



# The Relationships of End-of-life Care Stress with Compassionate Competence and Attitudes toward End-of-life Care among Pediatric Nurses

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**Purpose:** This study aimed to provide basic data for developing interventions to relieve the end-of-life care stress experienced by pediatric nurses by examining the relationships of end-of-life care stress with compassionate competence and attitudes toward end-of-life care. **Methods:** Data were collected via a survey that was conducted from September 10 to September 30, 2018 and administered to 113 nurses who had worked for more than 6 months in a pediatric unit at a tertiary hospital in Seoul, South Korea. The data were analyzed for frequency, percentage, mean, and standard deviation, and the independent t-test, one-way analysis of variance, and Pearson correlation analysis were conducted using SPSS version 25.0. **Results:** End-of-life care stress among pediatric nurses had a weak positive correlation ( $r=0.216$ ,  $P<0.05$ ) with compassionate competence and had no significant correlation with attitudes toward end-of-life care. Among the sub-factors of end-of-life care stress, psychological difficulties had a weak positive correlation with sensitivity ( $r=0.309$ ,  $P<0.01$ ) and communication ( $r=0.230$ ,  $P<0.05$ ), which are aspects of compassionate competence. Lack of knowledge about end-of-life care had a weak positive correlation with communication ( $r=0.209$ ,  $P<0.05$ ) as an aspect of compassionate competence. **Conclusion:** To improve the quality of end-of-life care provided by pediatric nurses, it is necessary to improve their compassionate competence and reduce their end-of-life care stress by developing education and support programs tailored to the characteristics of children and specific communication methods.

**Key Words:** Nurses, Pediatric, Terminal care, Stress, Empathy, Professional competence, Attitude

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## INTRODUCTION

### 1. Background

Pediatric nursing should be holistic to provide care that is suited to each developmental stage of children and consider the specific characteristics of each developmental stage, as well

as children's particular conditions, to promote their growth [1]. It also is necessary to address the substantial nursing needs of parents and to manage the stress felt by children and parents [2].

For these reasons, nurses often feel that caring for children is more difficult than caring for adults and notice that their workloads increase when they care for children. These distinct

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characteristics of pediatric nursing can cause stress and lead to emotional exhaustion [3]. In particular, nurses who provide end-of-life care to children often feel tired and helpless and face immense difficulties providing high-quality end-of-life care suited to the cognitive ability and developmental stage of individual children [4,5]. In addition, grief felt by pediatric nurses due to the deaths of children for whom they cared is comparable to the grief felt by parents due to the intimate relationships they form with patients, and nurses typically feel greater sadness about the deaths of pediatric patients than about those of adult patients [6,7]. Furthermore, since bereavement is such a painful and tragic experience for children's parents, nurses must play a role in educating and supporting grieving caregivers throughout the process, creating an extremely stressful situation that can lead to burnout and turnover [3,4,6]. For these reasons, nurses who work in pediatric wards have been found to experience the highest degree of stress in the clinical field due to providing end-of-life care for children [8]. Since the in-hospital mortality rate of children is gradually increasing [9], it is imperative to identify and address the factors that influence end-of-life care stress among pediatric nurses.

However, previous studies that identified factors affecting end-of-life care stress have been conducted mostly for nurses who care for adult patients, and few studies have examined nurses who work in neonatal intensive care units. Previous studies on end-of-life care stress among pediatric nurses examined their end-of-life care experiences [6,10] and proposed tools for assessing end-of-life care stress among pediatric nurses [11], whereas the factors associated with end-of-life care stress have not been investigated extensively. The factors associated with end-of-life care stress among nurses of adult patients include their beliefs about death, attitudes toward death, and spiritual health [8,12,13]. In particular, end-of-life care stress can be reduced by improving the compassionate competence of clinical nurses [14], and a more positive attitude toward end-of-life care is the most influential factor for reducing end-of-life care stress [13].

In addition, compassionate competence, which refers to one's skill and ability to alleviate difficulties based on a sympathetic understanding of a subject, can decrease the risk of burnout among nurses by instilling confidence in their degree of com-

petence and enhancing understanding and recognition of their abilities [15], and compassionate nurses have been found to have an increased ability to actively cope with stress [16]. Although compassionate competence is difficult to cultivate over a short period of time, it can be developed through repeated learning experiences and improved through systematic empathy training [17].

End-of-life care attitudes refer to the positive or negative perceptions, feelings, and motivations that nurses have toward nursing terminally ill patients, and it is a major factor for determining the overall health and quality of life of end-of-life patients and their families [18]. By developing and conducting educational intervention programs designed to improve end-of-life care attitudes, end-of-life care stress can be effectively addressed and reduced [13].

It has been found that compassionate competence and end-of-life care attitudes affect end-of-life care stress and can be improved through training and education; however, past studies have mainly focused on nurses who care for adult patients, and there have been few studies examining end-of-life care stress, compassionate competence, and attitudes toward end-of-life care among pediatric nurses. Therefore, this study aimed to provide basic data for developing interventions to reduce end-of-life care stress among pediatric nurses by examining their end-of-life care stress and evaluating its relationships with compassionate competence and end-of-life care attitudes, which are known to affect end-of-life care stress.

## 2. Purpose

The purpose of this study was to provide basic data to support the development of interventions for reducing end-of-life care stress among pediatric nurses by identifying the relationships of end-of-life care stress with compassionate competence and end-of-life care attitudes. The specific research objectives were as follows:

- 1) Measure the end-of-life care stress, compassionate competence, and end-of-life care attitudes of pediatric nurses.
- 2) Identify the differences in end-of-life care stress, compassionate competence, and end-of-life care attitudes according to the general characteristics of pediatric nurses.
- 3) Identify the correlations of end-of-life care stress with compassionate competence and end-of-life care attitudes

among pediatric nurses.

## METHODS

### 1. Study design

This descriptive study was designed to measure the end-of-life care stress, compassionate competence, and end-of-life care attitudes, and to identify the correlations of end-of-life care stress with compassionate competence and end-of-life care attitudes, among nurses who worked in a pediatric ward or pediatric intensive care unit.

### 2. Participants and data collection

Of the nurses who had worked for 6 months or more in a pediatric ward or pediatric intensive care unit at a tertiary hospital in Seoul, South Korea, those who understood the purpose of this study and provided their informed consent to participate were enrolled. Nurses who had worked for less than 6 months were excluded since they were considered different from more experienced pediatric ward nurses due to the stress of adapting to a new environment, as suggested in a previous study [19]. The number of required participants was 111 according to a calculation made using Pearson correlation coefficients with a significance level of 0.05, power of 0.95, and medium effect size of 0.3 using G\*Power 3.1.9.2. Assuming a potential dropout rate of 15%, 130 questionnaires were ultimately distributed, and among the 115 collected questionnaires collected (response rate: 88.5%), a total of 113 questionnaires were included in the final analysis after excluding 2 questionnaires with incomplete responses.

Data collection began after receiving approval from the Institutional Review Board (IRB File NO: 2018-07-151-001) of the hospital and the nursing department of the hospital. The questionnaires were distributed from September 10 to September 30, 2018, after the purpose and process of the study were explained to the participants and they provided informed consent.

### 3. Study tools

#### 1) End-of-life care stress

End-of-life care stress was measured using the end-of-life

care stress measurement tool for children developed by Park [11], which consists of 22 items across 5 subscales that include psychological difficulties (7 items), conflicts with parents (5 items), communication difficulties (5 items), lack of knowledge on care for dying (3 items), and limited work environment (2 items). Each item is answered using a 5-point Likert scale, with 1 point indicating 'not at all' and 5 points indicating 'strongly agree.' A higher score indicates a higher degree of end-of-life care stress. The reliability of the tool was indicated by a Cronbach's  $\alpha$  of 0.90 at the time of the tool's development and a Cronbach's  $\alpha$  of 0.88 in the current study.

#### 2) Compassionate competence

Compassionate competence was measured using the compassionate competence measurement tool for nurses developed by Lee [15], which consists of 17 items across 3 subscales that include communication (8 items), sensitivity (5 items), and insight (4 items). Each item is answered using a 5-point Likert scale, with 1 point indicating 'not at all' and 5 points indicating 'strongly agree.' A higher score indicates a higher degree of compassionate competence. The reliability of the tool was indicated by a Cronbach's  $\alpha$  of 0.93 at the time of the tool's development and a Cronbach's  $\alpha$  of 0.82 in the current study.

#### 3) End-of-life care attitudes

End-of-life care attitudes were assessed using a tool described by Kim [12], who translated, modified, and supplemented the Frommelt Attitudes toward Nursing Care of the Dying Scale developed by Frommelt [20]. The tool includes a total of 30 items with 15 positive and 15 negative questions. Each item is answered using a 5-point Likert scale, with 1 point indicating 'not at all' and 5 points indicating 'strongly agree.' Negative questions are inversely calculated, and a higher score indicates a more positive attitude toward end-of-life care. The Cronbach's  $\alpha$  was 0.94 at the time of the tool's development, and it was 0.88 in the study by Kim [12] and 0.68 in the current study. The 30 questions were reanalyzed with the alpha-if-item deleted statistic, and 6 questions (3 positive questions and 3 negative questions) were accordingly removed. Thus, 24 questions remained, with a Cronbach's  $\alpha$  of 0.77.

## 4. Data analysis

The collected data were analyzed using SPSS 25.0 (IBM Corp. Armonk, NY, USA) as follows:

1) The degrees of end-of-life care stress, compassionate competence, and end-of-life care attitudes of the participants were analyzed using means and standard deviations.

2) The differences in end-of-life care stress, compassionate competence, and end-of-life care attitudes according to the general characteristics of the participants were analyzed using the independent t-test and one-way analysis of variance followed by the Scheffé test.

3) The correlations of end-of-life care stress with compassionate competence and end-of-life care attitudes among the participants were analyzed using Pearson correlation coefficients.

## RESULTS

### 1. The degrees of end-of-life care stress, compassionate competence, and end-of-life care attitudes among the participants

The average score of all items for end-of-life care stress was  $3.89 \pm 0.45$ . Communication difficulties had the highest mean score of the subscales, followed by the limited work environment, psychological difficulties, conflicts with parents, and lack of knowledge on care for dying. The average score of all items for compassionate competence was  $3.70 \pm 0.37$ . Sensitivity had the highest mean score of the sub-factors, followed by communication and insight. The average score for end-of-life care attitudes was  $3.63 \pm 0.34$  (Table 1).

### 2. Differences in end-of-life care stress, compassionate competence, and end-of-life care attitudes according to the general characteristics of the participants

End-of-life care stress among the participants was significantly different according to marital status ( $t = -2.45$ ,  $P = 0.016$ ), if the participant had children ( $t = 2.03$ ,  $P = 0.045$ ), and if the participant had experienced the death of an acquaintance within the past year ( $t = 2.01$ ,  $P = 0.046$ ). End-of-life care stress

**Table 1.** Scores for End-of-life Care Stress, Compassionate Competence and Attitudes toward End-of-life Care (N=113).

Variables	Mean $\pm$ SD
End-of-life care stress	3.89 $\pm$ 0.45
Psychological difficulties	3.96 $\pm$ 0.53
Conflict with parents	3.76 $\pm$ 0.59
Communication difficulties	4.04 $\pm$ 0.60
Lack of knowledge of end-of-life care	3.66 $\pm$ 0.70
Limited work environment	3.97 $\pm$ 0.71
Compassionate competence	3.70 $\pm$ 0.37
Communication	3.62 $\pm$ 0.41
Sensitivity	3.97 $\pm$ 0.44
Insight	3.51 $\pm$ 0.55
Attitudes toward end-of-life care	3.63 $\pm$ 0.34

SD: standard deviation.

was higher among married participants than among unmarried participants, among those with children than among those without children, and among those who had experienced the death of an acquaintance within the previous year than among those who had not.

Compassionate competence showed significant differences according to age ( $F = 9.5$ ,  $P < 0.001$ ), marital status ( $t = -3.56$ ,  $P = 0.001$ ), if the participant had children ( $t = 3.28$ ,  $P = 0.001$ ), education level ( $t = -3.10$ ,  $P = 0.002$ ), the participant's total clinical experience ( $F = 6.46$ ,  $P < 0.001$ ), the length of the participant's service in their current department ( $F = 3.68$ ,  $P = 0.008$ ), and if the participant had experienced the death of an acquaintance within the past year ( $t = 2.15$ ,  $P = 0.034$ ). The degree of compassionate competence was higher among those aged 30 years or older than among those under 30 years, among those who were married than among those who were unmarried, among those with children than among those without children, and among those with a master's degree or higher than among those with a bachelor's degree or lower. In addition, compassionate competence was higher among those with 10 years or more of clinical experience in their current department than among those with less than 10 years of work experience in their current department and among those who had experienced the death of an acquaintance within the past year than among those who had not.

Attitudes toward end-of-life care showed differences according to participants' educational levels ( $t = -2.89$ ,  $P = 0.005$ ), total clinical experience ( $F = 2.60$ ,  $P = 0.040$ ), length of service

**Table 2.** Differences between End-of-life Care Stress, Compassionate Competence and Attitudes toward End-of-life Care According to the General Characteristics of the Participants (N=113).

Variables	Categories	n	End-of-life care Stress			Compassionate competence			Attitudes toward end-of-life care		
			M±SD	t or F	P Scheffé	M±SD	t or F	P Scheffé	M±SD	t or F	P Scheffé
Age (yr)	<25 <sup>a</sup>	23	3.81±0.47	1.82	0.148	3.53±0.36	9.5	<0.001	3.51±0.26	2.65	0.053
	25~<30 <sup>b</sup>	51	3.83±0.41			3.60±0.33		a, b<c, d	3.63±0.31		
	30~<35 <sup>c</sup>	23	4.00±0.36			3.94±0.27			3.63±0.31		
	≥35 <sup>d</sup>	16	4.07±0.63			3.92±0.37			3.81±0.46		
Marital status	No	84	3.83±0.43	-2.45	0.016	3.63±0.36	-3.56	0.001	3.62±0.32	-0.50	0.618
	Yes	29	4.06±0.47			3.90±0.33			3.66±0.39		
Presence of children	Yes	19	4.08±0.44	2.03	0.045	3.94±0.32	3.28	0.001	3.70±0.43	0.86	0.399
	No	94	3.85±0.45			3.65±0.36			3.62±0.31		
Education level	≤Bachelor's	101	3.90±0.44	0.54	0.592	3.67±0.35	-3.1	0.002	3.60±0.31	-2.89	0.005
	≥Master's	12	3.83±0.57			4.00±0.37			3.89±0.41		
Religious status	No	70	3.88±0.42	-0.43	0.670	3.66±0.37	-1.25	0.214	3.62±0.30	-0.35	0.729
	Yes	43	3.92±0.50			3.76±0.36			3.65±0.38		
Length of total clinical career (yr)	<1 <sup>a</sup>	10	3.83±0.44	1.83	0.128	3.40±0.37	6.46	<0.001	3.48±0.33	2.60	0.040
	1~<3 <sup>b</sup>	32	3.75±0.45			3.64±0.28		a, b, c<d<e	3.56±0.21		
	3~<5 <sup>c</sup>	21	3.88±0.40			3.57±0.43			3.56±0.33		
	5~<10 <sup>d</sup>	29	3.97±0.35			3.80±0.34			3.71±0.36		
	≥10 <sup>e</sup>	21	4.05±0.58			3.94±0.30			3.78±0.41		
	<1 <sup>a</sup>	18	3.86±0.42	1.26	0.289	3.62±0.40	3.68	0.008	3.54±0.36	3.88	0.006
Length of career in current unit (yr)	1~<3 <sup>b</sup>	32	3.77±0.47			3.63±0.28		b, c, d<e	3.54±0.21		b<e
	3~<5 <sup>c</sup>	24	3.89±0.39			3.61±0.42			3.57±0.31		
	5~<10 <sup>d</sup>	27	4.03±0.39			3.78±0.35			3.73±0.37		
	≥10 <sup>e</sup>	12	3.95±0.64			4.01±0.33			3.89±0.37		
Department	Oncology ward	31	3.85±0.53	0.80	0.454	3.64±0.42	1.12	0.329	3.67±0.37	1.20	0.306
	General ward	34	3.84±0.36			3.77±0.32			3.56±0.27		
Number of children's deaths experienced within 1 year	ICU	48	3.95±0.46			3.69±0.37			3.66±0.35		
	None <sup>a</sup>	12	3.92±0.33	1.61	0.205	3.84±0.25	2	0.140	3.47±0.28	5.42	0.006
	1~<10 <sup>b</sup>	82	3.92±0.47			3.66±0.35			3.63±0.30		a<c
Number of acquaintance's deaths experienced within 1 year	≥10 <sup>c</sup>	13	3.68±0.44			3.74±0.56			3.86±0.46		
	Yes	22	4.06±0.47	2.01	0.046	3.85±0.31	2.15	0.034	3.68±0.31	0.80	0.425
Education about end-of-life care	No	91	3.85±0.44			3.66±0.38			3.62±0.34		
	Yes	66	3.85±0.43	-1.08	0.280	3.70±0.34	-0.06	0.950	3.70±0.35	2.44	0.016
	No	47	3.95±0.48			3.70±0.40			3.54±0.29		

ICU: intensive care unit, M: mean, SD: standard deviation.

**Table 3.** Correlations of End-of-life Care Stress with Compassionate Competence and Attitudes toward End-of-life Care (N=113).

Variables	Compassionate competence				Attitudes toward end-of-life care
	Total	Communication	Sensitivity	Insight	
End-of-life care stress	0.216*	0.197*	0.248 <sup>†</sup>	0.052	0.128
Psychological difficulties	0.284 <sup>†</sup>	0.230*	0.309 <sup>†</sup>	0.13	0.074
Conflict with parents	0.174	0.151	0.158	0.096	0.135
Communication difficulties	0.023	0.023	0.155	-0.127	0.082
Lack of knowledge on care for dying	0.147	0.209*	0.071	0.023	0.056
Limited work environment	0.139	0.104	0.173	0.055	0.162

\*P<0.05, <sup>†</sup>P<0.01.

in their current department ( $F=3.88$ ,  $P=0.006$ ), if they had experienced the death of a child within the previous year, ( $F=5.42$ ,  $P=0.006$ ), and if they had ever received end-of-life care education ( $t=2.44$ ,  $P=0.016$ ). The participants' attitudes were more positive among those who had a master's degree or higher than among those who had a bachelor's degree or lower, among those with 10 years of service or more in their current department than among those with fewer than 1 to 3 years of service, and among those who had experienced the deaths of 10 or more children within the past year than among those who had not experienced the death of any children. In addition, participants' attitudes were more positive among those who had received end-of-life care education than among those who had not (Table 2).

### 3. Correlations of end-of-life care stress with compassionate competence and end-of-life care attitudes

End-of-life care stress had a weak positive correlation with compassionate competence ( $r=0.216$ ), and it showed no correlation with end-of-life care attitudes. Among the subscales for end-of-life care stress, psychological difficulties had a weak positive correlation with sensitivity ( $r=0.309$ ) and communication ( $r=0.230$ ), which are aspects of compassionate competence, and a lack of knowledge on care for dying had a weak positive correlation with the communication aspect of compassionate competence (Table 3).

## DISCUSSION

The purpose of this study was to provide basic data for the development of interventions to mitigate end-of-life care

stress among pediatric nurses by examining their end-of-life care stress, compassionate competence, and end-of-life care attitudes.

The participants in the study experienced moderate to high end-of-life care stress, which is similar to the results of a study of pediatric nurses who worked at a general hospital that used the same tool as the current study [11]. Similar results were reported in previous studies that used the end-of-life care stress tool developed by Lee [21] on nurses who worked at general hospitals, tertiary hospitals, cancer wards, intensive care units, and palliative care institutions [13,14,21-23] as well as in a study that used the tool developed by Jang [24] for neonatal intensive care unit nurses at a tertiary hospital.

Yoon [8] reported that, among clinical nurses, pediatric ward nurses had the highest degree of end-of-life care stress, which was attributed not only to the difficulty of accepting the deaths of children but also to the difficulty of providing care for children with different levels of understanding and physical development and to parents who may be bereaving a child. Nonetheless, in the present study, the degree of end-of-life care stress among the study participants was similar to that of other clinical nurses, which is likely due to the study hospital's debriefing program designed to reduce end-of-life care stress by giving nurses opportunities for self-reflection and for sharing their feelings after providing end-of-life care in addition to another end-of-life care education program on separation consciousness and self-care. Since this study was conducted among pediatric nurses at only one tertiary hospital, it is difficult to generalize the findings. Therefore, future studies should expand the study population to pediatric nurses at other hospitals and medical facilities.

Among the subscales for end-of-life care stress, commu-



nication difficulties caused the most stress, followed by the limited work environment, psychological difficulties, conflicts with parents, and lack of knowledge on care for dying. Park [11] also found that the highest degree of stress among pediatric nurses was associated with communication difficulties. In addition, other studies on the end-of-life care experiences of pediatric nurses have suggested that education programs should be provided for pediatric nurses to improve their communication due to the difficulties posed by communicating with patients and their parents [6,10]. Communication difficulties are likely to arise due to the different communication methods needed to communicate with children at various developmental stages who require end-of-life care, differences in children's understanding of death, and the need to communicate with grieving, highly stressed parents. Therefore, educational content on communication that reflects the characteristics of end-of-life care must be included in educational programs on end-of-life care.

According to the general characteristics of the participants, end-of-life care stress tended to be high among participants who were married, had children, and had experienced the death of an acquaintance within the past year. Like in the present study, a previous study of nurses at an intensive care unit found that married people tended to experience a high degree of end-of-life care stress [22]. However, another study of nurses at a general hospital found that unmarried nurses experienced a higher degree of end-of-life care stress [13], and Jang [24] and Lee [25] both reported that there was no significant relationship between marital status and end-of-life care stress. Among the general characteristics of the participants, whether they had children was associated with high end-of-life care stress in the present study, but the ability to compare this finding to that of other studies is limited due to the lack of studies to investigate the influence of having children on end-of-life care stress among nurses who provide end-of-life care for adults. However, given that nurses with children were found to experience a greater degree of sorrow in one study on the mourning experiences of nurses at a neonatal intensive care unit [26], end-of-life care stress is likely higher for pediatric nurses with children since they empathize with parents' pain and suffering as they provide children with end-of-life care. Therefore, it is necessary to further exam-

ine end-of-life care stress among nurses who have children, and whether nurses have children should be considered when conducting interventions to mitigate end-of-life care stress. A study of nurses at a cancer hospital reported similar results to our study, showing that end-of-life care stress was higher among those who had recently experienced the death of an acquaintance [27]. Contrary to our findings, no significant relationships were found in studies involving nurses at general hospitals, intensive care units, and neonatal intensive care units [13,22,24]. Regarding end-of-life care education experience, no statistically significant differences were found in our study; however, Lee [25] found that the experience of end-of-life care education relieved end-of-life care stress. Among our study participants, the proportion of nurses who received end-of-life care education was high (58.4%), and we believe that, while many of these nurses directly received education on end-of-life care, their colleagues who had not received such education still indirectly benefited from the knowledge of their colleagues in clinical practice, which supports our belief that end-of-life care education should be routinely provided.

The compassionate competence of the participants in this study ranged from moderate to high, and studies of intensive care unit nurses, emergency room nurses, and clinical nurses at tertiary hospitals that used the same tool as our study showed similar results [14,28]. Of the aspects of compassionate competence, sensitivity had the highest mean score (3.97), followed by communication (3.62) and insight (3.51). In a study by Jo et al. involving clinical nurses, sensitivity also had the highest mean score (3.78), followed by communication (3.70) and insight (3.61). The present study showed that sensitivity was higher among pediatric nurses than it was among clinical nurses in a previous study [17]. Sensitivity refers to the ability to notice subtle changes or emotions in subjects through careful observation and respond promptly to difficulties [11]. Since sensitivity is required for many of the major responsibilities of pediatric nurses including responding promptly to children's changes in status, discomfort, and emotional needs with an attentive attitude in order to treat them comfortably and safely, it is believed that sensitivity among nurses improves organically as they perform the role of a pediatric nurse.

Compassionate competence was high among participants who were aged 30 years or older, were married, had children,

had a master's degree or higher, had 10 years or more of clinical experience, had 10 years or more of work experience in their current department, and had experienced the death of an acquaintance within the previous year. In a study of nurses who worked in special wards, age was the factor that most influenced compassionate competence, and compassionate competence was highest among those aged 40 years and older [29]. Compassionate competence tends to improve as the age, clinical experience, and education level of nurses increases since it reflects the combined effects of knowledge, skills, and attitudes that impact the successful performance of direct nursing as well as specific tasks and responsibilities [14,15]. We found that the married participants tended to have a higher degree of compassionate competence, and a study involving nurses at a general hospital showed the same results [30]. On the contrary, compassionate competence was higher among unmarried nurses in special units [29]. Whether nurses had children and whether they had experienced the death of an acquaintance within the past year were not examined in previous studies, so there are limitations when comparing other findings with those of the present study, and additional research is needed. An attentive attitude, which is essential for pediatric nurses, can improve compassionate competence among pediatric nurses. Since retaining a staff of nurses with diverse clinical experiences is essential for providing quality care, effectively executing responsibilities, and improving compassionate competence, specific measures and efforts should be implemented.

The end-of-life care attitudes of the participants tended to be moderately positive or positive, which is a similar result to those of previous studies of nurses at general hospitals, intensive care units, and palliative care institutions [13,22,23]. Attitudes toward end-of-life care were significantly positive among those with master's degrees or higher, those with more work experience, those who had experienced the death of 10 or more children in the past year, and those who had received education on end-of-life care. In our study, there was no significant relationship between age and end-of-life care attitudes. However, Noh et al. [27] found that age, work experience, and education on end-of-life care were all proxy indicators of the passage of time and diverse work experiences, which led to professional attitudes toward work and value satisfaction, positively affecting end-of-life care attitudes.

Therefore, it is believed that further research on attitudes toward end-of-life care among pediatric nurses is needed.

End-of-life care stress had a positive correlation with compassionate competence and had no significant relationship with end-of-life care attitudes. Of the subscales for end-of-life care stress, psychological difficulties were positively correlated with the sensitivity and communication aspects of compassionate competence, and a lack of end-of-life care knowledge was positively correlated with the communication aspect of compassionate competence. Based on the results of this study, it is believed that a higher degree of compassionate competence indicates a higher degree of empathy for the pain of children and their caregivers, which in turn leads to a higher degree of end-of-life care stress. A previous study of cancer ward nurses also supports the results of our study, finding that a higher degree of empathy for the pain of patients and caregivers corresponded to a higher degree of end-of-life care stress [21]. Specifically, among the subscales for end-of-life care stress, psychological difficulties and a lack of knowledge on care for dying were significantly associated with the communication aspect of compassionate competence. Nurses with high compassionate competence tend to be more open-minded and have a higher degree of compassion for patients' and caregivers' suffering and sorrow. As a result, these nurses may experience more psychological difficulties. In addition, they may feel that they lack knowledge when talking to children and caregivers about accepting death, expressing their grief, and saying goodbye, which increases their end-of-life care stress. Of the subscales for end-of-life care stress, there was a significant relationship between psychological difficulties and the sensitivity aspect of compassionate competence. It can be inferred that nurses with greater sensitivity are more sensitive to the grief and pain of children and caregivers, resulting in a greater degree of psychological difficulties. Our findings are also supported by those of a study by Lee [30] that reported that nurses with high compassionate competence tended to listen carefully to patients' expressions and needs, engage in attentive communication to encourage patients to express difficult emotions, and approach patients with emotion.

Unlike a previous study [14] that found that compassionate competence among clinical nurses reduced end-of-life care stress, we found that nurses with a higher degree of compas-



sionate competence also experienced a higher degree of end-of-life care stress. However, since it can be assumed that pediatric nurses who closely monitor the condition of patients and their caretakers and actively communicate with them tend to provide higher quality end-of-life care, routine efforts must be made to enhance compassionate competence among pediatric nurses while also reducing their end-of-life care stress. Furthermore, due to a lack of prior research, further studies should be conducted that examine end-of-life care stress, compassionate competence, and the performance of end-of-life care among pediatric nurses.

In this study, no significant correlation was found between end-of-life care stress and end-of-life care attitudes, which differs from the findings of a previous study of clinical nurses at general hospitals that found a significant correlation between them [13]; however, our findings are consistent with the results of 2 other studies that found no significant correlation between them among nurses at an intensive care unit and a neonatal intensive care unit [22,26]. Studies on the relationship between end-of-life care stress and end-of-life care attitudes have likewise shown conflicting results. Our study only examined pediatric nurses at one tertiary hospital, and there have been few previous studies on pediatric nurses in other contexts. Therefore, additional studies should be conducted on the relationship between end-of-life care stress and end-of-life care attitudes among pediatric nurses.

In conclusion, end-of-life care stress among pediatric nurses was moderate to high, which is similar to end-of-life stress experienced by clinical nurses. However, given the differences in the characteristics of various research institutions, further studies are needed. Participants who were married, had children, and had experienced the death of an acquaintance within the previous year had a higher degree of end-of-life care stress and compassionate competence. End-of-life care stress and compassionate competence were positively corre-

lated, and nurses with higher compassionate competence thus had a higher degree of end-of-life care stress; nevertheless, we believe that pediatric nurses with high compassionate competence are more likely to be sensitive to the status of patients and their caretakers and practice proactive, empathetic communication, thereby providing high-quality end-of-life care. Therefore, to improve compassionate competence and reduce end-of-life care stress among pediatric nurses so that they can provide high-quality end-of-life care, systematic education programs to address the specific characteristics and communication methods of children, improve the restricted work environment, and establish a support system for providing nurses with emotional care should be developed.

## 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: KYP. Data analysis and interpretation: all authors. Drafting the article: KYP. Critical revision of the article: KYP. Final approval of the version to be published: all authors.

## SUPPLEMENTARY MATERIALS

Supplementary materials can be found via <https://doi.org/10.14475/jhpc.2021.24.4.235>.

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