

## Developing, Implementation and Evaluation of the End-of-Life Care Training Program for ICU Nurses

Shabnam Sohrabi Nasab <sup>1</sup>, Marzieh Pazokian <sup>2\*</sup>, Mahnaz Ilkhani <sup>3</sup>, Malihe Nasiri <sup>4</sup>

### Abstract

**Background:** Taking care of a person at the end of life and his family has always been the main responsibility of nurses. Since nurses spend the most time with these patients, they play a significant role in this care.

**Aim:** The present study was conducted with the aim of developing, implementing and evaluating the end-of-life care training program for nurses working in the intensive care unit (ICU).

**Method:** In this mixed method research, the Kern model was used. First, the initial needs assessment was done by group of 6 experienced nursing volunteers by using the structured group interview method (NGT). Then, the researcher-made questionnaire was compiled through a systematic review. The researcher-made questionnaire was given to 127 nurses who were employed in the ICU. After developing and implementing the program based on Kern's model, the end-of-life nursing care was re-examined. Data were analyzed by SPSS (version 20).  $p < 0.05$  was considered statistically significant.

**Results:** Most participants in this study were female, and the mean age was  $31.98 \pm 5.261$  years and the mean work experience was  $2.27 \pm 0.849$  years. The training program increased the knowledge and awareness of ICU nurses ( $p < 0.001$ ).

**Implications for Practice:** The results of this study showed that the nurses of the ICU do not have enough skills and knowledge in the field of end-of-life care, especially symptom management. Training in the field of end-of-life care was effective on nurses' knowledge and awareness.

**Keywords:** Intensive Care Unit, Nurse, Terminal care, Training Program

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1. Department of Nursing, Student Research Committee, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran
  2. Associate Professor of Nursing, Department of Medical Surgical Nursing, , Clinical Research Development Center, Loghman Hakim Hospital, School of Nursing and Midwifery Shahid Beheshti University of Medical Sciences, Tehran, Iran
  3. Associate Professor of Nursing, Department of Medical Surgical Nursing, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran
  4. Assistant Professor, Department of Basic Sciences, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran

\* Corresponding Author Email: Pazokian@sbmu.ac.ir

## Introduction

Death is considered as an unpreventable and unavoidable event for humans (1,2). With the advancement of medical science, many people believe that death is a distant reality. However, everyone will reach the end of life one day, and some, or perhaps many, will suffer along the way. Developed countries have progressed in diagnosis and treatment and finally, people are live longer, and this has caused an increase in the aging of the world's population and creates new needs for health-oriented care (3).

Caring for a person at the end of life and his family has always been the main responsibility of nurses (4). Patient care at the end of life is a health priority in near death patients (1) and their family; providing quality services for these patients is the professional duty of health care workers (5,6). Almost 28% of deaths occur in hospital settings; therefore, nurses should be qualified to care for dying patients, such as communication skills, team cohesion and coordination, and symptom management (6). Caring for patients at the end of life has high work stress for nurses and is reported as the second most common source of stress for Australian nurses. These findings show that undergraduate nursing programs do not adequately prepare nursing to care for patients at the end of life, which affects the level and quality of care for these patients (7). ICU patients have complex problems and acute diseases (8). So, that one out of five deaths in the hospital happens in ICU (9). The mortality rate is 10-29% in adult ICU patients and 1.9-3.4% in pediatric ICU patients (10). The results of Khoramnia et al.'s study in 2019 showed that the mortality rate in the intensive care unit in Iran is 29.8%, which is higher than the rate reported in developed countries such as Austria, Italy, Denmark, Germany, Holland and Sweden as well as developing countries such as Egypt and Pakistan (11).

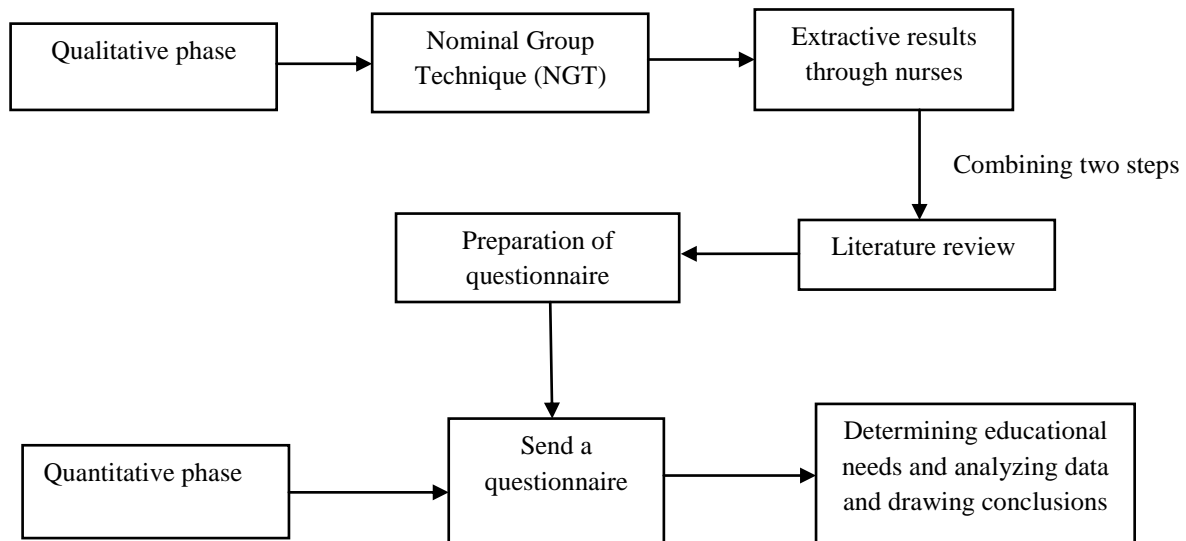
Most nursing students have little or no experience regarding death before entering nursing school. Nursing students or novice nurses state that they have received little training in the field of end-of-life care, and as a result, it causes anxiety (12). Many nurses state that they have little knowledge about end-of-life care or palliative care during their education. Nurses cannot practice what they do not know; therefore, providing end-of-life care training to nurses is very important (13). End-of-life care is an inseparable part of nursing care, but in Iran's health system and medical centers, this important matter is not considered (14). Today, program development and design is important in education, and traditional educational systems are inefficient for creating capabilities. Designing and compiling the educational program is effective on the quality of learning and teaching, so that an educational program is beyond the formulation of the heading and it also discusses the goals and methods of the teacher to implement the program (15). The results of a mixed method study showed that using of Kern model is effective in infection control, so that the mean score of knowledge and performance among undergraduate nursing students increased significantly two months after the intervention (16). In another study, komeili et al declared that Kern model is useful for improvement of patient safety in ICU nurses (17).

Since there is no research in Iran about an educational program related to the end-of-life care of patient for the nurses of the special care departments, the necessity of conducting such research is felt in order to provide a comprehensive and coherent educational program regarding patients at the end of life in Iran. Therefore, the present study was conducted with the aim of development, implementation and evaluation of the training program regarding end-of-life care for the nurses working in the special care department in the selected hospitals of Shahid Beheshti University of Medical Sciences in 2019.

## Methods

In this research, a combined quantitative-qualitative (mixed) method was used. Also, the Kern's model (2016) was used to design a training program for nurses in the ICU for patients at the end of life. This model consists of six steps, the first step is to identify and describe the problem; the second step is to assess the needs of target learners; the third step is to determine the goals and objectives; the fourth step is to determine educational solutions; the fifth step is to implement the curriculum, and the sixth step is to evaluate and feedback. In the present study, for the first and second stages of Kern's model, a combined method with a sequential qualitative-quantitative approach was used for assessment of educational needs (Figure 1). In the first stage, a group of 6 nurses was selected from the general intensive care unit of one of the selected hospitals of Shahid Beheshti University of Medical Sciences and selected for the structured group interview method (NGT). A group of 6 experienced nursing

volunteers (head nurse and nurses with more than three years of experience working in the intensive care unit) were guided for one hour to an interview method with the chosen ones in a suitable place in the hospital department. This multi-step method was semi-quantitative and semi-qualitative. The participants share their opinions about a specific issue or problem with each other (8). This method is useful for researchers who are looking for results (9). This method had 5 steps. The first stage (collection of ideas), the second stage (reporting of ideas), the third stage (discussion of ideas), the fourth stage (initial priorities based on importance) and the fifth stage were the final priority. The questions asked in this stage "In your opinion, what are the educational needs and clinical skills related to patient care at the end of life in the intensive care unit?", "In your opinion, what is the best resource and method for providing training to nurses regarding end-of-life care?"

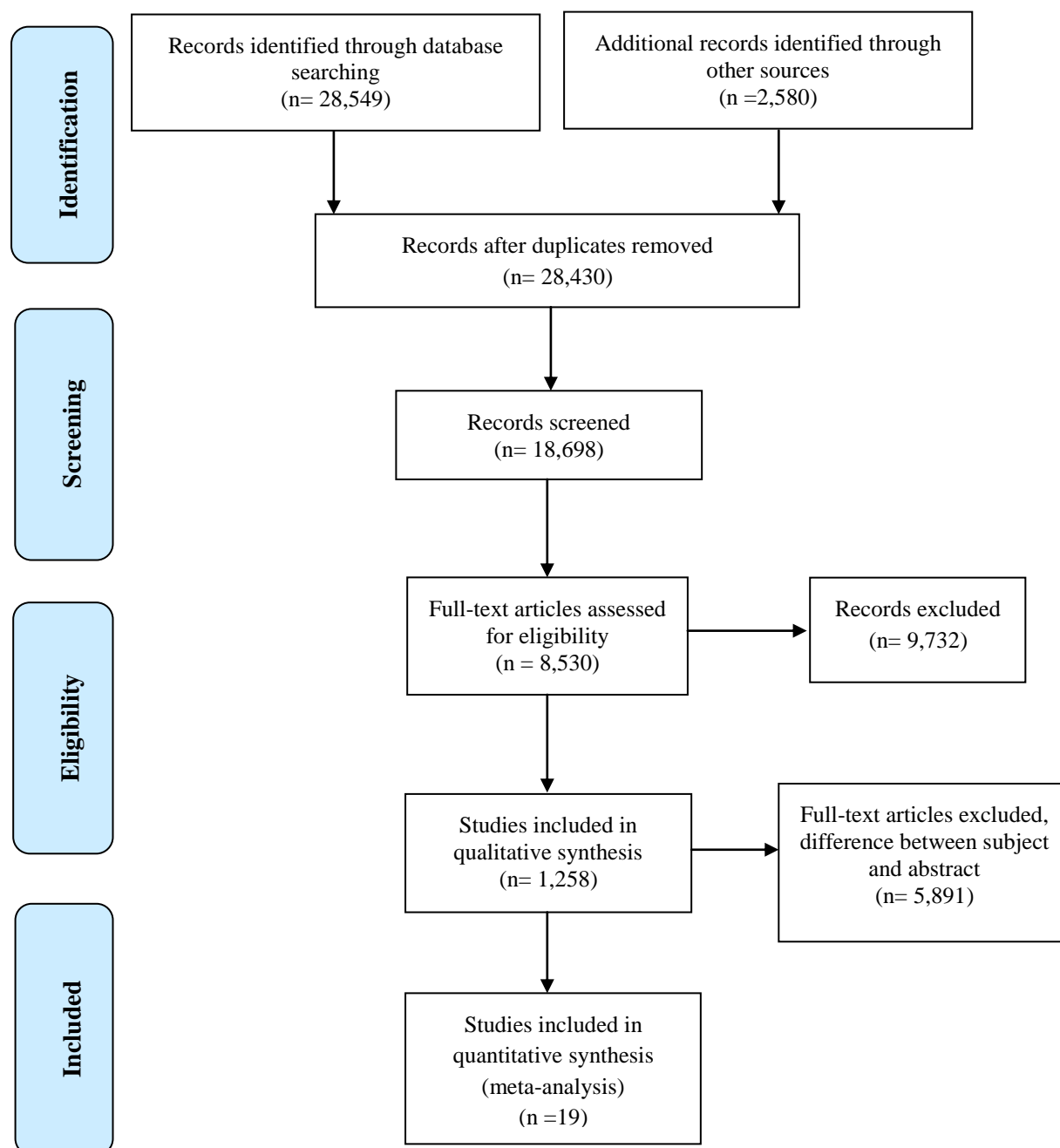


**Figure 1: Nurses' educational needs assessment process**

The inclusion criteria for the interview group were university education, at least two years of work experience in the ICU, and no part-time employment. For the first question, 16 ideas were extracted and for the second question, 9 ideas were extracted. In the second stage (quantitative stage), with the keywords "educational need, clinical skills, end-of-life care, end-of-life care, dying patient, dying patient, intensive care unit" and according to the inclusion criteria, Persian and English articles from 2010 until 2020, and the articles on end-of-life care needs assessment were systematically reviewed on databases of Google Scholar, Science direct, PubMed, Springer Link, ProQuest. After removing the articles based on content, abstract and relevance to the topic, 19 articles were extracted. Figure 2 shows the results of searching for articles and how to select them.

The ideas extracted in the interview and the questionnaires in the systematic review were combined together, so that due to being repetitive or different from the Iranian-Islamic culture, some of the questions were deleted, or they were merged due to their similarity, or they were changed, or due to the importance of the topic of some questions, they were added to the ideas, and in order to avoid a positive effect on the respondents, some questions were made negative, and a questionnaire was created. Then, the questionnaire was given to 10 faculty members of Shahid Beheshti University of Medical Sciences to examine its validity and to 15 experienced nurses to examine its reliability. After confirming the validity and reliability, a researcher-made questionnaire with 45 questions was prepared and given to other nurses in the intensive care unit. The questions were graded on a 5-point Likert scale (completely agree = 1, agree = 2, have no opinion = 3, disagree = 4, completely disagree = 5) and the closer average in positive questions to the number 5 indicates the higher educational need. The validity of the questionnaire was confirmed using the CVI and CVR indexes, and the questionnaire had a CVR and CVI of one. Also, the face validity of the questionnaire was presented to a number of experts (such as nursing supervisors and nursing professors) after finalization. Then, they

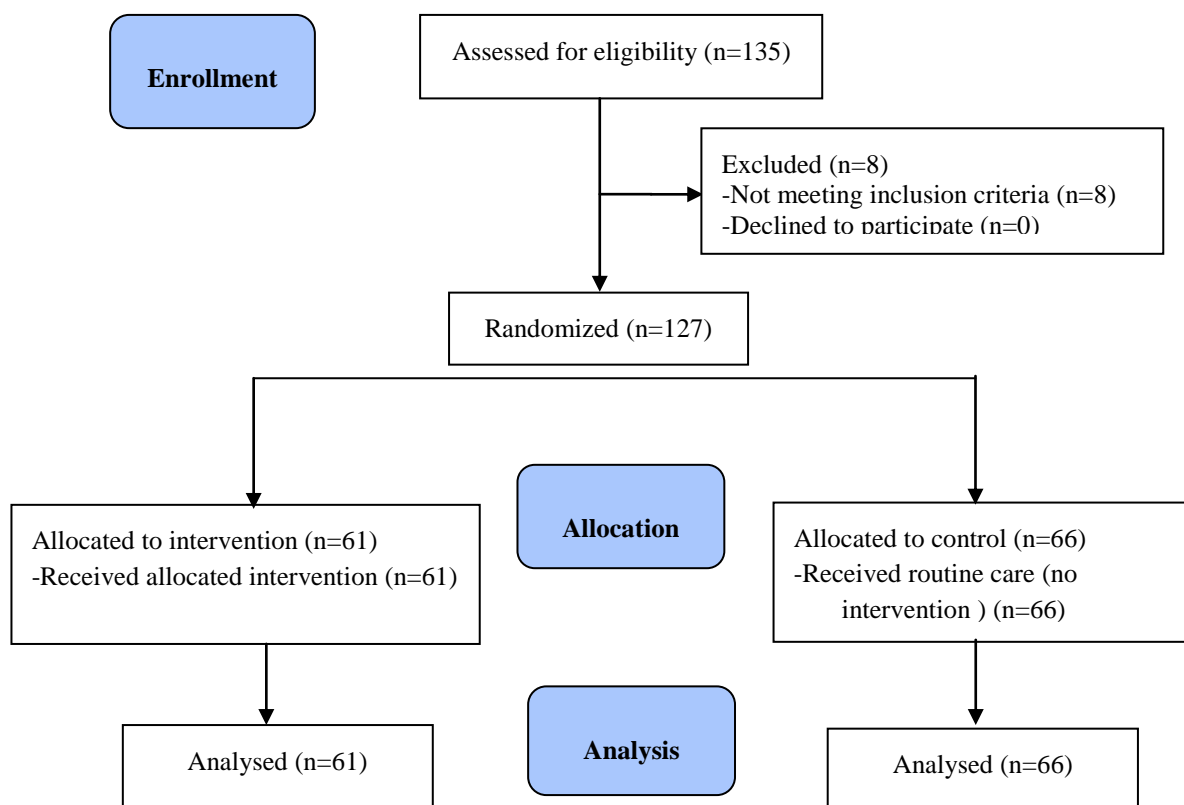
were asked to express their opinion about the quality of the questions in the questionnaire and comment on them. It should be noted that the instrument was confirmed in terms of face validity, and alpha coefficient for questionnaire reliability was 0.85.



**Figure 2: PRISMA flow diagram for systematic review**

An informed consent form was given to the nurses and they were told that participation in the study is completely voluntary and there is no obligation. After filling the questionnaire, data was collected by nurses and data analysis was done by SPSS software (version 19). After the educational needs assessment, the average grades in four hospitals were obtained and since these grades were similar and close to each other in all four hospitals, an educational content was prepared based on the needs assessment. The samples were randomly divided into intervention and control groups. This educational content consisted of 5 chapters, which were taught to nurses in 5 sessions, and the sixth session was devoted to reviewing and summarizing the contents. The first chapter is about the

definition of concepts, identification of the patient at the end of life and the role of the care team members; the second chapter is about guidelines, legal and professional rules and communication with the patient and his family; the third chapter was about pain, pain assessment tools and how to manage pain; the fourth chapter discusses the management of other symptoms, and the fifth chapter discusses pressure sores and nutrition, primary care, spiritual care, announcing bad news and bereavement, and job burnout. The chapters were changed from 6 chapters to 5 chapters, and the contents became more concise and practical, and the last session was dedicated to reviewing and summarizing the contents. Five pamphlets were given, each pamphlet containing one chapter and covering a total of five chapters. The pamphlets were for review and were placed in the nursing station. In the intervention phase, 127 nurses were recruited by the convenience sampling and were randomly allocated to the control or intervention groups (Figure 3).



**Figure 3: CONSORT flow diagram of the study**

The intervention group was formed on the WhatsApp virtual network for nurses who had entered the study according to the entry criteria and had completed the educational needs assessment by questionnaire, and a chapter was uploaded to the intervention group every day at a certain time (10 am). Those who were online at that moment were asked questions and answers, and the topic remained in the group for those who could not be online at the specified time. The next day, before uploading the next chapter, questions and answers were conducted in person at the department by the researcher again with the personnel who were present at the department, and pamphlets were given to review the contents and also for the people who were in the department or in the online class not present. This work was done in 6 consecutive days. Nurses in the control group did not receive intervention. After the completion of the training course, the questionnaire was again provided for evaluation of the training content.

Data were analyzed by SPSS (version 20). The Kolmogorov-Smirnov test was used to check the normality of the data. Because the p-value of this test for all the variables in the research is greater than 0.05, then the assumption of normality of the variables was confirmed and parametric tests were used for statistical analysis.  $p < 0.05$  was considered statistically significant.

### Ethical Consideration

The study protocol was approved by the Ethics Committee of the Clinical Development Unit of Loghman Hakim Hospital, Tehran, Iran (ethical code: IR.SBMU.RETECH.REC.1402.504).

### Results

The mean age of the nurses was  $31.98 \pm 5.261$  years, the mean work experience of the nurses was  $2.27 \pm 0.849$  years, and the mean work experience of the nurses in the ICU was  $1.83 \pm 0.862$  years. The results of Chi-square test showed that the intervention and control groups were not significantly different in terms of demographic variables such as gender, marital status, work experience, education level, experience of participating in training workshops, and personal encounter with death ( $p > 0.05$ ) (Table 1).

**Table 1. Demographic characteristics in the control and intervention groups**

Variable	Control group Frequency (%)	Intervention group Frequency (%)	Statistical indicators
<b>Gender</b>			
Male	32(48.46)	35(57.37)	$\chi^2 = 0.43$
Female	34(51.54)	26(42.63)	P=0.52
<b>Marital status</b>			
Single	27(40.90)	34(55.74)	$\chi^2 = 1$
Married	39(59.1)	27(44.26)	P=0.31
<b>Work experience</b>			
Less than 5 years	11(16.67)	15(24.59)	
5 to 10 years	23(34.85)	25(40.98)	$\chi^2 = 2.83$
10-20 years	28(42.42)	18(29.50)	P=0.42
Above than 20 years	4(6.06)	3(4.93)	
<b>Education level</b>			
Bachelor	52(78.78)	53(86.88)	$\chi^2 = 1.45$
Master and above	14(21.22)	8(13.12)	P=0.22
<b>Experience of participating in training workshops</b>			
Yes	13(19.70)	11(18.03)	$\chi^2 = 0.203$
No	53(80.30)	50(81.97)	P=0.65
<b>Personal encounter with death</b>			
Yes	26(39.39)	29(47.54)	$\chi^2 = 0.857$
No	40(60.61)	32(52.46)	P=0.35

The results of the independent-samples t-test showed that before the intervention, there was no significant difference between the intervention and control groups in terms of end-of-life care ( $p = 0.29$ ). According to Table 2, the results of the independent t-test showed that after the intervention in the control group, the overall scores of end-of-life training program decreased by an average of 8 points, indicating that the conditions worsened, and in the intervention group, there was an increase of 4 points, indicating that the conditions improved. As a result, the training program increased the knowledge and awareness of ICU nurses ( $p < 0.001$ ).

**Table 2. Comparison of the scores of training program at the end-of-life pre and post intervention**

Stage	Pre-intervention	Post- intervention	Test result (Z)	
Variable	Mean± SD	Mean± SD	P-value *	Statistic
Intervention group	118.3±21.83	121.91±13.47	0.004	2.98
control group	122.57±13.24	114.48±6.74	<0.001	4.62
p-value**	0.269(t=1.11)	0.001(t=4.38)		

\*paired t-test, \*\*independent t-test

## Discussion

The purpose of the present study was developing, implementing and evaluating the end-of-life care training program for ICU nurses. In this study, the areas which were evaluated and trained included pain and symptom management, legal guidelines and laws, spiritual care, duties of the care team, communication with the patient and his family, stress control, care needs, control of other symptoms, and psychological support for the patient and his family. The results of the present study showed that training was effective on the knowledge, awareness and performance of nurses. There is no clear instruction in the field of end-of-life care and nurses get confused and stressed when providing care. The existence of guidelines and rules helps nurses when providing care. Also, the results showed that some healthcare centers give importance to end-of-life care and perform it sporadically. The results of the study stated that most nurses lack sufficient skills and knowledge in the field of end-of-life care, especially in the field of symptom management. This defect in providing end-of-life care reduces the quality of care and the quality of life of patients. Education increased the knowledge and awareness of nurses, which in turn increases the quality of life of patients. In the present study, nurses awareness of existence of instructions indicated that training had significant changes. Developing an educational program is an important factor in learning. In developing the educational program, the teacher's goals and the methods to achieve these goals are specified, and in fact, compilation of the program is beyond the headings and content (15).

In the study of Adibi et al. in 2016, which was conducted with the aim of designing and compiling an endoscopy nursing training program in Iran; their result was in line with the findings of the current study. Delphi method was used in their study that consists of three stages. The first stage was a review of the literature, the second stage was a needs assessment through interviews with experts in the field of gastroenterology and endoscopy, and the third stage was a combination of the previous two stages and the trainings were taught to nurses in the form of theory and internship. Theoretical topics were presented in the form of lectures, working groups and self-learning, and practical topics were presented in the form of simulations and bedside training. The purpose of implementing this educational program was to improve the knowledge, awareness and performance of nurses through the educational program and the results showed it was effective (18). Also, Komeili et al. in 2023 showed that developing, implementation and evaluating patient safety training program for ICU nurses was useful in promotion of knowledge and performance of patient safety. The use of educational models at the bedside should have sufficient effectiveness in improving safety and improving quality in terms of time and cost (17).

In Sadati's study in 2021 with the aim of designing, implementing and evaluating the educational program of moral teaching based on teaching by discussion method in real scenarios: a scholarly activity that is an intervention and the Kern model is used, and ten training sessions with the teaching method is based on discussion on real scenarios. They used quantitative and qualitative data analysis for evaluation, in the quantitative part, the number of participants and the number of scenarios sent, and in the qualitative part, the topics recorded and implemented in the training sessions were evaluated. They reported that this method should be used to enable teachers to understand ethical principles, create ethical sensitivity and strengthen ethical decision-making (19). Heidari et al. in (2023) a mixed method study declared that it is needed to revise the nursing curriculum for infection control program integration in the undergraduate education (16). In the semi-experimental study of

Zarei et al. in 2012 to investigate the effect of an educational program based on the Bezenf model in improving interpersonal communication skills of nurses, it was stated that the communication ability of nurses in health care is low and insufficient. A questionnaire taken from the indicators of Bezenf's behavior change model was used. The level of attitude and knowledge of nurses regarding communication skills increased after training (20), which is in line with the the results of the present study.

In their study in 2012, Dadgari et al. investigated the effect of education on the knowledge and skills of nurses in calculating the dosage of drugs. The first stage was educational needs assessment, the second stage was educational intervention in the form of educational workshops, and the third stage was evaluation. The mean scores of knowledge of nurses increased in the field of injectable drugs, determination of drug concentration and serum infusion. So that nurses had a lot of training needs in the field of drug calculation, especially injectable drugs, and training had a positive effect on their knowledge and skills (21). Boozari et al. in 2018 conducted a study with the aim of investigating the effect of drug safety education for the elderly on the knowledge, attitude and performance of nurses. The intervention group received the principles of drug safety through the web for two weeks. After the training, the level of knowledge, attitude and performance of the nurses in the intervention group increased compared to the control group (22). In the study of Soozani et al. in 2012, two two-hour training sessions were used for the purpose of investigation. The knowledge of nurses in the field of bed sore care is average or even less, and training in both the prevention and treatment areas increased the knowledge of nurses (23).

The limitation of this study is the onset of the COVID -19 pandemic and slowing down of the sampling process. The virtual space was used to control this limitation. The group interview was conducted face-to-face in compliance with health protocols.

### **Implications for practice**

Recognizing the educational needs of nurses and meeting these needs in the field of end-of-life care help nurses to provide end-of- life care with higher standards and quality. Considering that nurses spend more and direct time with the patient and his family, by using the results of this research, it is possible to identify the challenges in the care of patients at the end of life and take action to solve them. Probably, the results of this study can be effective in the nursing planning of the special care department to improve the educational process of nurses and also providing better services to patients and their families.

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### **Conflicts of interest**

The authors declared no conflict of interest.

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### **Authors' Contributions**

Marzieh Pazokian: conceptualization, methodology, supervision, and writing the original draft. Shabnam Sohrabi nasab: conceptualization, data collection, and writing the original draft. Mahnaz Ilkhani: data collection, and writing the original draft. Malihe Nasiri: formal analysis of manuscript. All authors contributed to the writing of the manuscript and discussed on the manuscript.

### **References**

1.Hojjati H, Arazi S, Mozafari N, Ghezelsefli Z, Akhond Zadeh G, Hekmati Pour N, et al. Attitude of nurses to end-life care in social security hospitals in Golestan province. *Journal of Education and Ethics in Nursing*. 2015;4(4):17-23.



2. Abbasi M, SHAMSI GE, Movahedi H, Saffari S. Spiritual care at the end of life (Systematic review). *Journal of Medical Ethics*. 2015;8(31):97-131.
3. Ferrell B, Malloy P, Virani R. The end of life nursing education nursing consortium project. *Annals of palliative medicine*. 2015 Apr;4(2):619-69.
4. Ingwu JA, Nwaiku L, Ohaeri B. Knowledge and practice of end-of-life care among nurses in a teaching hospital in Nigeria. *International journal of palliative nursing*. 2016;22(4):194-9.
5. Tzenalis A, Papaemmanuel H, Kipourgos G, Elesnitsalis G. End-of-life Care in the Intensive Care Unit and Nursing Roles in Communicating with Families. *The Journal of Critical Care Medicine*. 2023;9(2):116-21.
6. Price DM, Strodman L, Montagnini M, Smith HM, Miller J, Zybert J, et al. Palliative and end-of-life care education needs of nurses across inpatient care settings. *The Journal of Continuing Education in Nursing*. 2017;48(7):329-36.
7. Gillan PC, van der Riet PJ, Jeong S. End of life care education, past and present: A review of the literature. *Nurse Education Today*. 2014;34(3):331-42.
8. Kamel G, Paniagua M, Uppalapati A. Palliative care in the intensive care unit: are residents well trained to provide optimal care to critically ill patients? *American Journal of Hospice and Palliative Medicine*®. 2015;32(7):758-62.
9. Mani ZA, Ibrahim MA. Intensive care unit nurses' perceptions of the obstacles to the end of life care in Saudi Arabia. *Saudi medical journal*. 2017;38(7):715-20.
10. Ganz FD, Sapir B. Nurses' perceptions of intensive care unit palliative care at end of life. *Nursing in critical care*. 2019;24(3):141-8.
11. Khorramnia S, Jafari A, Farahbakhsh F, Aliniaghara E, Amani B, Amani B, et al. Estimation of mortality in the intensive care units in Iran: A systematic review and meta-analysis. *Nursing And Midwifery Journal*. 2019;17(8):634-45.
12. Pullis BC. Integration of End-of-Life Education into a Community Health Nursing Course. *Public Health Nursing*. 2013;30(5):463-7.
13. Behr DJ. Evaluation of Impact of End-Of-Life Nursing Education Consortium (ElneC) Education On Registered Nurses. doctorate degree of nursing practice. Ruckert-Hartman College for Health Professions. 2014.
14. Ghaljeh M, Rezaee N. Experiences of nurses about end-of-life care for cancer patients in Iran: a qualitative study. *Iran Journal of Nursing*. 2018;31(114):65-75.
15. Ahmadi S, Javidan F, Dehghan MS. Educational Strategies in Undergraduate Medical Curriculum. *Strides in Development of Medical Education*. 2014;11(2):205-13.
16. Heidari H, Beni ZH, Deris F. Using Kern model to design, implement, and evaluate an infection control program for improving knowledge and performance among undergraduate nursing students: a mixed methods study. *BMC Medical Education*. 2023;23(1):795. doi: 10.1186/s12909-023-04775-3.
17. Komeili M, Pazokian M, Ilkhani M, Tondro A. Developing, Implementation and Evaluation of Patient Safety Training Program for Nurses. *Evidence Based Care*. 2023;13(3):17-26.
18. Adibi P, Shahriari M, Doosti Irani M. Development of a curriculum for endoscopy nurse education in Iran. *Journal of Nursing Education*. 2016;5(1):38-43.
19. Sadati L, Motaharipour M, Farajidana H, Abjar R. Designing, implementing and evaluation of educational program of ethics in education by scenario based discussion: A Scholarship study. *Journal of Medical Education and Development*. 2021;16(2):120-30.
20. Zarei F, Shojayizade D. The Effect of Educational Intervention Based on BASNEF Model to Improve Interpersonal Communication Skills of Nurses. *Alborz University Medical Journal*. 2012;1(3):173-8.
21. Dadgari A, Kasaeian A, Dadvar L, Kalatejari M, Rezaee M, Mirzaee M. Effects Of Education On Nurses' Knowledge And Skill In Drug Dosage Calculation. *Journal of Knowledge & Health*. 2012;7(1):20-6.
22. Boozari M, Jafar JE, Haghani H. Effects of Pharmacovigilance Training in the Elderly on the Knowledge, Attitude, and Performance of Nurses. *Iran Journal of Nursing*. 2018;31(115):75-84.
23. Soozani A, Raei M, Montazeri A, Nasiri E, Hamidzadeh A, Pourheidari M. The effect of education on knowledge and performance of nurses in prevention and control of pressure sore. *Modern Care Journal*. 2012;9(1): 16-23.