



The Effect of a Professional Empowerment Program on ICU Nurses' Clinical Decision-Making and Attitudes Toward End-of-Life Care: A Quasi-Experimental Study

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Abstract

Background: Nurses play a vital role in improving health standards and should remain updated to be capable of making effective clinical decisions in end-of-life period. The present study aimed to determine the effect of a professional empowerment program on Intensive Care Units (ICUs) nurses' clinical decision-making and attitudes toward end-of-life care.

Methods: This quasi-experimental, a pre-test and post-test design with a control group was conducted on 36 eligible ICU nurses who were randomly assigned to the intervention and control group (18 individuals each). The professional empowerment program on clinical decision making on end-of-life care and attitudes was delivered to the intervention group in 10 weekly sessions, while the control group received no training. Participants in both groups completed the Participation in Decision Activities Questionnaire (PDAQ) and Frommelt's (1991) Attitude Toward Care of the Dying Scale (FATCOD) before and after the intervention. The collected data were analyzed using IBM SPSS-26 with independent samples t-tests and chi-square tests.

Results: The data revealed no significant differences ($p > 0.05$) between the intervention and control groups regarding clinical decision-making and end-of-life care before the professional empowerment program. However, a significant difference ($p < 0.05$) was found after the intervention, indicating the program's effectiveness in improving ICU nurses' clinical decision-making and attitudes towards end-of-life care.

Discussion: The findings suggest that the professional empowerment program significantly improved ICU nurses' clinical decision-making and attitudes towards end-of-life care for family members. Therefore, empowerment can be used as an effective intervention to enhance nurses' decision-making and their attitudes towards end-of-life care.

Keywords: Clinical decision-making, Death, Family, Humans, Intensive care units, Terminal care

Introduction

Nurses have a substantial duty to care for patients (1). They provide education tailored to the needs of patients and their caregivers (2). Nurses working in Intensive Care Units (ICUs) must make quick decisions due to the complexity of patients' clinical conditions and rapid changes in their hemodynamic status (3).

Decision-making is an essential aspect of the nursing profession. It is a complex process that begins with collecting subjective and objective data about the patient's condition and continues with evaluating this data to choose the best course of action to achieve the desired goals (4,5). ICU nurses make decisions every 30 seconds (6), encompassing ethical, practical, clinical, and non-clinical aspects (4). Correct decisions can enhance the quality of care, shorten illness and disability durations, reduce medical costs, and optimize resource use, while incorrect decisions may lead to harm, loss, and a decline in care quality⁷. Clinical competence and self-confidence are the most critical internal factors affecting nurses' clinical decisions, while organizational culture, access to support structures, and nursing education serve as the most influential external variables (8,9). Given the responsibilities and wide scope of nursing practice, as well as the need for accurate and sensitive decision-making in nursing services, nurses must be equipped to make decisions in critical clinical situations (10).

One particularly challenging situation for ICU nurses is end-of-life care (11). Nurses play a vital role in caring for patients in the final stages of life (12). End-of-life patients require nursing care more than medical interventions, with care primarily focused on physical, psychological, social, and spiritual support (13-15). A systematic review revealed that nurses often lack self-confidence in providing end-of-life care due to insufficient professional knowledge, attitude, and skills (16). Additionally, personal characteristics such as age, job experience, and prior education about end-of-life care directly influence their ability to care for dying patients (17).

One effective strategy to improve clinical decision-making for end-of-life care in nurses is professional empowerment (18). Empowerment is defined as the enhancement of self-confidence and critical analysis, along with the engagement of individuals

and organizations in creating environmental changes (19). In nursing, empowerment involves behaviors that enable nurses to act as self-sufficient professionals, determine their professional destinies, and create opportunities to develop and apply their skills and knowledge to serve patients effectively (20). Empowered work environments enhance nurses' ability to act professionally, provide high-quality patient care, increase patient satisfaction, and generate positive organizational outcomes (21).

The importance of clinical decision-making and attitudes towards end-of-life care for ICU nurses cannot be overstated, as these factors greatly impact the quality and effectiveness of care and the rapid recovery of patients. Professional empowerment is an approach that might improve knowledge, attitude, and performance of nurses. Although there are studies in literatures on empowerment programs effects or nurses' attitudes towards end-of-life, there are still paucity in the effects of professional empowerment programs on clinical decision-making and attitudes towards end-of-life care. The present study, thus, aimed to determine the effect of a professional empowerment program on the clinical decision-making and attitudes towards end-of-life care of ICU nurses at Amir al-Momenin Hospital in Zabol, Iran in 2023.

Materials and Methods

This quasi-experimental study, using a pre-test and post-test design with a control group, was conducted on ICU nurses at Amir al-Momenin Hospital in Zabol, Iran, in 2023. There are four general ICUs at Amir al-Momenin Hospital, where admit all patients who are in a critical situation and need intensive care. The present study hypothesized that a professional empowerment program increases the ICU nurses' clinical decision-making and attitudes toward end-of-life care.

In order to estimate the sample size, with a confidence level of 95%, a test power of 80%, considering a possible dropout rate of 10%, and according to the study by Sadeghi *et al*, (22) and difference means formula (23), the sample size was estimated to be 18 individuals for each group. A total of 36 ICU nurses were randomly assigned to intervention and control groups (18 members each). Inclusion criteria included

holding at least a bachelor's degree in nursing and having a minimum of six months' ICU experience. Exclusion criteria encompassed withdrawal from the study, failure to attend training sessions, or transfer to a non-ICU ward.

A list of eligible ICU nurses from all working shifts *i.e.*, morning, evening, and night of four ICUs was prepared and coded, and the participants were randomly assigned to the two groups. Both groups completed a pre-test questionnaire before the intervention. The intervention group participated in a ten-session professional empowerment program in the ICU's, with each session lasting 45 *min* weekly. Upon completing the program, a post-test was administered. The control group received no intervention during the study but was provided with the instructional materials afterward. To prevent information leakage between groups, the data were first collected from the control group before implementing the empowerment program to the intervention group. The empowerment program and data collection were done from November 2023 to April 2024. Two researchers evaluated each participant's clinical decision-making skills independently to control the potential bias of measuring. Then, the average of scores was recorded. In the first session, the participants in the intervention group were introduced to the study's objectives, the program's structure and benefits, and completed the pre-test. Sessions two through nine focused on problem-solving, brainstorming, (Scenario) development for clinical decision-making in end-of-life care (Appendix 1), and applying professional empowerment strategies to practical challenges. The final session summarized the training, and the participants completed the post-test.

The intervention included education on clinical decision-making, end-of-life care, and the nurse's role in these processes. Group discussions addressed real-world clinical scenarios developed through interviews with ICU nurses and supervisors, reflecting common ICU cases. The validity of these scenarios was confirmed by medical education and intensive care specialists.

Data for the study were collected using a demographic information form, the Participation in Decision Activities Questionnaire (PDAQ), and Frommelt's (1991) Attitude Toward Care of the Dying Scale (FATCOD). The demographic form recorded the participants' age, gender, type of employment, education level, and work shifts.

The FACTCOD included 30 items scored on a five-point Likert scale (1=strongly disagree to 5=strongly agree). Negative items (3, 4, 5, 6, 7, 8, 9, 13, 14, 15, 17, 26, 28, and 29) were reverse-scored (5=strongly disagree to 1=strongly agree) (24). The total score ranges from 30 to 150, with higher scores reflecting more positive attitudes. The scale had six subscales: fear/malaise, communication, relationship, active care, care of the family, and family as caring (24). Previous studies (25,26) had reported the FATCOD's Cronbach α as 0.76. In the current study, Cronbach α was 0.72.

The Participation in Decision Activities Questionnaire (PDAQ) was used to evaluate the nurses' clinical decision-making. This questionnaire was developed by Antoni (27) and later re-evaluated for reliability and validity. In this questionnaire, 12 clinical decision-making situations were designed. Each situation had 3 questions, and the answers for each question were scored from 0 to 5. The minimum and maximum

Appendix

Empowerment program contents

Nursing care at the end of life, symptom management, legal issues, cultural considerations, informing the patient or family, communication, medication management, grief, loss, bereavement, causes of terminal restlessness, clinical decision-making regarding physical disorders, pain management, skin problems, cognitive problems, consideration of physician orders, prescribed medications, consultation with other medical staff, including nutritionists, *etc.*

Scenario 1

The patient named Zahra is a 16-year-old girl living in She is a first-year high school student and the only girl in the family. The patient has been admitted to the ICU since yesterday. She lost consciousness for about 15 minutes and then stopped breathing. Currently, the patient is under mechanical ventilation. Based on a review of the patient's medical records and CT scan results, she was diagnosed with grade 5 subarachnoid hemorrhage and brain death. Zahra's parents go to the ICU and the doctor tells them that their daughter is brain-dead and is a candidate for organ donation. Zahra's

parents do not trust the doctor's diagnosis and they are very hopeful about their daughter's return to life. Zahra's father says that our family members are against organ donation and think that it is unethical and there are collusions behind this. As a nurse, what interventions are you currently doing to support the patient and her family members?

Scenario 2

The patient is 26 years old and is living in The patient was transferred to the ICU two days ago following a car crash. The patient underwent intubation and mechanical ventilation due to severe respiratory distress at the beginning of admission. X-ray and MRI of the patient's neck show fractures of C4, C5, and C6 vertebrae. Currently, GCS is 8. In your shift, the patient showed some changes in vital signs including increased heart rate (HR=96) and tachypnea (RR=28). Furthermore, the patient's arterial oxygen saturation has decreased ($SpO_2 = 70 \text{ mmHg}$).

As a nurse, what action do you take in the following decision-making stages?

- A. Further identification of the patient's current problem and its cause(s).
- B. Focusing on and evaluating predictable methods to solve the patient's current problem.
- C. Prioritizing problem solutions and choosing the best solution (by mentioning the reason).

Scenario 3

The patient named Masoumeh Sh. is living in ..., and is suffering from an advanced malignant brain tumor with a poor prognosis. She has mental and cognitive disorders. The doctor told the patient's family that there are some treatments available that increase the chance of survival, but they are only palliative. The options recommended by the doctor include surgery and chemotherapy. Some family members of the patient (siblings) are against these interventions and they argue that when there is no hope for her disease to recover, these procedures cause more pain to the patient. They try to force the patient's husband to discharge the patient so that she can spend the rest of her life-without surgery or chemotherapy -at home with her children. The patient's father was also diagnosed with a brain tumor a few years ago and died despite multiple treatments. As a nurse, what interventions are you currently doing to support the patient and her family members?

scores for each situation were 0 and 15, respectively. The total scores for the 12 situations ranged from 0 to 180. A higher score indicated better clinical decision-making. The reliability of the tool was calculated as 0.96 using the test-retest method (27). The PDAQ's Cronbach α was 0.84 in the current study.

Data analysis was conducted using IBM SPSS-26, employing descriptive statistics (mean and standard deviation) and inferential statistics, including the Independent samples t-test, and Chi-square. Normality of distribution of numerical data was calculated based on Shapiro-wilk test. All the data were normally distributed. The significance level was set at 0.05.

The protocol for this study was approved by the Ethics Committee of Zabol University of Medical Sciences under the code of ethics IR.ZBMU.REC.1402.104. The consent form was achieved through a cover letter that explained the purpose of study and a list of empowerment program contents. The ICU nurses were free to participate or withdraw from the study at any stage. Each participant anonymously completed the questionnaires.

Results

Table 1 presents the demographic profile of nurses,

including gender, job status, education level, average age, and work experience. Table 2 shows the mean scores for attitudes toward end-of-life care in the intervention and control groups before and after experiment. The independent samples t-test revealed no statistically significant difference in attitudes between the two groups in the before experiment ($p=0.576$). However, a significant difference emerged in the after experiment ($p=0.006$). Additionally, there was no significant difference in the subscales of attitudes toward end-of-life care before and after the intervention ($p>0.05$), except for the care of the family subscale that shows a significant difference between two groups after experiment ($p=0.026$).

Table 3 represents the mean scores for problem identification, solution, choice, and decision-making. There was no statistically significant difference between the intervention and control groups before the experiment ($p>0.05$). However, the scores increased significantly in the intervention group compare to control group after the experiment ($p=0.001$).

Discussion

The results of the present study demonstrated that the 10-session professional empowerment program significantly improved clinical decision-making in

Table 1. Demographic profile of ICU nurses in intervention and control groups

Variable		Intervention group n (%)	Control group n (%)	p-value
Gender	Male	6(33.3)	10(55.6)	0.179
	Female	12(66.7)	8(44.4)	
Employment	Plan-based	1(5.6)	1(5.6)	0.554
	Contractual	8(44.4)	4(22.2)	
	Official	4(22.2)	7(38.9)	
	Fixed-term	2(11.1)	4(22.2)	
	Corporate	3(16.7)	2(11.15)	
Education level	Bachelor	13(72.2)	13(72.2)	1.00
	Master	5(27.8)	5(27.8)	
Work shifts	Fixed	9(50)	7(38.9)	0.502
	Rotating	9(50)	11(61.1)	
Age (year): Mean (SD)		40.05(8.17)	38.5(8.10)	0.571
Work experience (Month): Mean (SD)		10.50(6.28)	8.72(6.20)	0.398

Table 2. Comparison Mean (SD) of ICU nurses' attitudes toward end-of-life care in the intervention and control groups

Variables	Stage	Mean (SD)		t	95%CI difference	p-value
		Intervention group	Control group			
Attitude toward care (total score)	Before	87.66(7.66)	89.11(7.37)	-0.576	-6.53, 3.64	0.576
	After	88.83(5.52)	82.55(7.25)	2.921	1.91, 10.64	0.006
Care of the family	Before	8.77(1.86)	9.22(1.95)	-0.698	-1.73, 0.85	0.490
	After	9.50(1.75)	8.22(1.47)	2.361	0.178, 2.37	0.024
Fear/malaise	Before	26.11(3.84)	25.66(4.05)	0.337	-2.23, 3.12	0.738
	After	25.33(4.1)	22.72(4.19)	1.887	-0.20, 5.42	0.068
Communication	Before	14.05(3.05)	15.05(3.06)	-0.975	1.08, -3.08	0.336
	After	14.88(2.92)	13.61(4.01)	1.091	-1.10, 3.65	0.283
Active care	Before	12.94(2.38)	11.61(2.74)	1.554	-0.41, 3.07	0.129
	After	12.11(2.02)	12.27(2.29)	-0.231	-1.63, 1.30	-0.231
Relationship	Before	16.72(3.15)	18.05(3.87)	-1.132	-3.72, 1.06	0.266
	After	17.61(3.12)	16.77(3.37)	0.769	-1.36, 3.03	0.447
Family as caring	Before	9.05(1.95)	9.50(2.00)	-0.673	-1.78, 0.89	0.505
	After	9.38(1.97)	8.94(1.92)	0.684	-0.87, 1.76	0.499

SD: Standard Deviation; CI: Confidence Interval.

ICU nurses. These findings align with prior studies. Sadeghi-Gandomani and Azadchehr reported no immediate significant difference in the frequency

and severity of moral distress due to professional empowerment training; however, one month later, a significant reduction in moral distress was observed in

Table 3. Comparison of Mean (SD) of clinical decision-making scores of ICU nurses in intervention and control groups

Variables	Stage	Mean (SD)		t	95%CI difference	p-value
		Intervention group	Control group			
Problem identification	Before	80.83(10.13)	81.61(7.82)	0.258	-5.35, 6.91	0.798
	After	95.05(10.02)	79.88(7.08)	4.895	-8.28, -20.04	0.001
Solution	Before	81.77(9.81)	82.27(8.42)	0.164	-5.69, 6.69	0.871
	After	94.94(9.21)	80.88(7.51)	-5.016	-19.75, -8.36	0.001
Choice	Before	82.27(9.25)	83.00(7.47)	0.257	6.42, -4.97	0.798
	After	95.44(8.35)	80.88(7.86)	-5.382	-9.05, -20.05	0.001
Decision-making	Before	81.62(9.66)	82.29(7.81)	0.228	6.61, -5.28	0.821
	After	94.81(9.07)	80.55(7.4)	-5.163	-8.64, -19.87	0.001

SD: Standard Deviation; CI: Confidence Interval.

the intervention group (22). Cordo and Hill-Rodriguez found that professional empowerment positively influenced nursing engagement and decision-making in ICU nurses (28). Similarly, Zeng *et al* showed that a positive work environment improves psychological empowerment, which enhances clinical decision-making in midwives (29). Rahajeng and Muslimah demonstrated that nurse participation was effective across all three stages of clinical decision-making (30). Latifi *et al* highlighted clinical competence and self-confidence as critical internal factors influencing nurses' decisions, while organizational culture, access to support structures, and nursing education were significant external factors (31). Professional empowerment training programs can enhance communication and interactions, improve clinical decision-making, and elevate the quality and quantity of nursing care in ICUs (32).

The findings also showed that professional empowerment training significantly improved the ICU nurses' attitudes toward end-of-life care. Mean scores for attitudes of the end-of-life care revealed significant differences between the intervention and control groups after the experiment. However, the subscales of end-of-life care revealed no significant differences between the two groups, possibly due to unaccounted variables such as excessive stress, work load, and resilience. The only subscale of attitudes toward care for family was significant, which indicates ICU nurses' positive attitudes in this regard

after empowerment program.

In agreement with the current study, Reyhani *et al* reported that empowerment programs improved care-related self-efficacy in caregivers of epileptic children (33). McAndrew *et al* (34), using grounded theory, identified that decision-making at the end-of-life involves balancing emotional responsiveness, professional roles, intentional communication, and collaboration. Key balancing factors included teamwork, common goals, understanding different perspectives, and self-awareness. Conversely, feelings of helplessness, challenging family dynamics, and recognition of suffering disrupted this balance, leading to moral distress. Practical recommendations from their study include developing supportive interventions and enhancing communication during end-of-life decision-making (34).

This study highlights that misconceptions and negative attitudes toward end-of-life care. Professionally empowered ICU nurses demonstrate greater decision-making power, trust, adaptability, situational control, supportive attitudes, and self-efficacy.

Limitations

One limitation of this study was the potential access of nurses in the intervention and control groups to external sources of information, which was beyond the researcher's control. Besides, the program was implemented during the nurses' working shifts, which might be affected on their interest learning.

Additionally, the stressful and workload nature of ICU patient care poses challenges for nurses to focus fully on the empowerment program.

Conclusion

Professional empowerment program enhances ICU nurses' knowledge and attitudes on decision-making for end-of life care. Although empowerment program did not improve on all aspects of attitudes toward end-of-life, a long period program may affect the attitudes toward a positive perspective. Empowerment program improves nurses' skills on clinical decision making. Therefore, empowerment programs should be planned and implemented for nurses to enhance their knowledge, attitudes, and skills.

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Conflict of Interest

The authors declare that there is no conflict of interest that could be perceived as prejudicing the impartiality of the research reported.

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