Research Article

Analysis of Nurses' Knowledge in the Implementation of End of Life Care in Intensive Care Units in Indonesia

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Abstract. End of life care is a form of comprehensive care to help patients with life-threatening conditions and their families, which can be implemented in the intensive care unit (ICU) setting. The aim of this study was to analyze factors associated with nurses' knowledge in implementing end of life care in the ICU. This study was quantitative research which used an analytic-correlational design with a cross-sectional study approach. The sampling technique used was total sampling, and all nurses working in the ICU of the hospital were recruited (n=40). The research instruments used were a socio-demographic form and a modified RN End of Life Knowledge Assessment survey. This study found that 12.5% of respondents had working experience of at least 72 months; 52.5% had diploma level of education; and 67.5% had poor knowledge. No respondents had obtained training previously. No significant association was found between knowledge and educational level (p = 0.269) or working experience (p = 0.801) using the Spearman test.

Keywords: end of life care, ICU, knowledge factors, nurses

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1. Introduction

The mortality rate in critical care units reaches 17% of the total deaths, where the lowest rate was 9% and the highest was 20% [1,2]. Half of patients who die in hospital are treated for at least 3 days in the intensive care unit (ICU) before dying and usually one in five patients dies while hospitalized [3,4]. Critically ill patients near death should receive care that is emphasized to facilitate a peaceful death [5]. One way to facilitate peaceful death is to provide end of life care (EoL). EoL is one of the implementations of palliative care [6,7,8].

Palliative care is an approach that can improve a patient's quality of life by helping with problems related to life-threatening illness [9]. EoL care is provided in an active and comprehensive manner that provides comfort and support for individuals and families (10,11,12). Palliative care is given on the basis of the philosophy that every patient deserves the best care until the end of his life [13].

One of the important factors that nurses need in caring for dying patients in the intensive care unit is knowledge (14,15,16). As many as 45.8- 85.2% of nurses still do not have good knowledge about palliative care (14,17,18,19). Knowledge in general relates to factors of age, education, experience, culture, exposure to mass media and environmental information [20]. Nurse's knowledge of palliative care was significantly related to educational status, length of work experience in years and palliative care training (17,18).

A previous study conducted in the ICU "X" Hospital found that 63.64% of nurses had poor knowledge, 33.33% had sufficient knowledge, and 3.03% of nurses had good knowledge [21]. Based on this phenomenon, researchers are interested in knowing the factors related to the knowledge of nurses in the implementation of EoL care in the ICU "X" Hospital Indonesia.

2. Research Methods

This research is a quantitative research that uses an analytic-correlational design with a cross sectional study approach. The sample in this study were nurses who actively worked in ICU "X" Hospital. The sampling technique used in this research was total sampling, all nurses worked in ICU "X" Hospital (n=40). This study used research instruments in the form of socio-demographic data sheets and a questionnaire on nurse's knowledge about EoL care, namely a modified RN End of Life Knowledge Assessment questionnaire. The knowledge questionnaire was taken from the Palliative Care Center Resource [22]. It consists 7 domain of Palliative Care especially end of life care. The questionnaire has been tested for validity and reliability. Content validity was carried out with the help of 3 experts. Validity and reliability testing was also carried out on 16 ICU nurses at "Y" Hospital, which then analyzed the results using SPSS version 23.

3. Results

Research has been carried out on 40 nurses who work in the intensive care room (ICU) at "X" Hospital Indonesia.

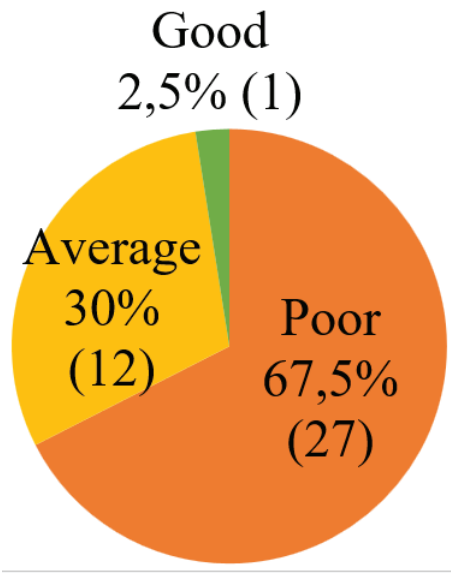

Figure 1: Knowledge level of nurses in the implementation of EoL Care in the ICU "X" Hospital Indonesia.

3.1. An overview of nurses' knowledge in the implementation of EoL care

Knowledge level of nurses in the implementation of EoL Care in the ICU of "X" Hospital Indonesia presented in Figure 1.

The results of the study (Figure 1) showed that the majority of respondents had less knowledge, as many as 27 people (67.5%).

3.2. Characteristics of respondents

3.2.1. Last Education

Distribution of Respondents Characteristics presented in table 1.

Based on the results of the study, it was found that the largest respondents in this study had the last education diploma as many as 21 people (52.5%).

3.2.2. Length of work at ICU

Distribution of Respondents Based onLength of Work in ICU presented in Table 2.

Based on research data, the average length of work for ICU nurses at "X" Hospital Indonesia is 68.70 months or 5-6 years.

Table 1: Distribution of Respondents Characteristics

Distribution of Respondents Characteristics	Number (n)	Percentage (%)
Level of Education		
Diploma	21	52.5
Bachelor Degree	3	7,5
Bachelor Degree+Ners Profession	15	37,5
Master Degree	1	2,5
Total	40	100
Respondents Who Received Palliative Care Courses in Previous Education		
Yes	1	2,5
No	39	97,5
Total	40	100
Nurses Attending Palliative Care Training		
Yes	0	0
No	40	100
Total	40	100

Table 2: Distribution of Respondents Based on Length of Work in ICU

N		*Mean*	Modus	Min	Maks	SD
Valid	40	68,70	72	1	180	49,02
Missing	0					

3.2.3. Relationship between education and nurse knowledge in the implementation of EoL care

Cross-tabulation between Knowledge and Education Level presented in table 3.

Table 3: Cross-tabulation between Knowledge and Education Level

		Level of Knowledge			Total
		Poor	Average	Good	
Level of Education	Diploma	16	5	0	21
	Bachelor Degree	2	1	0	3
	Registered Nurse	9	6	0	15
	Master Degree	0	0	1	1
Total		27	12	15	40
p-value = 0,269					
correlation coefficient (r)		= 0,179			

Table 4: Cross-tabulation of knowledge level and length of work

Length of work (month)	Level of knowledge				
	Poor (Person)	Average (Person)	Good (Person)	Total	%
1-36	10	6	0	16	40
37-72	7	3	0	10	25
73-108	3	2	0	5	12,5
109-144	6	0	0	6	15
145-180	1	1	1	3	7,5
Total	27	12	1	40	100

Table 5: Relationship between knowledge level and length of work

			Level of Knowledge	Length of work
Spearman's rho	Level of Knowledge	*Correlation Coefficient*	1,000	0,041
		Sig. (2-*tailed*)	,	0,801
		N	40	40
	Length of work	*Correlation Coefficient*	0,041	1,000
		Sig. (2-*tailed*)	0,801	,
		N	40	40

Nurse's knowledge regarding EoL care is not related to education because the majority of respondents (97.5%) did not receive courses or learning about palliative care especially EoL care at their previous education level (table 1).

3.2.4. The relationship of work experience (long work) with nurse knowledge in the implementation of EoL care

Cross-tabulation of knowledge level and length of work presented in table 4 and relationship between knowledge level and length of work presented in Table 5.

Based on table 5, the p-value (2-tailed significance) is 0.801 so that the p-value is compared with the value, which is 0.801> 0.05, meaning that H0 is accepted, so there is no significant relationship between work experience (length of service) and nursing knowledge about EoL care.

Table 6: Cross Tabulation of Knowledge about EoL care and Training

		Level of Knowledge			Total
		Poor	Average	Good	
Palliative Care Training	Yes	27	12	1	40
	No	0	0	0	0
	Total	27	12	1	40

3.2.5. Analysis of the relationship between training and knowledge of nurses in the implementation of EoL care

Cross Tabulation of Knowledge about EoL care and Training presented in Table 6.

Nurses who work in the ICU of “X” Hospital Indonesia did not receive previous training. This constant result makes the relationship with nurse’s knowledge unable to be statistically tested. Based on these results, it cannot be concluded how the relationship is statistically.

4. Discussion

4.1. An overview of nurses' knowledge in the implementation of EoL care

Similar results were also found in the previous study which found 79% of respondents had inadequate knowledge and none of the respondents had adequate knowledge [23]. The previous study explain the respondent’s lack of knowledge could be due to the absence of formal palliative care education and training in clinical settings and the absence of a palliative care education curriculum in the nursing curriculum (23,24,25). In this study also found only 1 (2.5%) respondents who have good knowledge, while other studies found more (20.8%) nurses who had good knowledge and the majority (45.8%) had less knowledge. This is because in this study respondents have received training and have been integrated into their daily routines (14,17). Daily practice activities can increase nurse’s knowledge [7].

4.2. Characteristics of respondents

4.2.1. Last Education

Similar results were also found in most of the previous studies. Research conducted in Yogyakarta found that the majority of 21 (75%) last education of nurses working in the ICU was diploma [26]. The majority of ICU nurses in Makassar have diploma education as many as 24 people (80%) [27]. The majority of ICU nurses at Immanuel Hospital Bandung (66.6%) also have diploma education [28]. In addition, a study conducted in Cairo on critically ill nurses also found that 58.57% of nurses had a recent diploma [25]. 64 people (54.2%) of the respondents, namely nurses in the ICU of a Tanzanian hospital, had their last education diploma [29].

Respondents in this study were also found that only 2.5% received courses or lessons on palliative care in their formal education. In line with this result, it was also found that only 16.7% of nurses received palliative care materials [30]. In Indonesia, palliative care is only taught in clinical settings [24]. In India, 16.0% of nurses do not have palliative care in their education curriculum [31]. A study conducted in Qatar found that more than 36 (31.3%) oncology nurses received formal education in palliative care [32].

The results also found that 2.5% of the respondents in this study had a master's degree in nursing education. The same thing was also found in previous studies, namely 3% of respondents had a Post-B.Sc nursing degree education [33]. None of the nurses in the ICU at Immanuel Hospital Bandung had the last education of a master's degree in nursing [28].

All nurses in the ICU of "X" Hospital Indonesia still have not received previous palliative care training. This also happened in the previous study where the majority of respondents 83.33% did not receive palliative care before. Another study supports that 75.9% of respondents did not receive any previous palliative care training [18]. The same thing happened in a previous study which found 69.2% of respondents also did not receive any previous palliative care training [34].

4.2.2. Length of work at ICU

The same results were also obtained in several previous studies, including the majority (62.7%) of ICU nurses in Bandung also had work experience of less than 10 years (28). Likewise in Tanzania, the majority (67.8%) worked in the ICU for less than 10 years [29].

4.2.3. Relationship between education and nurse knowledge in the implementation of EoL care

This is consistent with previous research which found that education level was not significantly related to nurse's knowledge (33,35). This is related to the exclusion of learning curricula or courses on palliative care and EoL care at the formal education level, either at the diploma level or at other educational levels [35].

Palliative care education and training in Indonesia is only provided informally in clinical practice [24]. The same results were also obtained in other studies, the majority of universities in Egypt did not include palliative care before death in their nursing curriculum [25]. Another study also found that the nursing education curriculum related to palliative care was not included in the diploma education level, so Mandesh concluded that there was a significant relationship between nursing knowledge and undergraduate and master nursing education, but not related to diploma nursing education, it was associated with the absence of a curriculum on palliative care this on diploma education [18].

In addition, the differences in the characteristics of respondents between this study and other studies can lead to different results. Mandesh's research (2014) found a relationship between education and knowledge which is known that as many as 77.9% of respondents have the latest education in nursing degree (BSc degree) while the research conducted by the majority of researchers has the last education diploma (52.5%). Similar results were also found in another study, as many as 56% of nurses in Palestine had a bachelor's degree [14].

In contrast to this study, previous research found a relationship between knowledge and nurse education (17). There is a difference between this study and previous research because the majority of nurses in the previous study had a bachelor's education, namely 54.5%, while in this study, nurses with undergraduate education were 45% (37.5% registered nurse and 7.5% bachelor degree). According to the theory, most of human knowledge is acquired through education (16,36).

Previous studies have shown that education increases palliative care knowledge. Education is also the first step to increase nurse's knowledge in order to meet patient needs [37]. Nurses cannot provide care if they do not have education, just as nurses do not know if they do not receive education in the form of prior learning [38]. However, it must be emphasized again that if it is related to knowledge about palliative care, it must also be considered whether or not there is a curriculum regarding palliative care, especially EoL care at certain educational levels. This is supported by the results

of previous studies which state that palliative care should be included in the nursing curriculum as well as education in health to increase knowledge and nursing services [33].

Faculty development is a major component in improving education, especially continuing education regarding EoL care programs (39,40). This means that education that can influence respondent's knowledge about EoL care is continuing education with the topic of EoL care (38,39).

4.2.4. The relationship of work experience (long work) with nurse knowledge in the implementation of EoL care

Studies conducted in Indonesia on nurses also have a relationship between the level of knowledge and work experience in the form of length of service ($p = 0.073$) with 18 people (60%) having worked <15 years [24]. Another study also shows that there is no significant relationship between length of work and knowledge of respondents with length of work consisting of: a) 1 b) 1-3 c) 3-6 d) >6) (41). Similar results were also obtained in a study conducted in Ethiopia, namely that there was no relationship between experience (length of service) in the pediatric department and nurse's knowledge of pediatric palliative care with duration of work <1 year to 16 years [18].

The difference in the significance of the results of this relationship analysis could be related to the fact that EoL care at ICU "X" Hospital Indonesia is something new. By analyzing respondent's answers to the questionnaire, they only knew the definition of palliative care and EoL care when the researchers conducted the study. This is indicated by the results of the study which showed that 42.5% of respondents did not know the general concepts and principles of EoL care. Another study also found that there was no relationship between length of work and knowledge of nurses because respondents thought it was something new in their place of work [18].

By analyzing respondent's answers to the questionnaire, only some components of EoL care had been implemented in their daily practice with more of the physical management of the patient [41]. Respondents also stated that they had applied spiritual support when the patient was about to die. Similar results were also found in a previous study which found that nurses were not aware of the general concept of palliative care in relation to near-death patients, but that some had it in their daily practice [42].

A total of 77.5% of respondents also do not know the route of administration of analgesics for critical patients who experience continuous pain. After an interview with one of the respondents who is a supervisor, he stated that they had treated patients

who experienced continuous pain, but did not really know what medicine to give, they only carried out their duties when they were ordered by another health team. This is consistent with the opinion expressed in the results of previous studies which state that experience affects the amount and form of knowledge acquired and retained in one's memory [43]. The knowledge obtained is obtained when learning while working and learning outcomes are developed (20,44). Based on this theory, it can be concluded that when nurses do not develop the information they get, their knowledge will not increase

The insignificant relationship could also be because the longer they work, the less they will practice clinically. The results of this study can be seen that 2 respondents (5%) with a length of work 81-83 months and 8 respondents (20%) with a length of work 108-180 months have less knowledge category. In addition, it is also known that some of the respondents with the longest working hours in this study also did not do much clinical practice in relation to their position or job title. This is consistent with other studies which also state that the longer they work, the less they do clinical practice, so it was found that the nurses with the longest working hours had less knowledge. Nurses with 11-15 years of service have less knowledge as much as 24 respondents (11.3%) and only 2 respondents (5.4%) have good knowledge. Then all nurses with working years above 16 years as many as 20 respondents (9.4%) had less knowledge [18].

The insignificant relationship found in this study could also be because the nurses in this study did not get more exposure to palliative care before death in their co-workers, the majority (67.5%) had poor category knowledge. Moreover, at the "X" Hospital Indonesia, there is no palliative care either in general or EoL care, so even though they previously worked in different rooms, they were also not exposed to information about palliative care before death from their previous colleagues. The results of other studies conducted previously also concluded that nurses get information from experience while working with colleagues or people who work in the same environment (45,46).

The theory states that most human knowledge is obtained through self-experience after interacting with the environment [36]. One of the interactions with the environment is the work environment (7,17). The experience of interacting with the work environment through clinical work activities can affect knowledge (17,19,47).

In contrast to this study, previous studies also explained that nurses with 5 years of work experience had 1.96 times more knowledge than nurses with less than 5 years of work experience. This is due to the large variation of experience (in years) of nurses involved in the study and the majority (52%) had less than 5 years of work experience [17]. Only 40% of the respondents in this study had less than 5 years of work experience.

Another thing that can also influence is that nurses can also get various exposures that increase their knowledge of palliative care [17]. The exposure can be in the form of their own daily activities during work (7,17).

4.2.5. Analysis of the relationship between training and knowledge of nurses in the implementation of EoL care

Based on these results, it cannot be concluded how the relationship is statistically. This is because the difference or increase in respondent's knowledge is not known after the training. So this relationship can only be discussed based on a literature review.

The absence of respondents who have attended training in palliative care or EoL care can be caused by the "X" Hospital Indonesia not being too exposed to EoL care. Indonesian nurses have recently participated in this palliative care training, even though in Indonesia there has actually been a special training in palliative care at Darmais Hospital Jakarta [48]. Previous studies found that training was significantly related to the level of knowledge of nurses where nurses who received training had 3 times better knowledge [35]. Nurses who take part in the training also find it helpful when doing work practices [7]. Respondents in Ningsih's research (2011) also expressed their desire to increase their knowledge through training activities. This means, respondents think that training is an effective way to increase their knowledge.

Saunders (2008) states training is needed in order to increase nurse's knowledge about EoL care. [49]. Training is important because during training a person can gain knowledge from the information provided and he does not know [7]43). It can be concluded that the training that can be given to ICU nurses at "X" Hospital Indonesia can be contained in the content of EoL care that is tailored to the needs of the patient at that time. This is consistent with the opinion that the training content provided should be about interventions that are appropriate to the patient's needs [37].

A previous study showed that nurses who received an educational intervention in the form of palliative care training showed an increase in knowledge after 4 intervention sessions ($t = 5.897$, $df = 32$, $p < .001$). This means that the training is effective in increasing the knowledge of nurses. Increased knowledge as much as 2.4 points (12%) an increase in the intervention group [37]. This means that training is a systematic development of knowledge and training can change one's knowledge according to the content provided [50]. In addition to containing specific content, the EoL care training they received could later be integrated into their daily practice, as it was found that nurses who received the training were twice as knowledgeable [17].

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6. Conclusion

The conclusion of this study is that the majority of respondents have less knowledge, long working period for 72 months, the last education Diploma. All respondents did not receive palliative care training. There is no relationship between knowledge and education or length of work. The relationship between training and knowledge cannot be statistically tested because the data are constant.

For further research, it is better to examine other factors that influence the knowledge of nurses, especially how the culture of nurses in carrying out information sharing activities (knowledge sharing) and added by observation. To increase the knowledge of nurses in the work environment, nurses can carry out knowledge sharing activities, especially nurses who have good category knowledge to all other nurses. Then, to increase the knowledge of nurses in palliative care, it is necessary to include material on palliative care in the nursing education curriculum.

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