

Palliative Care Education: Its Effect on Nurses' Competency during Care of Dying Patients

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Abstract:

Background: Palliative care can play a major role in relieving both physical and mental symptoms of the dying patient. Nurses are the key valuable palliative care team members who are responsible for the dimension of physical, functional, social, and spiritual patients' care. Essential factors affecting a successful implementation of palliative care are nurses' knowledge, attitude and self efficacy for providing care to these patients. **Aim of the study:** To examine impact of palliative care education on nurses' competency during care for dying patients. **Methods:** A quasi-experimental design was utilized. **Setting:** The study was conducted at oncology institute, general medical and general surgical unit of Menoufia University hospital. **Subjects:** A convenience sample of 120 nurses (52 from oncology institute, 34 from general medical and 34 general surgical unit) of Menoufia University who agreed to participate in this study were divided alternatively and randomly into two equal groups, 60 for group 1 and 60 for group 2. **Tools:** four tools were utilized by the researchers. **Tool I:** Structural interviewing questionnaire, **Tool II:** Palliative Care Quiz for Nursing, **Tool III:** The Frommelt Attitudes Toward Care of the Dying scale and **Tool IV:** The Palliative Care Self-Efficacy Scale. **Results:** the mean total score of Palliative Care nurses' knowledge in study group (16.48 ± 1.88) was better than control group (7.23 ± 2.68), nurses' attitude toward palliative care of study group was 113.50 ± 10.75 as compared to 91.21 ± 12.40 of control group and palliative care self-efficacy score of study group was 28.06 ± 7.38 as compared to 16.08 ± 4.49 of control group at post-intervention. **Conclusion:** palliative care educational intervention to nurses can be effective in strengthening their knowledge base, improving attitude and level of self efficacy toward care of dying patient. **Recommendations:** Education and training programs about palliative care with simple illustrated booklet required for all nursing staff in health care setting.

Key words: palliative care education, nurses' competency, dying patient.

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Introduction

Death considered an expected fact that may attack all patients especially those suffering from chronic serious diseases. Nurses acquire a great responsibility in caring for dying patients. That responsibility is perceived as one of the most distressing aspects of nursing. Palliative care is an approach that delivers care to relief patients' suffering throughout

the course of their serious and chronic disease by helping these patients to survive with a high quality of life until they die (Ayed, Sayej, Harazneh, Fashafsheh and Eqtait, 2015).

According to the WHO report, oncology patients are not the only targeted population for palliative care. Patients with chronic respiratory illnesses, cardiovascular diseases, HIV, and diabetes are all in need of palliative care. Palliative

care considered fundamental human rights (Alshaikh, Alkhodari, Sormunen, et al., 2015).

Nurses in different fields are expected to meet the essential health care needs of patients including that needing end-of-life care at different settings. Nurses must maintain standards for competence throughout their careers. This standard must be maintained by accumulating, combining and keeping their evidence based knowledge, attitude and skills (KAS) up to date as long as possible (Kudo, Komatsu, Omi, Nakayama, Ohira, Mashita, et al., 2016 & Kawamoto, Takase, and Imai, 2017).

Recently in Egypt, palliative care is attained a particular interest as a result of the growing number of patients with chronic disease. Life Expectancy in Egypt at birth gained 10 years from the period 1980-1985 to the period 2005-2010, increasing from 59.9 years to 69.9 years. It is expected to reach 77.3 years in 2045-2050. As life expectancies get higher, there will be more chronic and degenerative diseases which result in end-stage illness. The development of chronic and degenerative diseases will generate an enhanced need for palliative care (World Population Prospects, 2017).

Palliative care is a vital and imperative need designed to relieve pain, suffering, distressing and uncontrolled symptoms as well as enhancing the quality of life for patients and their families who facing the problems associated with life-threatening illness with little opportunity of treatment or their condition tend to worsen over time and eventually cause death despite medical management such as cancer, heart failure, chronic obstructive pulmonary disease, strokes, end-stage renal disease, and depression (Balicas, 2018).

The coordination and collaboration of palliative care services remains one of the most essential parts that can be delivered at different levels of complexity. Terminally ill patients and their families move between particular settings and healthcare agencies so they need help and supervision from an integrated multidisciplinary team who are familiar with their condition by paying attention to their physical, mental, social, spiritual and emotional parts of care for life limiting or life-threatening conditions (Elshamy, 2015)

Education and training in palliative care affects not only the level of care provided but also the level of team participation of the healthcare professionals. Training in palliative care is a challenging practice for both the trainers and the trainees since a real-life situation can never be imitated in an educational setting (Balicas, 2018).

Lack of palliative care education recognized by the World Health Organization is a major obstacle of providing safe and optimal palliative care services (World Health Organization, 2015). Adding to this insufficient awareness to palliative care practice due to lack of knowledge makes it a stressor for nurses. Nurses who are educated in palliative care can successfully assist patients and their families to achieve a high level comfort care, management of pain and other distressing symptoms (Hsu and Chen, 2019 & Koppel, Onwuteaka-Philipsen, van der Steen, Kylänen, Van den Block, Smets, et al., 2019).

Nurses play an important role in palliative care as the quality of care received by palliative care patients depends on nurses' knowledge and skills in symptom management and end-of-life care. Currently, nurses are not permitted to practice in a palliative care field without

previous education in palliative care. Palliative care nursing education will facilitate the excellence of nursing skills; provide competent assessment and optimal pain and symptom management which can develop nursing practice. The nurses are unqualified to deliver palliative care due to inadequate opportunities for continuing palliative nursing education and the inconsistency of nurses' education and training (Joy and Yvonne, 2015; Ferrell, Dahlin and Coyne, 2016; Kurnia, Trisyani, and Prawesti, 2019; Sleeman, de Brito, Etkind, Nkhoma, Guo, Higginson, et al., 2019 & Saylor, Vernoooy, Selekmán and Cowperthwait, 2016).

Nurses' palliative care knowledge, attitude and level of self efficacy are important factors affecting quality of care applied for dying patients (Sorifa, Mosphea, 2015). When nurses receive suitable palliative care education and training they can display a positive attitude toward dying patients and their family. In contrast Lack of education in palliative care nursing can bring about low self-confidence, low self-efficacy, and feelings of hesitation in performing assigned tasks with fear that care may not be appropriate (Chaliner, Galassi, Al-Ruzzieh, Bigirimana, Buswell, So WKW, et al., 2016 & Davaasuren, and Ferris, 2018).

Previous studies supported the evidence that palliative care nursing education enhances nurses' knowledge in palliative care nursing. Barriers and gaps in carrying out palliative care nursing education in studies reviewed were recognized. These gaps include misinformation about palliative care and negative attitudes towards care at the end of life. Insufficient nurses' knowledge in palliative care nursing can produce a disconnected relation between a patient-

centered focus of care and a scientific approach to care. It is necessary to address, explain, and correct any misconceptions in the knowledge of palliative care nursing to optimize care delivery, self efficacy and improve clinical practice (Ferrell, Dahlin and Coyne, 2016 & Saylor, Vernoooy, Selekmán and Cowperthwait, 2016).

Operational definition

Nurses' competency: it is the ability of nurses to improve their knowledge, attitude, and self efficacy when applying care for dying patients.

Significance of the study

In Egypt life Expectancy increased, the proportion of the elderly population (65+) has also been increasing and is expected to reach 12.3 per cent in 2050. As a result of that, there will be more chronic and degenerative diseases which terminated in end-stage illness. The development of chronic and degenerative diseases will generate an enhanced need for palliative care (World Health Organization, 2015). Only a few healthcare providers have adequate knowledge of pain assessment and management and palliative care, so, it is important to integrate pain and palliative care into the health unites. Little attention has been paid to the education and training of health professionals on palliative care. Little information has received in undergraduate palliative Care education. Most have acquired knowledge and skills after graduation. Nurses are often unqualified to care for patients with terminal or chronic, serious disease. The lack of proper training and knowledge in palliative care nursing can produce negative attitudes that can affect patients' care outcomes (Elshamy, 2015; Bergman, Lorenz, Ballon-Landa, Kwan, Lerman, Saigal, and Litwin, 2015; Joy and Yvonne, 2015; Ferrell,

Dahlin and Coyne, 2016 & Saylor, Vernoon, Selekman and Cowperthwait, 2016).

Aim of the study

To examine impact of palliative care education on nurses' competency during care for dying patients

Hypotheses:

- Nurses who receive palliative care education (group I) will experience a higher total knowledge score than those who don't (control group).
- There will be a positive attitude among nurses who receive palliative care education (group I) higher than those who in control group (group II).
- There will be higher self efficacy among nurses in the study group than those in the control group.

Subjects and methods

Subjects

Research design

A quasi-experimental design was utilized. It involves the manipulation of an independent variable without the random assignment of participants to conditions.

Setting

The study was conducted at two hospitals in Menoufia governorate. The first was oncology institute at oncological medical and surgical wards for males & females. The second was university hospital at general medical and general surgical unit for males & females. This setting was especially selected because of increasing numbers of patients who were

readmitted after being treated from chronic or end stage diseases.

Subjects

A convenience sample of 120 nurses (52 from oncology institute, 34 from general medical and 34 from general surgical unit) of Menoufia University who agreed to participate in this study were divided alternatively and randomly into two equal groups, 60 for group 1 and 60 for group 2.

Group I: Exposed to palliative care nursing educational intervention

Group II: didn't receive any palliative care education or training.

Tools

In order to achieve the aim of the study, four tools were developed and utilized by the researchers for data collection. These tools are as follow:

Tool I: Structural interviewing questionnaire: It was developed by researchers to assess nurses' personal data. It consisted of 6 questions regarding nurses' age, sex, education, years of work experience, previous palliative care experience, and previous palliative care education.

Tool II: Palliative Care Quiz for Nursing (PCQN): it was developed by Ross, McDonald and McGuiness, 1996. It used to assess knowledge and identify misconceptions about palliative care nursing. It consisted of 20-item true, false, and 'I don't know'. The test consists of four items about philosophy and principles, thirteen items about pain and symptom management, and three items about the psychosocial aspects of care. Possible scores on the PCQN range from 0 to 20, as answers are coded as 1 for a

correct answer, and 0 for an incorrect or 'I don't know' responses. A higher score corresponds with more knowledge. Correct responses were summed up to get a total knowledge scores for each participant. Total score for all questions reached 20 grades. The knowledge scores were classified into Poor knowledge less than grade 10 (<50%), Fair knowledge from grade 10 to 15 (50- 75%), and more than grade 15(>75%) considered Good knowledge.

Tool III: The Frommelt Attitudes Toward Care of the Dying(FATCOD) scale developed by **Frommelt, 1991** to assess respondents' attitudes toward caring for dying patients. It is a 30-item tool using a 5-point Likert scale to indicate respondents' attitudes toward caring for dying patients. The instrument includes 15 positively (item 1, 2, 4, 10, 12, 16, 18, 20, 21, 22, 23, 24, 25, 27, and 30) and 15 negatively worded statements (item 3, 5, 6, 7, 8, 9, 11, 13, 14, 15, 17, 19, 26, 28, and 29). Positive items are scored one (strongly disagree) to five (strongly agree). Scores are reversed for negative items. Possible scores range from 30 to 150. A higher score indicates a more positive attitude toward caring for this patient population.

Tool IV: The Palliative Care Self-Efficacy Scale (PCSES) was developed by **Phillips, Salamonson, and Davidson, 2011**. The PCSES is a validated 12-item instrument designed to measure participant's perceived self-efficacy to handle psychosocial support and symptom management of palliative care. Each item is closed-ended with the choice of four interval levels of confidence for the participant. The four choices are: "need further basic instruction", "confident to perform with close supervision/coaching", "confident to perform with minimal consultation", or "confident to perform independently". Each item was given

score 1 if participant need further basic instruction or score 2 if participant confident to perform with close supervision/coaching, or score 3 if participant confident to perform with minimal consultation or score 4 if participant confident to perform independently. All scores were summed up to give a total score of 48. A higher score is interpreted as greater self-efficacy.

Method

A written permission was obtained from director of hospital and head nurses of oncology, Medical, and Surgical units of university hospital at Menoufia after explaining the aim of the study.

Tools development

The first tool was assembled by the researchers after reviewing the relevant literature (**Ayed, 2015; Kudo et al., 2016 and Balicas, 2018**). The second tool was developed by **Ross, McDonald and McGuinness, 1996**. Third tool was constructed by **Frommelt, 1991** and the fourth tool was created by **Phillips, Salamonson, and Davidson, 2011**. All tools were tested for content validity by 5 experts specialized in Medical Surgical Nursing to ascertain relevance and completeness. Then these tools were tested for reliability and it was found that internal consistency was 0.93 for tool I, 0.89 for tool II, 0.81 for tool III and 0.90 for tool IV. It was considered within the acceptable range. Modifications were done accordingly to ascertain relevance and completeness.

A pilot study was conducted on 10% of the study sample (12 nurses) to examine study tools for its clarity, precision, feasibility, applicability and establish the needed time for data collection after that essential modifications were carried out

accordingly. These twelve subjects who shared in the pilot study were excluded from final study sample.

Ethical consideration

A written consent was obtained from each participant after a clear explanation of the aim of the study to get his/ her acceptance as well as cooperation. All participants were informed about confidentiality of the data and they have the right to withdraw from the study at any time without any effect on their learning.

Data collections

- Data were assembled over 4 weeks from the beginning to the end of May 2019.

- Researcher met the head nurse of each department initially one week before carrying out the lecture and for detecting date and time of palliative nursing care education. Participants were also individually approached by each head nurse to determine if they were interested to participate in a brief palliative nursing education lecture.

- Participants who agreed to participate in the study were randomly and alternatively divided into two groups. 60 participants for each group (I and II).

- Each subject of both groups was interviewed individually in his/ her department to assess personnel data using tool 1. It took about 10 minutes.

- Knowledge, attitude and self efficacy were assessed for every participant of both groups using tool II, III and IV before palliative care educational intervention). Each assessment took about 10 minutes.

- The study group received 60 minutes palliative care nursing education intervention adopted from **Ferrell, Dahlin and Coyne, 2016** which included a brief description of principles of palliative care of chronic illness, overview of chronic illness psychosocial aspect of pain and management of pain and other symptoms that illustrated via PowerPoint presentation.

- To give the chance for subjects for attendance, the researchers supplied the lectures 4 times a week for each department. The palliative care nursing education lecture took place during subjects' normal work hours at 10:00 am for the morning shift.

- After completion of lectures on 3 weeks for 3 units, the researchers assessed knowledge, attitude and self efficacy for both groups at 4th week using tool II, III and IV.

Statistical analysis

The data collected were tabulated & analyzed by SPSS (statistical package for the social science software) statistical package version 20 on IBM compatible computer. **Descriptive statistics** were expressed as mean and standard deviation (X+SD) for quantitative data or number and percentage (No & %) for qualitative data. **Analytic statistics:** Pearson Chi-square test (χ^2) & Fisher's Exact Test: It is the test of significance used to study association between two qualitative variables, Student t- test: is a test of significance used for comparison between two independent groups of normally distributed quantitative variables, Mann-Whitney test (non-parametric test): is a test of significance used for comparison between two groups of not normally distributed quantitative variables, Paired sample t- test: is a test of significance used for comparison between two related

groups of normally distributed quantitative variables, Wilcoxon test (non-parametric test): is a test of significance used for comparison between two related groups of not normally distributed quantitative variables, ANOVA test: is a test of significance used for comparison between more than two independent groups of normally distributed quantitative variables, and Spearman correlation: is a test of significance used for quantitative variables that were not normally distributed or when one of the variables is qualitative. **P-value at 0.05 was used to determine significance regarding:** P-value > 0.05 to be statistically insignificant, P-value ≤ 0.05 to be statistically significant and P-value ≤ 0.001 to be highly statistically significant.

Results:

Table 1 illustrates that the mean age of study and control groups was 29.13 ± 6.22 and 30.66 ± 7.40 years respectively. 71.7% of study and 81.7% control groups were female. As regarding to education about two thirds of study (60.0%) and control groups (65.0%) had associated degree. All nurses (100%) in the studied sample had no previous palliative care experience or education. There were no statistical significant differences between both groups (study and control) regarding demographic characteristics.

Figure (1) reveals that mean total score of Palliative Care knowledge in study group (16.48 ± 1.88) was better than control group (7.23 ± 2.68) at post-intervention

Table (2) shows that the majority of both study and control groups had poor knowledge total score regarding palliative care (95.0% and 80.0% respectively) at

pre-intervention. But majority of study group (81.7%) as compared to 0.0% of control group had good knowledge total score regarding palliative care at post-intervention.

Figure (2) presents the mean total score of the nurses' attitude of palliative care among study group was 113.50 ± 10.75 as compared to of control group 91.21 ± 12.40 at post-intervention

Table (3) demonstrates that the mean total nurses' palliative care self-efficacy score of study group was 28.06 ± 7.38 as compared to 16.08 ± 4.49 of control group at post-intervention.

Table (4) illustrates significant positive correlations between total scores of nurses' PCQN and their attitude at pre-intervention ($r = 0.72$). Also there was a significant positive correlations between total scores of nurses' PCQN and their self efficacy at pre-intervention ($r = 0.74$).

Table (5) represents significant association of baseline PCQN among studied groups and their demographic characters especially age and years of experience at pre-intervention (p value < 0.05).

Table (6) shows significant strong association of baseline nurses' attitude among studied groups and their demographic characters (age and years of experience) at pre-intervention (p value < 0.001).

Table (7) reveals significant positive association of baseline nurses' Self-Efficacy among studied groups and their demographic characters (age and years of experience) at pre-intervention (p value < 0.001).

Table (1): personal data characteristics of the studied groups:(n=120)

Demographic characteristics	Studied groups				χ^2	P value
	Study group (n=60)		Control group (n=60)			
	NO.	%	NO.	%		
Age (years):						
Mean \pm SD	29.13 \pm 6.22		30.66 \pm 7.40		t- test =	0.22
Range	21.0– 50.0		22.0 – 49.0		1.22	NS
Gender:						
Male	17	28.3	11	18.3	1.67	0.19
Female	43	71.7	49	81.7		NS
Department:						
Medicine	17	28.3	17	28.3	NA	NA
Surgical	17	28.3	17	28.3		
Oncology	26	43.3	26	43.3		
Education:						
Bachelor degree	10	16.7	10	16.7	0.48	0.78
Associate degree	36	60.0	39	65.0		NS
High school diploma	14	23.3	11	18.3		
Years of experience:						
1-3 years	19	31.7	16	26.7	4.86	0.43
4-7 years	16	26.7	11	18.3		NS
8-11 years	10	16.7	8	13.3		
12-15 years	8	13.3	13	21.7		
16-19 years	4	6.7	4	6.7		
\geq 20 years	3	5.0	8	13.3		
Previous palliative care experience:						
Yes	0	0.0	0	0.0	NA	NA
No	60	100.0	60	100.0		
Previous palliative care education:						
Yes	0	0.0	0	0.0	NA	NA
No	60	100.0	60	100.0		

t: student`s t test

NA: not applicable

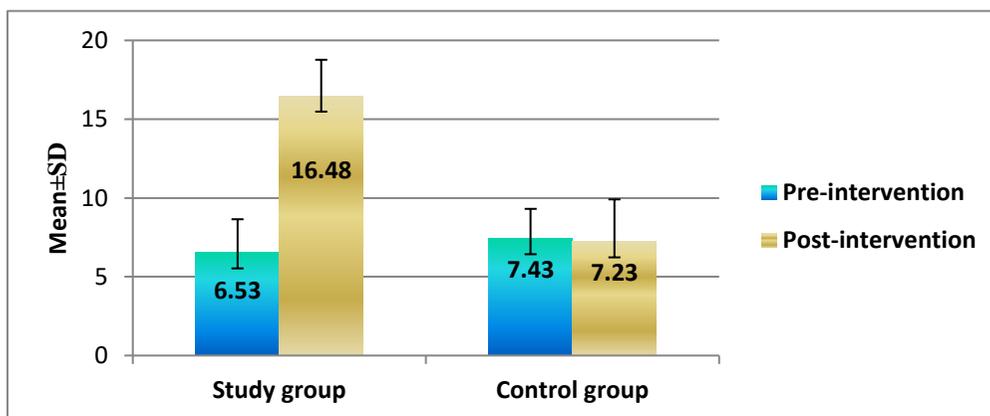


Figure (1): Total score of Palliative Care Quiz for Nursing (PCQN) among the studied at Pre and Post- intervention (n=120)

Table (2): Total score categories of Palliative Care Quiz for Nursing (PCQN) among the studied groups: Pre and Post- intervention (n=120)

Items categories	Pre-intervention		Post- intervention		χ^2	P value
	Study group	Control group	Study group	Control group		
	N =60 N (%)	N =60 N (%)	N =60 N (%)	N =60 N (%)		
PCQN categories:					110.57 ^a	<0.001 ^a
Poor knowledge (<10)	57 (95.0)	48 (80.0)	0 (0.0)	44 (73.3)		HS
Fair knowledge (10-15)	3 (5.0)	12 (20.0)	11 (18.3)	16 (26.7)		0.38 ^b
Good knowledge (> 15)	0 (0.0)	0 (0.0)	49 (81.7)	0 (0.0)	0.74 ^b	NS
χ^2 --- P value	6.17 --- 0.01	S	93.92 --- <0.001	HS		
Mean \pm SD	6.53 \pm 2.12	7.43 \pm 2.29	16.48 \pm 1.88	7.23 \pm 2.68	W=	<0.001 ^a
Range	2.0-10.0	4.0-11.0	13.0-20.0	1.0-11.0	6.77 ^a	HS
Mann Whitney - P value	2.07 ----- 0.03	S	9.47 ----- <0.001	HS	W=	0.38 ^b
					0.87 ^b	NS

a: comparison between pre and post intervention among study group

b: comparison between pre and post intervention among control group

w= Wilcoxon test

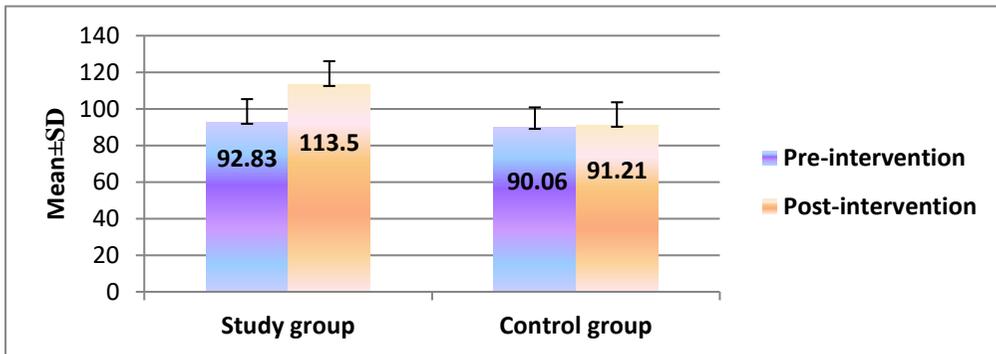


Figure (2): Total score of the nurses' attitude of palliative care among studied groups at Pre and Post- intervention (n=120)

Table (3): Assessment of the nurses' Palliative Care Self-Efficacy Scale at Pre and Post- intervention (n=120)

	Pre-intervention		Post- intervention	
	Study group N =60	Control group N =60	Study group N =60	Control group N =60
	mean±SD	mean±SD	mean±SD	mean±SD
Answering patients questions about the dying process	1.15±0.36	1.25±0.43	2.01±0.77	1.25±0.43
Student's t test-----P value	1.36-----	0.17 NS	6.70-----	<0.001 HS
Supporting the patient or family member when they become upset	1.16±0.37	1.45±0.50	2.15±0.65	1.45±0.50
Mann Whitney-----P value	3.34-----	0.001 HS	5.55-----	<0.001 HS
Informing people of the support services available	1.50±0.50	1.60±0.55	2.36±0.55	1.60±0.55
Mann Whitney-----P value	0.90-----	0.36 NS	6.23-----	<0.001 HS
Discussing different environmental options (eg hospital, home, family)	1.23±0.42	1.46±0.53	2.16±0.80	1.50±0.59
Mann Whitney-----P value	2.53-----	0.01 S	4.74-----	<0.001 HS
Discussing patient's wishes for after their death	1.06±0.25	1.05±0.21	1.76±0.76	1.05±0.21
Student's t test-----P value	0.38-----	0.70 NS	6.95-----	<0.001 HS
Answering queries about the effects of certain medications	1.31±0.46	1.41±0.56	2.38±0.71	1.41±0.56
Mann Whitney-----P value	0.87-----	0.37NS	6.87-----	<0.001 HS
Reacting to reports of pain from the patient	1.28±0.45	1.23±0.42	2.48±0.79	1.28±0.52
Mann Whitney-----P value	0.62-----	0.53NS	7.91-----	<0.001 HS
Reacting to and coping with terminal delirium	1.25±0.43	1.05±0.21	1.96±0.84	1.05±0.21
Mann Whitney-----P value	3.05-----	0.002 S	7.0-----	<0.001 HS
Reacting to and coping with terminal dyspnoea (breathlessness)	1.35±0.48	1.25±0.47	2.65±0.77	1.25±0.47
Mann Whitney-----P value	1.32-----	0.18 NS	8.53-----	<0.001 HS
Reacting to and coping with nausea / vomiting	1.36±0.48	1.58±0.71	2.88±0.73	1.60±0.71
Mann Whitney-----P value	1.44-----	0.15 NS	7.29-----	<0.001 HS
Reacting to and coping with reports of constipation	1.40±0.49	1.56±0.69	2.86±0.72	1.56±0.67
Student's t test-----P value	1.04-----	0.29NS	7.55-----	<0.001 HS
Reacting to and coping with limited patient decision-making capacity	1.23±0.42	1.06±0.25	2.41±0.74	1.10±0.30
Student's t test-----P value	2.60-----	0.01 S	12.71-----	<0.001 HS
Total score of the nurses' Palliative Care Self-Efficacy Scale	15.41±4.43	15.93±4.31	28.06±7.38	16.08±4.49
Student's t test-----P value	0.64 -----	0.51 NS	10.73 -----	<0.001 HS

Table (4): Correlations between total scores of nurses` PCQN, attitude and Self-Efficacy

Spearman's rho	Total score of PCQN Pre intervention	Total score of nurses' attitude pre intervention	Total score of Self-Efficacy pre intervention
Total score of PCQN Pre intervention	Correlation Coefficient (r) Sig. (2-tailed)	0.72 ----- <0.001	0.74 ----- <0.001
Total score of nurses' attitude pre intervention	Correlation Coefficient (r) Sig. (2-tailed)	0.72 <0.001	0.79 ----- <0.001
Total score of Self-Efficacy pre intervention	Correlation Coefficient (r) Sig. (2-tailed)	0.74 <0.001	0.79 ----- .

Table (5): Association of baseline PCQN among studied groups and their demographic characters:

Demographic characteristics	Studied groups				χ^2	P value
	Study group (n=60)		Control group (n=60)			
	Poor knowledge No. (%)	Fair knowledge No. (%)	Poor knowledge No. (%)	Fair knowledge No. (%)		
Age (years): Mean \pm SD	28.57 \pm 5.74	39.66 6.80	\pm 29.0 \pm 6.42	37.33 \pm 7.57	t=3.23 ^a t=3.87 ^b	0.002 ^a S <0.001 ^b HS
Gender: Male Female	17 (29.8) 40 (70.2)	0 (0.0) 3 (100.0)	8 (16.7) 40(83.3)	3 (25.0) 9 (75.0)	1.24 ^a 0.44 ^b	0.55 ^{a*} NS 0.67 ^{b*} NS
Department: Medicine Surgical Oncology	15 (26.3) 17 (29.8) 25 (43.9)	2 (66.7) 0 (0.0) 1 (33.3)	11 (22.9) 17 (35.4) 20 (41.7)	6 (50.0) 0 (0.0) 6 (50.0)	2.60 ^a 6.88 ^b	0.27 ^a NS 0.03 ^b S
Education: Bachelor degree Associate degree High school diploma	9 (15.8) 34 (59.6) 14 (24.6)	1 (33.3) 2 (66.7) 0 (0.0)	5 (10.4) 32 (66.7) 11 (22.9)	5(41.7) 7 (58.3) 0 (0.0)	1.28 ^a 8.47 ^b	0.52 ^a NS 0.01 ^b S
Years of experience: 1-3 years 4-7 years 8-11 years 12-15 years 16-19 years \geq 20 years	19 (33.3) 16 (28.1) 9 (15.8) 8 (14.0) 3 (5.3) 2 (3.5)	0 (0.0) 0 (0.0) 1 (33.3) 0 (0.0) 1 (33.3) 1 (33.3)	16 (33.3) 10 (20.8) 6 (12.5) 10 (20.8) 2 (4.2) 4 (8.3)	0 (0.0) 1 (8.3) 2 (16.7) 3 (25.0) 2 (16.7) 4 (33.3)	11.22 ^a 11.77	0.04 ^a S 0.03 ^b S

*Fisher`s Exact test

a: Association of baseline PCQN among study group and their demographic characters

b: Association of baseline PCQN among control group and their demographic characters

Table (6): Association of baseline nurses' attitude among studied groups and their demographic characters

Demographic characteristics	Studied groups		Test of sig.	P value
	Study group (n=60)	Control group (n=60)		
	Mean±SD	Mean±SD		
Age (years):	Spearman's rho	Spearman's rho	r=0.83 ^a r=0.85 ^b	<0.001 ^a HS <0.001 ^b HS
Gender:				
Male	89.70 ± 10.84	93.72 ±10.02	t=1.22 ^a	0.22 ^a NS
Female	94.06±13.0	89.24 ±12.67	t=1.27 ^b	0.21 ^b NS
Department:				
Medicine	96.64±13.16	95.88 ±11.97	F=1.15 ^a	0.32 ^a NS
Surgical	90.64 ± 14.87	85.0 ±11.48		
Oncology	91.76±10.11	89.57±11.79	F=3.67 ^b	0.03 ^b S
Education:				
Bachelor degree	100.40±10.61	100.20 ±5.11	F=3.61 ^a	0.03 ^a S
Associate degree	89.66 ± 11.84	86.89 ±12.24		
High school diploma	95.57±13.18	92.09±12.25	F=5.60 ^b	0.006 ^b S
Years of experience:				
1-3 years	81.89±5.98	74.56±5.68	F=15.33 ^a	<0.001 ^a S
4-7 years	89.62 ± 11.44	86.36 ± 10.54		
8-11 years	99.30±8.05	94.75±3.80	F=37.44 ^b	<0.001 ^b S
12-15 years	104.75±7.99	97.76±2.58		
16-19 years	105.75 ± 6.75	99.50 ± 1.0		
≥ 20 years	108.66±4.16	104.25±5.49		

a: Association of baseline nurses' attitude among study group and their demographic characters

b: Association of baseline nurses' attitude among control group and their demographic characters

F: ANOVA

Table (7): Association of baseline nurses' Self-Efficacy among studied groups and their demographic characters:

Demographic characteristics	Studied groups		Test of sig.	P value
	Study group (n=60)	Control group (n=60)		
	Mean±SD	Mean±SD		
Age (years):	Spearman's rho	Spearman's rho	r=0.73 ^a r=0.87 ^b	<0.001 ^a HS <0.001 ^b HS
Gender:				
Male	13.52 ± 3.35	15.72 ± 3.55	t=2.44 ^a	0.01 ^a S
Female	16.16±4.16	15.97 ±4.49	t=0.17 ^b	0.86 ^b NS
Department:				
Medicine	15.76±4.33	17.11 ±4.47	F=1.19 ^a	0.30 ^a NS
Surgical	16.52 ± 5.07	13.94 ±2.63		
Oncology	14.46±4.0	16.46±4.88	F=2.81 ^b	0.06 ^b NS
Education:				
Bachelor degree	17.0±4.52	22.10 ±4.50	F=0.77 ^a	0.46 ^a NS
Associate degree	15.02 ± 4.38	14.43 ±3.06		
High school diploma	15.28±4.58	15.63±2.97	F=21.23 ^b	<0.001 ^b HS
Years of experience:				
1-3 years	12.21±0.53	12.06±0.25	F=11.21 ^a	<0.001 ^a HS
4-7 years	13.68 ± 2.77	13.27 ± 2.57		
8-11 years	18.90±4.95	15.0±0.92	F=22.98 ^b	<0.001 ^b HS
12-15 years	17.62±4.40	18.50±2.95		
16-19 years	20.0 ± 2.44	19.30 ± 1.29		
≥ 20 years	21.0±6.08	21.93±4.89		

a: Association of baseline Self-Efficacy among study group and their demographic characters

b: Association of baseline Self-Efficacy among control group and their demographic characters
F: ANOVA

Discussion:

Palliative care consultation service effectively manages symptoms of terminally ill patients. Lack of education, training, knowledge, skills, and experience in the relevant palliative care of nurses is an obstacle for caring of dying patients. It affects their ability to meet dying patients' needs. Formal palliative nursing care education and training can improve nurses' knowledge, attitude, and self efficacy & enhance quality of care supplied to terminal ill patients and their families (Ferrell, Dahlin and Coyne, 2016).

Demographic data:

The present study stated majority of the studied sample was female. These results were in accordance with Kassa,

Murugan, Zewdu, Hailu and Woldeyohannes (2014) & Balicas (2018).

As regarding to education about two thirds of study and control groups had associated degree these results disagreed with El-Nagar and Lawen (2013) & Farmani et al., (2019) who stated that majority of sample had Bachelor degree. The two studied groups in the present study exhibited no significant differences in baseline characteristics which agreed with the findings of Pan, Wu, Hung, and Wang (2018).

Total nurses' knowledge score about palliative care:

The findings of current study concluded the majority of sample had poor knowledge total score regarding palliative care at pre-intervention. These findings

were in line with **Kassa et al., (2014) & Ayed et al., (2014)** showed that majority of nurses had poor knowledge about palliative care and emphasize the need for developing PC education and training of nurses in this field. From our point of view this might attributed to nurses didn't obtain instruction or training on palliative care.

Pesut, Potter, Stajduhar, Sawatzky, McLeod & Drabot (2015) & Shao, Tsai, Tsay, and Liu (2015) reported that different types of educational methods about palliative care on the subjects could increase their knowledge. While A similar study by **Saylor et al., (2015)** supported the evidence that after a palliative care simulation education there was a significant enhancement in nurses' knowledge related to palliative care. Also **Harden, Price, Duffy, Galunas, and Godgers (2017)** mentioned end of life care education programs improve end of life care knowledge among nurses.

Moreover **Balicas (2018)** concluded that a brief palliative care nursing education is an effective intervention for improving knowledge in palliative care among hospital-based nurses caring for patients with chronic serious illness. All these findings supported the result of present study which revealed the mean total score of palliative care nurses' knowledge in study group was better than those in the control group after intervention.

Total nurses' Attitude score toward palliative care:

The results of current study revealed that there was a statistically significant improvement regarding total score of attitude at post- intervention. These findings were in accordance with **Elmelegy, Ahmed and Elkazeh (2016)** stated there was a significant difference

between total Frommelt's attitude among participants in relation to post and follow up observation. Moreover **Abusyriah and tayyem (2020)** demonstrated the staff had a good attitude toward the palliative patient and training program at post-intervention as well as Palliative care should add to the nursing curriculum, and additional research required for the palliative care field.

The present study stated the nurses has poor attitude toward palliative care at pre-intervention but **Youssef, Mansour, Al-Zahrani, Ayasreh, and Abd El-Karim (2015); Manwere , Chipfuwa, Mukwamba , and Chironda (2015); Farmani et al., (2019) & Zeru , Berihu, Gerensea , Teklay, Teklu, and Gebrehiwot (2020)** clarified that majority of nurses had favorable attitude toward palliative care. The possible rationale for this dissimilarity may be due to the presence of curriculum education content about palliative care.

Total score of nurses' Self efficacy toward palliative care:

The finding of the current study showed total self efficacy of nurses in the study group was higher than that in the control group after applying palliative care education at post-intervention. These findings were in agreement with **Evenblij, Ten Koppel, Smets, Widdershoven, Onwuteaka-Philipsen, and Pasman (2019)** who mentioned palliative care education has the potential to increase nurses' perceived self-efficacy. Moreover **Dehghani , Sharifabad, kasbakhi and Fallahzadeh (2020)** clarified Self efficacy of health care member especially nurses had maximized after palliative care education. Also **Joy, and Yvonne (2015)** showed nurses in the intervention group exhibited a considerable enhance in self-efficacy related to palliative care after the

intervention compared to control group participants.

Correlation between knowledge, attitude and self efficacy:

The findings of the current study showed that there were significant positive correlation between mean total score of nurses' knowledge and attitude toward palliative care. The findings of the current study also showed that there were significant positive correlations between mean total score of nurses' knowledge and self efficacy toward palliative care. The results of this study were in accordance with the results of research conducted by **Nakhaei & Mofrad (2015)** which showed the relationship between nurse knowledge with self-efficacy of nurses in applying infection control principle in the operating. Moreover **Kurnia, Trisyani and Prawesti (2018)** stated that individuals with inadequate knowledge have low self efficacy. Otherwise, individuals with sufficient knowledge, have high self-efficacy. These results were in line with **Smith, Sim, and Halcomb (2016)** who specified a lack of knowledge can influence attitude. From our point of view effective educational intervention can strengthen which in turn improve the amount of practical experience and enhance the attitude of nurses about palliative care. By doing this, enhancing knowledge and attitude, self efficacy will be maintained.

Association of baseline nurses' knowledge among studied groups and their demographic characters

The present study revealed there were correlations between some of sample's socio-demographic variables (age and years of experience) and their palliative care knowledge that agreed with **Farmani et al., (2019)** who found Association between socio-demographic

variables such as age, gender, level of education and work experience and nurse's knowledge, about palliative care. Also **Ayed et al., (2015)** found that there was a positive relationship between experience, qualification and training on palliative care and knowledge of nurses ($p=0.004, 0.020,$ and 0.015) respectively. It means when the nurses' experience and qualification increase or if the nurses had training course on palliative care their favorable knowledge also improves.

Association of baseline nurses' attitude among studied groups and their demographic characters

The present study illustrated there was correlation between nurses' age and their attitude toward palliative care. This finding agreed with **Omran, and Obiedat (2015) and Taylor, Bull, Zhong et al., (2013)** they indicate that the age contribute the staff attitude toward palliative care.

Association of baseline nurses' Self-Efficacy among studied groups and their demographic characters

The present study showed correlation between nurses' self efficacy toward palliative care and their years of experience that in line with **Kurni, Trisyani, and Prawesti (2019)** stated nurses' work experience in nursing has a significant relationship with self-efficacy in applying PC in ICU. Moreover the results of this study were in accordance with the results of research conducted by **Soudagar (2015)**, where his research showed a relationship between nurse experience with self-efficacy ($p\text{-value} = 0.01$) in working in the field of nursing. It also noted in present study that high school diploma nurses had a high self efficiency toward palliative care than those bachelor's and associate degree which agreed with **Soudagar (2015)** who found that the nurses with diploma degrees

gained higher self-efficacy scores compared to those with bachelor's degrees. Also it was noted in present study the nurses' age strongly correlated with their self efficacy. **Kim, Kim , and Gelegjams (2020)** supported these findings and stated there was a significant positive correlation between nurses' level of self–efficacy toward palliative care their age.

Conclusion:

The current study results concluded that developing a palliative care teaching intervention to nurses can be effective in strengthening their knowledge base, improving attitude and level of self efficacy toward care of dying patient.

Recommendations

1- Education and training programs about palliative care required for all nursing staff in health care setting.

2- Palliative care should add to the nursing curriculum, and additional research required for the palliative care field.

3- Simple illustrated booklet should be given to all nurses about the palliative care for patients associated with diseases need it.

4- Further studies in different care setting or hospitals with larger probability study sample were needed to increase the applicability and generalizability of results to the overall nursing staff population.

Conflict of interest

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