e.g., general wards, intensive care units, operating rooms, and emergency rooms) is intimately related to psychological burnout [23,25,26]. For example, emergency nurses' confidence in their competence in providing scientific, ethical, and respectful care affected psychological burnout [23,25]. For nurses in internal medicine units, the competencies of understanding other people, communicating, and having professional attitudes were associated with psychological burnout [26]. In addition, competency in positive psychological aspects, such as optimistic attitudes and resilience, was related to psychological burnout [27]. Therefore, it can be concluded that competencies in various parts of nursing performance are closely related to psychological burnout in nurses. Our study confirmed that the self-perceived levels of competency in knowledge, attitudes, and practical techniques should be considered a critical factor that has an essential effect on psychological burnout. However, nursing competencies required in care units differ according to the characteristics of patients. Thus, further research must be conducted to identify their relationships with psychological burnout by examining the specific nursing competencies required for nurses who care for terminal cancer patients.

Furthermore, this study found that nurses' competency related to attitudes was lower than their competencies related to knowledge and practical techniques. This finding indicates that the nurses themselves recognized their inability to identify patients' and families' emotional and spiritual needs and sup-

port their grief in the face of death. Therefore, as a strategy to alleviate psychological burnout in nurses who care for terminal cancer patients, it is essential to develop an educational program that could reinforce nurses' competencies in professional care, given the needs and situational characteristics of patients and their families. Furthermore, environmental and institutional systems should be modified to ensure better support for nurses to exhibit their competence.

The current study demonstrated that nurses' experience of ethical dilemmas affected psychological burnout after considering the impacts of other general characteristics of nurses and end-of-life care competency. The finding suggests that although nurses' ethical dilemmas may not be directly related to psychological burnout, experiencing ethical dilemmas could aggravate psychological burnout when considering the interaction with nurses' sociodemographic (e.g., work unit, clinical experience, age) and intrapersonal (e.g., care competency) characteristics. The finding is consistent with the results of previous studies that identified a relationship between ethical dilemmas and psychological burnout in hospital nurses [19] and long-term care facility nurses [21]. Given the increased life expectancy and advances in medical technology, nurses are likely to agonize over existential values, such as human rights and respect for life. They are also expected to experience conflicts about their roles by caring for terminally ill patients and making decisions on life-sustaining treatment. However, nurses lack opportunities to recognize their ethical attitudes and establish their perspectives on life respect and decisions on life-sustaining treatment. Therefore, it is vital to increase the opportunities for education and reflection, for instance, by using simulations on the conflict situations that nurses may face in the medical environment. Such opportunities would help nurses establish ethical values and strengthen their ability to cope with ethical dilemmas.

Nurses who care for terminal cancer patients should have professional capabilities for dealing with patients' diverse care needs and the ability to reflect on the ethical conflicts that terminally ill patients and their families face. Our study confirmed that, in order to alleviate psychological burnout in nurses who care for terminal cancer patients, nurses' end-of-life care competencies must be strengthened, and they should be encouraged to establish a value system to help them reflect on existential and ethical issues related to the dignity of life and human rights and overcome ethical dilemmas. Therefore, further studies should specify competencies for knowledge, attitude, and practical techniques essential for effective care for terminal cancer patients and develop education programs to support nurses' ethical dilemmas. Furthermore, given the increasing number of terminal cancer patients and their demands for a better quality of life, it is essential to construct practical guidelines by clarifying the roles and responsibilities of nurses in caring for terminal cancer patients.

This study only included nurses who cared for terminal cancer patients at three tertiary hospitals in a single region, limiting the generalizability of the findings. Therefore, further research on nurses affiliated with various medical institutions must be conducted to establish evidence. Furthermore, the participants in this study were nurses who work in the hospice ward, hematological oncology and oncology ward, and intensive care unit. Although there were no significant differences in psychological burnout according to the unit type, working in the intensive care unit, but not the other units, was found to be a factor that could affect psychological burnout. The finding suggests that there may be differences in the impacts of end-of-life care competencies and ethical dilemmas on psychological burnout in nurses according to the unit type. Therefore, we suggest a future comparative study to identify the factors related to psychological burnout based on differences by types of care units. Finally, this study is meaningful in that it confirmed the need for efforts to strengthen the practical competencies of nurses for providing medical services to terminal cancer patients and encourage the development of ethical values in nurses to alleviate their psychological burnout.

CONFLICT OF INTEREST

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

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AUTHOR'S CONTRIBUTIONS

Conception or design of the work: all authors. Data collection: NRS. Data analysis and interpretation: all authors. Drafting the article: NRS. Critical revision of the article: HEY. Final approval of the version to be published: all authors.

SUPPLEMENTARY MATERIALS

Supplementary materials can be found via https://doi.org/10.14475/jhpc.2022.25.4.159.

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