Effectiveness of A Traditional Training Method in Increasing Long-Term End-of-Life Care Perception and Clinical Competency among Oncology Nurses: A Pilot Clinical Trial

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A B S T R A C T

Objective: Patients with cancer face numerous problems at the end of their lives, which makes palliative care necessary for a peaceful death. Considering the important role nurses play in the provision of end-of-life care, the present study was conducted to study the effect of a traditional training method on nurses' perception of and clinical competency in providing end-of-life care to patients with cancer in a hospital in Southeastern Iran. **Methods:** This was a pilot clinical trial in which the nurses in an oncology ward were allocated to two groups, experimental ($n = 24$) and control ($n = 33$), using a table of random numbers. The experiment group received three sessions of workshop training. The nurses' perception and clinical competency were measured before and 3 months postintervention. **Results:** The results showed the perception scores in the experimental and control groups to be 171.75 ± 19.54 and 170.03 ± 17.03 before education and 176.16 ± 19.54 and 176.12 ± 16.12 postintervention, respectively. The scores of clinical competency were 98.71 ± 10.24 and 99.58 ± 12.17 before education and 101.5 ± 14.67 and 104.97 ± 12 postintervention in the experimental and control groups, respectively. According to the findings, neither of the groups showed a significant difference between pre- and post-intervention in terms of perception of or clinical competency in end-of-life care. **Conclusions:** A traditional training method such as workshop training cannot cause long-term improvement in nurses' end-of-life care perception or clinical competency. It seems that nurses would benefit from acquiring cognitive and behavioral skills and knowledge through a more continuous form of instruction delivered through modern blended educational methods.

Key words: Cancer, clinical competency, end-of-life care, perception, traditional training

Introduction

Patients with cancer are afflicted by different physical and psychological complications in the course of the disease, which can pose a challenge to their end-stage quality of life. Scholars believe that the most difficult aspect of cancer in most people is not the thought of death itself, but the prospect of a painful death.[1] The experience of these problems in patients with cancer negatively affects their quality of life, especially in their final days.[2] Consequently, palliative care is introduced as a range of services for improving end-of-life experience.[3]

End-of-life care has been rapidly developing since the late 1960s with the primary aim of catering to the needs of dying patients with end-stage diseases.[4] These types of care do not intend to accelerate death, but are performed to enhance the patient's quality of life using various therapeutic interventions and forms of care.[5] The dynamic relationship between patients and nurses renders end-of-life care one of the most significant roles nurses play in their patients' lives. However, nurses may not be able to provide basic and effective care for end-stage patients due to the painful conditions they live in at the end of their lives.[6] A study reported that most nurses feel doubt and stress in the provision of end-of-life care and reported that only one out of every nine nurses in England is willing to offer end-of-life care to end-stage patients.[7] Because nurses spend more time with patients with cancer, they must have an accurate understanding of end-of-life care and be sufficiently motivated to provide optimal care for end-stage patients.[8]

Perception is the complex process of becoming aware of and understanding sensory information and also the regulation and interpretation of environmental conception and understanding.[9] Researchers have reported that nurses' perception and attitude influence their behavior in providing care to patients with cancer. It is evident that understanding nurses' perception of their roles as caregivers is necessary for discussing the concept of end-of-life care.[10] Inadequate perception of end-of-life care negatively influences patients and their families and also causes confusion, stress, and mental and physical fatigue and eventually, occupational burnout in nurses.[11] On the other hand, accurate perception of end-of-life care can improve nurses' clinical competency.[12]

Clinical competency is the combination of the knowledge and skills necessary for achieving certain objectives. Clinical competency ensures the nurses' capabilities and performance, and improving it is a legal and ethical undertaking aimed at benefiting recipients through providing adequate care.[13] One study reported that, in many cases, lack of competency in the provision of end-of-life care results from lack of knowledge about death and the care necessary for end-stage patients, which is why educational interventions are of utmost importance[14] as poor skills on the part of nurses can lead to irreparable suffering in patients.[15]

Education is an intervention through which information and messages are communicated; the level of knowledge and awareness is augmented; and finally, skills, performance, and attitude are altered and improved.[15] Conducting face-to-face workshops is a teacher-centered approach that, despite the emergence of newer techniques and the expansion of knowledge, remains a popular teaching method among educators.[16] Despite the emergence of novel ways of teaching, lecturing is still a common way of providing information. Some experts believe that lecturing is a passive method and is therefore not suitable for the training in mental skills.[17]

A review of literature demonstrates the importance of attending to end-of-life patients with cancer and developing programs for improving nurses' performance in offering care to end-stage patients. In addition, end-of-life care is largely influenced by culture, customs, and even religious beliefs, and few studies have been conducted on it in developing countries. The researcher's experience shows that, despite the educational workshops held for nurses, end-stage patients continue to be neglected, and patients may suffer due to inaccurate perception of their conditions and inadequate skills in providing end-of-life care on part of the nurses. Therefore, this study aimed to determine the effects of education on nurses' perception of and clinical competency in end-of-life care in patients with cancer.

Methods

Study design

This was a pilot randomized clinical trial aiming to determine the effects of education on nurses' perception of and clinical competency in providing end-of-life care to patients with cancer.

Sample and setting

The research setting was the adult oncology ward of Shahid Bahonar Hospital, affiliated with Kerman University of Medical Sciences. This hospital is the main center of provision of specialized services to patients with cancer in Southeastern Iran.

Power analysis calculations with G*Power software (Department of Experimental Psychology, Heinrich-Heine-University, 40225 Dsseldorf, Germany) indicate that 64 participants would be needed per group to detect an effect size of 0.5 (power = 80%, *P* = 0.05). As there was a limited number of oncology nurses in the study setting, all eligible nurses were taken as our potential

sample (the census method). Of the total 103 nurses who were deemed eligible, 70 participated in this study and were allocated to the two groups of experimental (*n* = 35) and control (*n* = 35) using a random number table. Two nurses in the control group and eleven in the experimental group left the study, reducing the number of nurses assigned to the control and the experimental groups to 33 and 24, respectively [Figure 1]. The sampling list was collected from the hospital by the first researcher, and the samples were assigned to the experimental and control groups by a researcher outside the research team. The researcher was blind to the placement of the samples. Factors affecting education, such as demographic and background variables including age and years of work, were equal between the groups, and no significant difference was observed

between the groups in terms of the variables associated with training [Table 1]. The inclusion criteria consisted of having a high-school diploma or a higher degree in nursing and having experienced providing end-of-life care. The exclusion criterion was nonparticipation of nurses in more than one training session.

Instruments

To achieve the goals of the study, a demographic information questionnaire, a nurses' perception of end-of-life care questionnaire, and a nurses' clinical competency in end-of-life care questionnaire were used. The demographic questionnaire for nurses included age, sex, marital status, position, type of shift, work experience in oncology, background end-of-life information, and

Table 1: Comparison of participants' characteristics between the experimental and control groups				
Characteristics	Control group (n = 33)	Experimental group (n = 24)	Statistical test	*P*
Age (years), Mean±SD	27.55±4.89	28.17±5.95	−0.36*	0.72
Experience working in oncology (years), Mean±SD	2.26±4.36	2.61±1.07	−1.52*	0.13
Gender, *n* (%)				
Female	32 (97)	24 (100)	0.76**	0.99
Male	1 (3)	0 (0)		
Marital status, *n* (%)				
Single	12 (36.4)	11 (45.8)	0.52***	0.47
Married	21 (63.6)	13 (54.2)		
Education, *n* (%)				
Bachelor degree	33 (100)	23 (95.8)	1.4**	0.42
Master's degree	0 (0)	1 (4.2)		
Position, *n* (%)				
Head nurse	2 (6.1)	3 (12.5)	2.82**	0.30
Nurse staff	1 (3)	3 (12.5)		
Clinical nurse	30 (90.9)	18 (75)		
Shift type, *n* (%)				
Fixed	2 (6.1)	3 (12.5)	0.72**	0.63
In circulation	31 (93.9)	21 (87.5)		
Background end-of-life information, *n* (%)				
Yes	21 (63.6)	16 (69.6)	0.21***	0.78
No	12 (36.3)	8 (30.3)		
Through college education, *n* (%)				
Yes	15 (35.5)	10 (41.7)	0.08***	0.78
No	18 (53.5)	13 (58.3)		
Through participation in conferences and courses, *n* (%)				
Yes	1 (3)	3 (12.5)	1.91**	0.30
No	32 (97)	21 (87.5)		
Through in-service training, *n* (%)				
Yes	3 (12.1)	7 (29.2)	2.59***	0.17
No	29 (87.9)	17 (70.8)		
Through personal study, *n* (%)				
Yes	8 (24.2)	8 (33.3)	0.57***	0.45
No	25 (75.8)	16 (66.7)		
Other cases, *n* (%)				
Yes	0 (0)	3 (12.5)	4.35**	0.07
No	33 (100)	21 (87.5)		
*Mann-Whitney U-test, **Fisher's exact test, Independent *t*-test, ***Chi-squared test. SD: Standard deviation				

resources for obtaining information. The oncology nurses' perception of end-of-life care questionnaire was developed by Ghaljeh *et al.* in 2016.[15] Its content, face, and construct validity were confirmed in a validation study based on the opinions of nursing experts and scholars, and its reliability was determined to be 0.9 (Cronbach's alpha). This questionnaire has 42 items scored on a 5-point Likert scale ranging from "totally agree" to "totally disagree," scored from 1 to 5, in the same order, resulting in a total score ranging from 42 to 210. Scores below 98 indicate poor perception, 98–154 moderate perception, and 154–210 good perception. The Nurses' Competency in the Provision of Palliative Care was developed by Montagnini *et al.*[18] in the USA to examine the clinical competency of nurses in providing end-of-life care. This scale includes 28 questions. Responses are scored on a 5-point Likert scale ranging from "totally disagree" to "totally agree," scored from 1 to 5. The minimum score is 28 and the maximum score is 140; scores below 65 are reported as poor, those between 6 and 105 as moderate, and those above 105 as good. This questionnaire has acceptable content validity based on the opinion of experts and a good reliability of 0.92 (Cronbach's alpha).

Data collection and intervention

After obtaining the clinical trial code (IRCT20170116031972N5) and ethics code (IR.KMU.REC.1396.2393), the researcher visited the research setting (Shahid Bahonar Hospital affiliated with Kerman University of Medical Sciences) and acquired the permission for conducting the study from the hospital dean, manager of nursing services, and the oncology ward. Then, the researcher visited the ward and randomly selected nurses based on the inclusion criteria and allocated them to the experimental or control group. Written informed consent for participation was obtained before intervention, and nurses were ensured that their information would remain confidential. Demographic information, perception, and clinical competency in end-of-life care were obtained using the respective questionnaires from both groups. No intervention was offered in the control group, whereas the experimental group received the educational program. The educational program comprised of an educational workshop consisting of group education, questions and answers, discussion, and educational handouts. This program was implemented by the researcher between working shifts and in a quiet setting over three sessions, each 30–45 min long in the hospital's conference hall. The educational content included information on the importance of and the required clinical competency for providing adequate end-of-life care (awareness, attitude, performance, decision-making, spiritual care, continuation of care, communication, mental support for patients and families, and sign and symptom management). At the end of the course, an educational handout was given to the nurses to help them remember the educational content and for use in the clinical setting. The content of the education program was developed based on the most recent articles and books[19-24] and approved by seven experts. In the next step, to determine the long-term effectiveness of the educational program on perception and clinical competency, these factors were assessed in both groups 3 months after the educational course. According to studies, the most suitable posttraining assessment to determine the impact of training is a 3-month follow-up.[25-27]

Data analysis

In this study, data were analyzed using SPSS 19 (SPSS Inc., Chicago, Ill., USA). Data were described using number, percentage, central tendency, and dispersion indices. Descriptive statistics such as frequency, percentage, mean, and standard deviation were used to describe the variables. The two groups were compared in terms of demographic and background variables using the Mann–Whitney U-test, Fisher's exact test, and the Chi-square test. To compare the mean scores of perception and clinical competence both before and 3 months after the intervention, within and between groups, paired-samples *t*-test and independent samples *t*-test were run.

Results

The demographic results are presented in Table 1. No significant difference was observed between the two groups in terms of the examined variables.

Based on the results, before and after mean differences in the experimental and control groups were 1.73 ± 7.40 and 1.63 ± 10.27 for holistic care, 0.55 ± 3.73 and 3.23 ± 1.38 for family-centered care, 1.21 ± 4.43 and 0.71 ± 4.26 for growth with suffering and confrontation, and 2.61 ± 6.05 and 1.71 ± 11.11 for structural and physical challenges. The mean scores of overall perception of end-of-life care in the experimental group before and after intervention were 6.1 ± 14.32 and 4.42 ± 22.09, respectively. In terms of the variable of overall perception and its dimensions, no significant difference was observed between the two groups before and 3 months after intervention [Table 2].

Concerning the dimensions of clinical competency of nurses, before–after mean differences of in the experimental and control groups were 0.22 ± 0.4 and 0.06 ± 0.5 for knowledge, 0.14 ± 0.59 and 0.04 ± 0.72 for attitudes, 0.19 ± 0.71 and 0.18 ± 0.72 for behavior, 0.12 ± 0.66 and 0.11 ± 0.74 for decision-making, 18 ± 0.65 and 0.12 ± 0.74 for communication, 0.26 ± 0.77 and 0.33 ± 0.85 for continuous care, 0.16 ± 0.65 and 0.05 ± 0.98 for affective support, 0.28 ± 0.59 and 0.1 ± 0.49 for symptom management, 0.03 ± 1.29 and −0.21 ± 1.1 for spiritual

Perception	Group	Mean±SD		Paired *t*-test (*P*)	Before-after mean differences, mean (SD)
		Before intervention	3th month after intervention		
Holistic care with respect	Control	60.94±6.81	67.62±7.01	1.34 (0.19)	1.73 (7.40)
	Experimental	62.83±8.39	63.46±6.88	0.3 (0.77)	0.63 (10.27)
	Independent *t*-test (*P*)	0.94±0.35	0.42±0.67		−0.47 (0.64)
Family-centered care	Control	24.70±3.36	25.24±2.75	0.84 (0.41)	0.55 (3.73)
	Experimental	24.08±3.19	25.46±2.84	2.09 (0.05)	3.23 (1.38)
	Independent *t*-test (*P*)	-0.7±0.49	0.29±0.77		0.88 (0.38)
Growth with suffering and confrontation	Control	31.70±4.36	32.91±4.38	0.84 (0.41)	1.21 (4.43)
	Experimental	32±4.5	32.71±3.74	0.82 (0.42)	0.71 (4.26)
	Independent *t*-test (*P*)	0.26±0.8	-0.18±0.86		−0.43 (0.67)
Structural and physical challenges	Control	52.7±5.88	55.3±6.1	1.57 (0.13)	2.61 (6.05)
	Experimental	52.83±9.5	54.54±6.47	0.75 (0.46)	1.71 (11.11)
	Independent *t*-test (*P*)	0.07±0.95	-0.45±0.66		−0.39 (0.7)
Perception total score	Control	170.03±17.03	176.12±16.12	2.44 (0.02)	6.1 (14.32)
	Experimental	171.75±19.54	176.16±19.54	0.98 (0.34)	4.42 (22.09)
	Independent *t*-test (*P*)	0.35±0.73	0.01±0.99		−0.35 (0.73)

Table 2: Comparison of nurses' score of end-of-life care and its dimensions in control and experimental groups

SD: Standard deviation

support, and 0.2 ± 0.81 and 0.08 ± 0.86 for employee affective support. Before–after mean differences of overall clinical competency of nurses for end-of-life care in the experimental and control groups were 5.39 ± 13.29 and 2.79 ± 12.41, respectively. Moreover, the scores of none of the dimensions of end-of-life care competency showed a significant difference between the two groups before and 3 months after intervention [Table 3].

The nurses in the control group had considerable improvement in knowledge compared to the experimental group. Concerning the significant increase in the clinical competence score in the control group, the possible causes mentioned for the increase in the perception score of the control group (sample attrition in the experimental group and acquisition of knowledge in the control group) may also apply here.

Discussion

The present study aimed to determine the effects of a traditional training method, holding workshops, on nurses' perception of and clinical competency in the provision of end-of-life care. The results of the present study revealed that after the provision of education on end-of-life care, both groups showed an increase in their perception and clinical competency scores. Moreover, neither of the groups showed a significant difference in terms of perception and dimensions of clinical competency. It seems that the workshop failed to exert a persistent effect on the perception and clinical competency of nurses in the provision of end-of-life care in the long term. As this ineffectiveness may be attributed to the small sample size, it is suggested that future studies use a larger sample.

As a result, a revision of educational courses and the use of hybrid methods such as psychological interventions

together with new educational methods may bring about a greater improvement in nurses' perception of and clinical competency in the provision of end-of-life care. Our results are consistent with another study concluding that the provision of education only in the form of theory teaching has less effect and efficiency on perception and performance in the target group than the use of blended methods and clinical education does.[28] A study titled "The effect of two educational methods on the performance, knowledge, and awareness of nurses in long-term learning" showed that multimedia-based teaching methods have a longer effect than traditional teaching methods[29] do. It seems that it is not possible to increase nurses' clinical competence only through traditional methods such as use of workshops, making use of more recent methods of learning necessary. Another study demonstrated that planned interventions led to significant increases in all dimensions related to palliative care, i.e., knowledge, attitude, and beliefs, thereby improving the performance of nurses in the provision of supportive and palliative care.[30] The researchers concluded that after offering simulated education, the perception and attitude of participants on end-of-life care improved, and even those who felt uncomfortable when visiting end-stage patients felt better with regard to care, after intervention.[31]

The results of this study suggest that a three-session training workshop is not sufficient to improve nurses' perception and clinical competency, so providing in-service and continuous training may prove more effective in achieving these goals. In agreement with these results, the researchers of one study reported that in the 1st month after the provision of continuous education, the obstacles to the provision of care for end-stage patients were reduced among the nursing personnel, and in the 6th month, all the obstacles

Competency	Group	Mean±SD		Paired *t*-test (*P*)	Before-after mean differences
		Before intervention	**3th month after intervention**		
Knowledge	Control	3.75±0.43	3.97±0.44	3.1 (0.004)	0.22 (0.4)
	Experimental	3.82±0.4	3.89±0.38	0.61 (0.55)	0.06 (0.5)
	Independent *t*-test (*P*)	0.67±0.5	−0.7±0.49		−1.28 (0.21)
Attitudes	Control	3.54±0.53	3.68±0.56	1.53 (0.19)	0.14 (0.59)
	Experimental	3.54±0.65	3.59±0.65	0.3 (0.77)	0.04 (0.72)
	Independent *t*-test (*P*)	0.002±0.99	−0.59±0.56		−0.55 (0.58)
Behavior	Control	3.43±0.6	3.61±0.59	1.5 (0.14)	0.19 (0.71)
	Experimental	3.3±0.63	3.47±0.81	1.24 (0.23)	0.18 (0.72)
	Independent *t*-test (*P*)	−0.82±0.42	−0.74±0.46		−0.008 (0.99)
Decision-making	Control	3.56±0.59	3.68±0.59	1.02 (0.32)	0.12 (0.66)
	Experimental	3.41±0.57	3.52±0.7	0.74 (0.47)	0.11 (0.74)
	Independent *t*-test (*P*)	−1.001±0.32	−0.94±0.35		−0.03 (0.98)
Communication	Control	3.56±0.59	3.75±0.59	1.63 (0.11)	0.18 (0.65)
	Experimental	3.43±0.63	3.55±0.78	0.79 (0.44)	0.12 (0.74)
	Independent *t*-test (P)	−0.83±0.41	−1.1±0.28		−0.36 (0.72)
Continuous care	Control	3.44±0.69	3.7±0.64	1.92 (0.06)	0.26 (0.77)
	Experimental	3.4±0.64	0.73±0.88	1.91 (0.07)	0.33 (0.85)
	Independent *t*-test (*P*)	−0.24±0.81	0.16±0.87		0.35 (0.73)
Affective support	Control	3.72±0.67	3.89±0.67	1.42 (0.17)	0.16 (0.65)
	Experimental	3.84±0.67	3.88±0.72	0.24 (0.81)	0.05 (0.98)
	Independent *t*-test (*P*)	0.59±0.56	−0.04±0.97		−0.52 (0.6)
Symptom management	Control	3.54±0.43	3.81±0.51	2.69 (0.01)	0.28 (0.59)
	Experimental	3.61±0.41	3.71±0.93	1.02 (0.32)	0.1 (0.49)
	Independent t-test (*P*)	0.61±0.54	−0.84±0.4		−1.18 (0.24)
Spiritual support	Control	3.85±0.79	3.88±0.93	0.14 (0.89)	0.03 (1.29)
	Experimental	4.12±0.68	3.92±0.98	−0.93 (0.36)	−0.21 (1.1)
	Independent *t*-test (*P*)	1.38±0.17	0.15±0.88		−0.73 (0.47)
Employee affective support	Control	3.74±0.61	3.94±0.65	1.4 (0.17)	0.2 (0.81)
	Experimental	3.85±0.62	3.94±0.71	0.48 (64)	0.08 (0.86)
	Independent *t*-test (*P*)	0.68±0.5	−0.01±0.99		−0.51 (0.61)
Total competency score	Control	99.58±12.17	104.97±12.56	2.33 (0.03)	5.39 (13.29)
	Experimental	98.71±10.24	101.50±14.67	1.1 (0.28)	2.79 (12.41)
	Independent *t*-test (*P*)	−0.28±0.78	−0.96±0.34		−0.75 (0.46)

Table 3: Comparison of clinical competency before and 3 months after the intervention

SD: Standard deviation

were eliminated. In addition, the professional competency of nurses considerably increased in the provision of care to these patients. The physicians, however, showed an opposite trend. The researchers concluded that the provision of continuous education and the continuation of clinical activity enhance the professional competency of nurses, but as physicians perform care in the short term, their education must be repeated and continued.[32]

End-of-life care is a stressful situation. Nurses' stressful work conditions may cause dramatic psychophysiological responses, mood disturbance, and exhaustion and fatigue and may also adversely affect their perception and clinical competency. Therefore, it seems that nurses need to acquire stress management skills and problem-solving techniques in addition to knowledge in order to provide effective care. In support of this, a study found that cognitive-behavioral interventions, along with other interventions, reduce stress in nurses.[33] Nurses' anxiety and their workload should be reduced through group interventions so that they can make the right decision in sensitive situations.[34]

The present study was limited by some factors. For instance, the small sample size of oncology nurses in the control and intervention groups was a limitation. Therefore, it is suggested that a larger sample be used in future studies, and that the results of this study be generalized with caution. It seems that the study results and suggestions can be presented to nurses and used for the implementation of more efficient instruction methods using new educational technologies in this hospital. The data on the perception and clinical competency of nurses were of the self-report type; thus, conducting a study using data collected through direct observation of nurses' clinical competency may yield more reliable results. Another limitation of this study was that nurses in the experimental and control groups worked
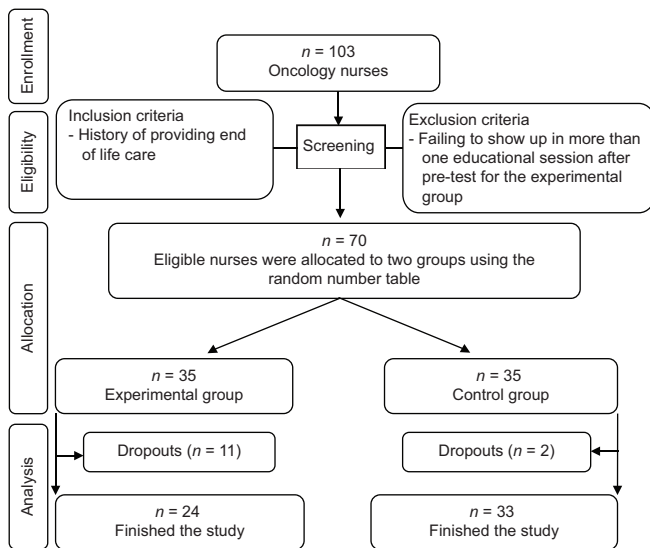
Figure 1: The flowchart of participants' selection

together, making the exchange of information possible. In addition, as the training program was short, it is suggested that such training programs be studied for a longer period of time.

Conclusion

The results of this study revealed that traditional training methods such as holding workshops failed to affect the nurses' perception of end-of-life care or even their clinical competency in the long term. Of course, it was a pilot study and is needed for further studies to confirm the results. Due to the importance of end-of-life care for patients, especially those with cancer, it seems that nurses require motivation such as continuous acquisition of knowledge so that they can improve their clinical competency, simultaneously achieving a deep perception of the *status quo* and enhancing it. It is suggested that health-care planners make persistent changes in nurses' clinical competency through planning and implementation of blended interventions such as continuous in-service education together with cognitive and behavioral interventions with the aid of efficient instructors and modern educational technologies.

Conflicts of interest

There are no conflicts of interest.

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