- ***Basic Research***

Effect of palliative care guideline on nurses' knowledge, attitude, and practice at intensive care unit.

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Abstract

Introduction: Palliative care (PC) is specialized medical care for people living with a serious illness. PC is focused on providing relief from the symptoms and stress of the illness. The goal is to improve quality of life for both the patient and the family. **Aim**: This study aimed to evaluate the effect of palliative care guideline on nurses' knowledge, attitude, and practice at intensive care unit. **Design**: Quasi experimental (pre/posttest design) research design was used. **Settings**: general intensive care unit and emergency ICU at Benha University Hospital. Subjects: A convenience sample of all available nurses who are working in previous settings (No=100). **Tools**: **I**) Self-administered questionnaire for nurses to assess nurses" knowledge regarding palliative care, **II**) Attitude assessment scale and **III**) Nurses' observational Checklist to assess nurses 'practices related to palliative care. **Results:** revealed that78.0% of the studied nurses age less than thirty years old, 44.0% had technical nursing institute and76.0% had an experience from 1<5years. Regarding to total nurses' knowledge pre/post palliative care guideline. Only (10%) of the studied nurses had satisfactory level of total knowledge regarding palliative care pre palliative care guideline implementation, improved to (79%) post palliative care guideline. Regarding total attitude toward palliative care pre and post, 93% of the studied nurses had poor attitude pre palliative care guideline, while post 83% had good attitude. Concerning nurses 'total practices 13% of the studied nurses had competent level of practice pre palliative care guideline which improved to 70% post implementation. **Conclusion:** palliative care guideline had a positive effect on improving nurses' knowledge, attitude, and practice toward palliative care. Also, there were significant positive correlation between nurses' knowledge and practice pre and post palliative care guideline implementation and positive significant correlation between nurses' attitude and practice post palliative care guideline. **Recommendations:** Availability and accessibility of written palliative care guidelines in critical care units in order to update the nurses' knowledge improve practice and develop a positive attitude towards palliative care

.**Keywords:** Palliative care guideline, Nurses knowledge, attitude, practice, intensive care unit

Introduction:

Palliative care (PC) is considered as one of the most important aspect for patients' care at the end stage of life. It provides the patients with comfort and decreases the period of suffering from illness. This care encompasses the continuum of illnesses including physical, psychosocial, emotional, and spiritual needs of seriously ill patients. So, world today concerns its interests toward practice of palliative care for patients with end stage of life to alleviate the symptoms of disease and ensure about peace death. [(1)]

Worldwide, over 29 million people died from diseases requiring palliative care. The estimated number of people in need of palliative care at the end of their life was 20.4 million. Of all people who need palliative care, 94% are adults; among these, 69% were greater than 60 years old, and 25% were between 15 to 59 years old. Of these people in need of palliative care, 78% live in low- and middle-income countries [(2).] Globally, 40-60% of all deaths need palliative care. Most adults who need palliative care have chronic diseases such as cardiovascular diseases, cancer, chronic respiratory diseases, AIDS, and diabetes mellitus. Pain is one of the most frequent and serious symptoms experienced by patients in need of palliative care. Since the early 1980s, the need for palliative care has been progressively acknowledged worldwide. However, many patients still require palliative care in most parts of the world [(2).]

Palliative care is important because it gives patients an option for pain and symptom management and higher quality of life while still pursuing curative measures. When a patient is seriously ill, they understand the value of each day. While they still must face their illness, the support of palliative care in controlling pain and other symptoms can make each day a more positive experience that allows the patient to make the most of the time they have with their FAMILIES. [(3)]

Palliative care is an integral component of ICU care, is comprehensive for all critical patients with a poor prognosis, and their families. Palliative care in the ICU is useful because almost all critical patients and their families have needs such as reducing distress, symptoms of ineffective communication, setting treatment goals, appropriateness of therapy with patient goals and values. [(4)]

The essential characteristics of palliative care are the necessity of the team approach. The nurse who spends a long time with patients and aims to give them the best-quality care has a prominent place in this team. This is because a nurse is the one

member of the health discipline who deals with the life-threatening diseases most closely and directly provides care to patients whose death is imminent [5].

A previous study investigated the nurses' knowledge and attitudes towards palliative care. The researchers reported that that out of 96 nurses surveyed only 20.8% had good knowledge of palliative care, and 6.2% of nurses had good attitudes towards palliative care and concluded that nurses in their study had poor knowledge, but attitudes towards palliative care were moderate. [6].

A study was conducted to determine the palliative care knowledge and attitudes of the nursing workforce of King Faisal Specialist Hospital and Research Centre-Riyadh, Saudi Arabia and any influencing factors. A questionnaire including demographic data, the Palliative Care Quiz for Nurses (PCQN), and Attitude Toward Care of the Dying scale (FATCOD) was completed by 395 staff nurses from 19 countries. The results indicate nurses had moderate attitudes towards palliative care but had insufficient knowledge regarding palliative care [7].

Another study entitled **"**Knowledge, attitude, confidence, and educational needs of palliative care in nurses caring for non-cancer patients: a cross-sectional, descriptive study" founded that nurses' palliative care knowledge level was low and their attitude toward palliative care was moderate [8].

Palliative care nursing involves the assessment, diagnosis, and treatment of human responses to actual or potentially life-limiting illness and necessitates a dynamic, caring relationship with the patient and family to reduce suffering. Therefore, palliative nursing is a subspecialty of nursing practice that continues to evolve as the art and science of nursing, and palliative care evolves. [9]

Providing palliative care depends on the nurse having strong interpersonal skills and clinical knowledge and is informed by respect for the person and the ethical principles of autonomy, beneficence, no maleficence, and justice. The genuine, warm, and compassionate relationship of a nurse with his or her patient is frequently a healing relationship even in the face of death. It is a combination of state-of-the art clinical competence with fidelity to the patient, the ability to listen and remain present in the face of much suffering and distress. It is the nurse who provides much of the care and support to patients and families throughout a disease trajectory and the one who is more likely to be present at the time of death than any other health professional [10].

Significance of the study

Nurses spend a lot of time caring for critically-ill patients with chronic diseases, so they are expected to have sufficient knowledge to provide the best care for their patients [6] Nurses with a low level of PC knowledge are not capable of skillfully assessing patients' needs, effectively communicating with them, and adequately addressing their physical, mental, social, and spiritual problems [9] although receiving PC in late-life is the right of patients and their families, most nurses are not well-prepared to deliver this type of care [11].

Previous Egyptian studies documented that nurses had unsatisfactory knowledge, practices and poor attitudes regarding palliative care [12],[13],[14]. Also, another study conducted to investigate critical care nurses' knowledge, practice, obstacles and helpful measures towards palliative care for critically ill patients" reported that the level of practice scores about palliative care were unsatisfactory among all nurses [15]. So, this study was conducted to provide nurses with palliative care guideline to improve their knowledge, attitude and practices. Also, it is hoped the results of this study might establish evidence-based guidelines that may be useful for nursing practices and research. Moreover, the findings of this research may help in improving the quality of service provided to critically ill patients, which will be reflected positively on the patient's care quality.

Aim of the study

This study aimed to evaluate the effect of palliative care guideline on nurses' knowledge, attitude, and practice at intensive care unit

Research hypotheses

H1: The nurses' knowledge regarding the palliative care will be improved post palliative care guideline implementation compared to their pre implementation level.

H2: The nurse's attitude will be significantly improved post palliative care guideline implementation compared to their pre implementation level..

H3: The nurse's practices will be significantly improved post palliative care guideline implementation compared to their pre implementation level.

H4: There will be a significant correlation between the knowledge, practices and attitude post palliative care guideline implementation.

Subjects & Methods

Design: Quasi-experimental (pre/posttest) design was utilized to conduct the current study.

Settings: This study was conducted in general intensive care unit and emergency ICU at Benha University Hospital. The general intensive care unit was composed of five rooms and each room contains four beds. Emergency ICU contains eight beds.

Subjects: A convenience sample of all available nurses from both genders who are working in previous settings and agreed to participate in the study **(No=100)**

Tools of data collection:

I-Self-administered questionnaire for nurses

The researchers developed it after reviewing relevant and recent literature of **Christine etal., (2016) [16] and Kassa etal., (2014) [17]**. It was written by the researcher in the simple Arabic language. It aimed to assess nurses' knowledge regarding palliative care and included two parts:

Part one: Concerned with assessing nurses' socio-demographic data such as age, gender, marital status, educational level, years of experience and attendance of training courses about palliative care.

Part two: encompassed the nurses' knowledge about palliative care. It included 31 questions about palliative care distributed as:

First section included the general knowledge about palliative care (10) question as (4) MCQ and (6) True and false questions. **Second section**: -knowledge about pain symptom and management, (13) true and false questions. **Third section**: - Knowledge related to nursing care of dying patients (6 true and false questions) **Fourth Section: -** Psychosocial and spiritual care included (2 true and false questions).

Scoring system

Knowledge obtained from nurses was scored and calculated. Each question ranged from 0-1 grades. At the same time, the correct answer scored one grades and scored zero for an incorrect answer. The total score level for the questionnaire sheet was (1x31=31) 31 grades (equal to 100%).

- The nurses' knowledge ≥80% considered satisfactory knowledge.
- The nurses' knowledge <80% considered unsatisfactory knowledge.

II-*Attitude assessment scale*: It was adopted from **(Ayed et al., 2015)** [6]. It is used to assess nurses' attitude toward palliative care.

Scoring system: Attitude was assessed using a 5-item Likert scale (ranging from strongly agree 5 to strongly disagree,1). Six of the items were worded positively and six were worded negatively. It had 12 item rating scale with the highest score of 5 for each option and total possible score was 60 (100%).

The total attitude scores were categorized into: Good attitude (≥76%), Moderate attitude (51-75%), and Poor attitude (≤50%). **(Ayed et al., 2015)** [6].

III-*Nurses' Practice observational Checklist*:

It was adapted from **(Harris, e t al., 2014 [18] & Basal, and Younis, 2017[15].** It was used to assess nurses' practices related to palliative care. It included 29 steps under eight main domains as (Relieving dyspnea, ventilation and oxygen therapy, non-pharmacological interventions to improve sleep in ICU, pain assessment and management, use nonpharmacological intervention, physical care at the end of life, psychosocial support, and spiritual support).

Scoring system

Each step was checked as done and not done. One mark was given for done correct step and zero for done incorrect or not done step. Total nurses' practice score will be categorized into two levels:

- Competent practice ≥ 80% of total score.
- Incompetent practice < 80% of total score.

Procedures

Administrative design: Permission granted from the Dean of Faculty of Nursing, Benha University, hospital directors, and head of the general and emergency ICU at Benha University Hospital. The researcher obtained approval for data collection. The study's objectives and nature were explained, so it became possible to carry out the study with a minimum resistance.

Ethical consideration:

During all stages of the study, all ethical issues were taken into consideration. This study's ethical research consideration included the approval of the Ethical Research Committee of Faculty of Nursing, Benha University before the palliative care guideline implementation. The objectives and aim of the study were explained to all participants. The nurses were informed that they are allowed to choose to participate or not in the present study and they have the right to withdraw from the present study at any time. Additionally, an oral consent was taken from the nurses

who participated in the study. The researcher protected the subjects' privacy and confidentiality

Operational design: The operational design for this study involved four phases; preparatory phase, tools validity and reliability, pilot study and fieldwork .The preparatory phase included reviewing the available literature and different studies related to the research problem and theoretical knowledge using textbooks, evidence-based articles, internet periodicals, and journals. During this phase, the researcher also visited the study setting to be acquainted with the personnel and the setting.

Tools' validity: was tested through a jury of five experts from the medical-surgical nursing department, faculty of nursing, Benha University. The modification was made according to the panel's judgment on the clarity of sentences, appropriateness, and content completeness. The percentage of consensus among experts regarding self-administered questionnaire for nurses was 98%, and nurse's observational checklist was 97%, and for nurses' attitude toward palliative care was 98%. **The reliability** of the designed tools was tested by Cronbach's alpha test.it was (0.79) for self-administered questionnaire, (0.88) for nurse's practices, and (0.87) nurse's attitude.

Pilot study:

A pilot study was carried out on 10% of the studied subjects (10 nurses). They were excluded from the primary study sample. The pilot study was carried out to ensure the study tools' clarity, applicability, the time needed for each tool to be filled in, and the study process's feasibility.

Fieldwork :(Data collection): The field work was performed over a period of six months from the beginning of January 2021 till the end of June 2021. The researchers visited the settings three days / week at morning and afternoon shifts The present study was conducted on four phases assessment phase, planning phase, implementation phase and evaluation phase as following:

A-Assessment phase: After the official permission was taken from the dean of faculty of nursing, the director of Benha university hospital and the director of general and emergency ICUs, then data collection processes were begun. An oral permission was taken from nurses after explaining the purpose of the study. The researchers started by introducing themself to the nurses and explained the purpose of this study . Each nurse was interviewed to fill the questionnaire concerned with assessment of their knowledge (**Tool I**) and attitude (**Tool II**) about palliative care. The time needed to fill each questionnaire ranged between 20-30 minutes. Also, each nurse was

observed to assess their practices related palliative care by using **(Tool III),** the time needed to fill the observational checklist by the researcher was 30 minutes.

B-Planning phase: The researcher designed the palliative guideline based on nurses' need assessment, literature review, researchers' experience, and experts' opinions. The researchers designed an Arabic instruction booklet with illustrations. It included knowledge about palliative care as definition, benefits, principles, aspect of palliative, principles of palliative care and philosophy of palliative care, knowledge about pain symptom and management, knowledge related to nursing care of dying patients, and knowledge relate to psychosocial and spiritual care.

C-Implementation phase: The implementation phase was achieved through sessions at a period of 12 weeks. Each session started by a summary of the previous session, and objectives of the new one. Taking into consideration, the use of Arabic language that suits the nurses' educational level. Motivation and reinforcement during session were used in order to enhance motivation for the sharing in this study. The total numbers of sessions were six. It divided as follows: two sessions for knowledge and four sessions for the practice. The time of knowledge sessions ranged between 45 minutes to 6o minutes. The nurses divided into groups; each group contains (2-3 nurses) to acquire the related information. Each nurse was supplemented with the palliative care guideline booklet. The researcher continued to reinforce the gained information, answered any raised questions, and gave feedback.

The duration of practice sessions ranged between 60-90 minutes, and numbers of sessions were 4 sessions for each group (2-3nurses) in the form of demonstration and re-demonstration for each group. Teaching methods were lecture, group discussion, demonstration, and re-demonstration. Media utilized were handouts and data show.

D- Evaluation phase

After implementation of palliative care guideline, the post-tests were administered to evaluate its' effectiveness on nurses' knowledge, attitude and practices regarding palliative care using the same pretest format.

Statistical analysis

The collected data was revised, coded and entered into an excel sheet on the computer. Statistical analysis was fulfilled using the statistical package for social sciences (SPSS) version 21. Data were presented using descriptive statistics in the form of frequencies, percentages. Chi-square test(X^2) was used for comparisons between qualitative variables to find out the relations. Mean, standard deviation,

paired t-test and Correlation coefficient (r) was used to test the relation between quantitative data. Statistical significance was considered as follows

- ❖ P value > 0.05 non-significant.
- ❖ P value ≤ 0.05 significant.
- ❖ P value < 0.001 highly significant.

Results:

Table (1) demonstrates the distribution of nurses according to their demographic characteristics. It shows that, 78.0% of the studied nurses' ages less than thirty years old with mean of age 28.51± 5.75, 71.0% were females. Regarding their marital status, (73.0%) of them were married. According to level of education, technical nursing institute was more prevalent and constitute 44.0%. Also, 76.0% had an experience from one to less than 5 years. And 86.0 % of them had not attended any previous training courses about palliative care.

Table (2) shows the comparison of the studied nurses' knowledge about palliative care pre and post palliative care guideline implementation. It reveals that, the total mean knowledge score of nurses about palliative care was low pre palliative care guideline implementation, while there was an increase in mean score of total knowledge with statistical significance post palliative care guideline implementation at p =0.000

Figure (1) illustrates the percentage distribution of the studied nurses' total knowledge level regarding pre/post palliative care guideline. It documents that only (10%) of the studied nurses had satisfactory level of total knowledge regarding palliative care pre palliative care guideline implementation, while post intervention (79%) of them had satisfactory level of total knowledge with a highly statistically significant difference (p<0.001) between pre and post palliative care guideline.

Table (3): Illustrates nurses' attitude regarding palliative care pre and post palliative care guideline implementation, It was noted that, pre implementation (77%) of the studied nurses strongly agreed with statement related to palliative care is given only for dying patient while post palliative care guideline (70%) of them strongly disagreed. Moreover (85%) of the studied nurses strongly disagree with the statement related to family should maintain as normal an environment as possible for their dying member pre palliative care guideline, while post implementation (89%) strongly agree. Also, there was a highly statistical significant improvement in all items of nurses attitude post palliative care guideline implementation. (p= <0.001).

Figure (2) demonstrates percentage distribution of the studied nurses regarding their total attitude toward palliative care pre and post palliative care guideline implementation. This figure shows that 93% of the studied nurses had poor attitude pre implementation, while post implementation 83% had good attitude.

Table (4) shows a comparison of nurses' Practices about relieving dyspnea, ventilation, and oxygen therapy pre and post palliative care guideline implementation. It illustrates that (10% and 81%) of the studied nurses administer prescribed anxiolytic medications as indicated for anxiety or panic associated with dyspnea and administer prescribed bronchodilators and corticosteroids pre implementation compared to (88% and 90%) post implementation respectively .In relation to ventilation and oxygen therapy,(23%) turns off the alarms of the ventilator prior to disconnecting and performs suction the endotracheal tube before removal pre implementation compared to (80% and 82%) post implementation respectively. Also, there was a highly statistically significant improvement in all items post palliative care guideline implementation at (p= <0.001).

Table (5) illustrates a comparison of nurses' practices about non pharmacological interventions to improve sleep in ICU, Pain assessment and management pre and post palliative care guideline implementation, it was noted that (41%)of nurses control environmental disruptions (e.g., noise and light exposure) pre implementation , compared to (89%) post implementation. Concerning pain assessment and management, (19%,24%,24%,24%) leave intravenous access in place, apply hot or cold local packages, apply movement restriction-resting and use therapeutic touch pre implementation compared to (86%,86%,90% and 74%) respectively post implementation with a statistically significant difference between pre and post test.

Table (6) shows a comparison of nurses' practices about physical care at the end of life, psychosocial and spiritual support pre and post palliative care guideline implementation .It reveals that (47%,32% and 26%) of the studied nurses provide physical care at the end of life, provide care as the patient and his or her family are able to identify resources to cope with the distress and bereavement the illness causes , and nurses' capability in dealing with spiritual and religious perspectives as an element of care pre intervention while improved to (925,80% and 81%) post implementation respectively with a statistically significant difference between pre and post test.

Figure (3) Illustrates percentage distribution of the studied nurses 'total practices regarding to palliative care pre and post palliative care guideline implementation. It

documents that 13% of the studied nurses had competent level of practice pre implementation which improved to 70% post intervention.

Table (7) Illustrates coefficient correlation between nurses' knowledge , attitude and practices pre and post palliative care guideline implementation .it shows that , there was a positive significant correlation between knowledge and practices pre and post implementation (r=0.399 p<0 .001) and (r=0.397 p<0 .001) respectively, while there was a positive significant correlation between practices and attitude post implementation (r=0.484 p<0 .001)while there was no significant correlation between knowledge and attitude pre and post implementation at (p=>0.05).

***Table (1)*: Frequency and percentage distribution of the studied nurses according to demographic characteristics (N=100)**

Demographic characteristics	N = 100	
Nurses age	**No.**	**%**
< 30	78	78.0
≥30	22	22.0
Mean ± SD	28.51± 5.75	
Gender		
Male	29	29.0
Female	71	71.0
Marital status		
Single	24	24.0
Married	73	73.0
Divorced	3	3.0
Widow	0	0.0
Level of education		
Diploma (secondary school)	15	15.0
Diploma + specialty	4	4.0
Technical nursing institute	44	44.0
Bachelor degree	37	37.0
Years of experience		
<1year	10	10.0
1<5year	76	76.00
5<10year	14	14.0
Attendance of training courses about palliative care		
Yes	14	14.0
No	86	86.0

Table (2): Comparison of studied nurses' knowledge about palliative care pre and post palliative care guideline implementation. (No=100)

Knowledge	Pre implementation	Post implementation	Paired T test P-value
	X ± SD	X ± SD	
General knowledge about palliative care	0.710 ± 1.965	9.060 ± 1.032	T: 32.56 P=0.000**
knowledge about pain symptom and management	1.970 ± 2.157	10.960 ± 1.927	T: 29.89 P=0.000**
knowledge about nursing care of dying patients	0.730 ± 1.043	5.240 ± 0.900	T: 29.52 P=0.000**
knowledge about psychosocial and spiritual care	0.240 ± 0.552	1.680 ± 0.510	T: 18.39 P=0.000**
Total knowledge	**3.650 ± 4.693**	**26.940 ±2.646**	**T: 37.71 P=0.000****

P > 0.05 insignificance, P≤0.05* significance, P<0.001 highly significance**

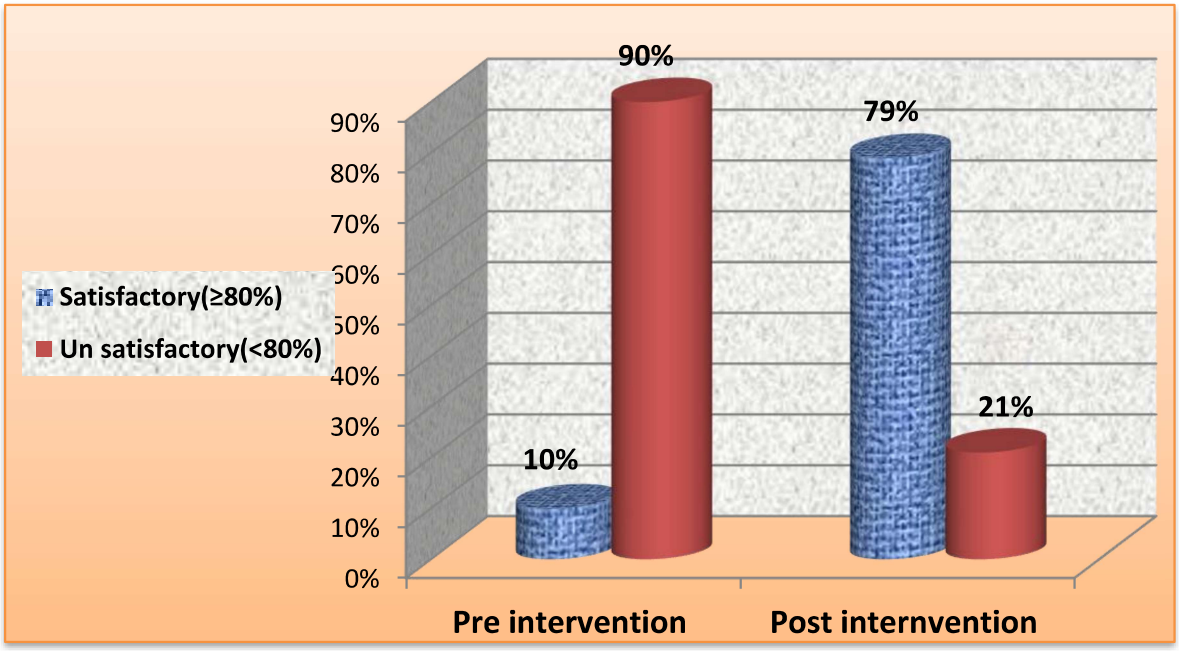

Figure (1): Percentage distribution of the studied nurses' total knowledge level pre/post palliative care guideline (n=100)

Table (3): Comparison of the studied nurses 'attitude regarding palliative care pre and post palliative care guideline implementation (No=100)

Nurses' attitude	Pre-Implementation					Post Implementation					χ^2	P
	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree		
	%	%	%	%	%	%	%	%	%	%		
1. Palliative care is given only for dying patient	77%	3%	6%	12%	2%	20%	2%	6%	2%	70%	**154.84**	**<0.001 ** **
2. As a patient nears death; the nurse should withdraw from his/her involvement with the patient.	0%	54%	12%	34%	0%	0%	14%	5%	81%	0%	**185.88**	**<0.001 ** **
3. It is beneficial for the chronically sick person to verbalize his/her feelings.	2%	3%	4%	10%	81%	88%	7%	0%	2%	3%	**153.39**	**<0.001 ** **
4. The length of time required to give nursing care to a dying person would frustrate me.	4%	73%	12%	8%	3%	5%	10%	4%	77%	4%	**200.00**	**<0.001 * **
5. Family should maintain as normal an environment as possible for their dying member.	0%	0%	6%	9%	85%	89%	7%	4%	0%	0%	**190.40**	**<0.001 ** **
6. The family should be involved in the physical care of the dying person.	0%	0%	0%	21%	79%	89%	7%	4%	0%	0%	**200.00**	**<0.001 ** **
7. It is difficult to form a close relationship with the family of a dying member.	76%	0%	6%	18%	0%	75%	8%	10%	3%	4%	**159.51**	**<0.001 * **
8. Nursing care for the patient's family should continue throughout the period of grief and bereavement	0%	0%	14%	35%	51%	87%	9%	4%	0%	0%	**187.55**	**<0.001 ** **
9. Nursing care should extend to the family of the dying person	0%	0%	4%	11%	85%	72%	18%	10%	0%	0%	**188.57**	**<0.001 ** **
10. When a patient asks, "Nurse am I dying? 'I think it is best to change the Subject to something cheerful.	3%	2%	13%	7%	75%	66%	22%	8%	2%	2%	**147.36**	**<0.001 ** **
11. I am afraid to become friends with chronically sick and dying patients.	13%	84%	3%	2%	2%	0%	0%	8%	77%	15%	**191.27**	**<0.001 ** **
12. I would be uncomfortable if I entered the room of a terminally ill person and found him/her crying.	0%	77%	0%	23%	0%	59%	0%	7%	34%	0%	**200.00**	**<0.001 ** **

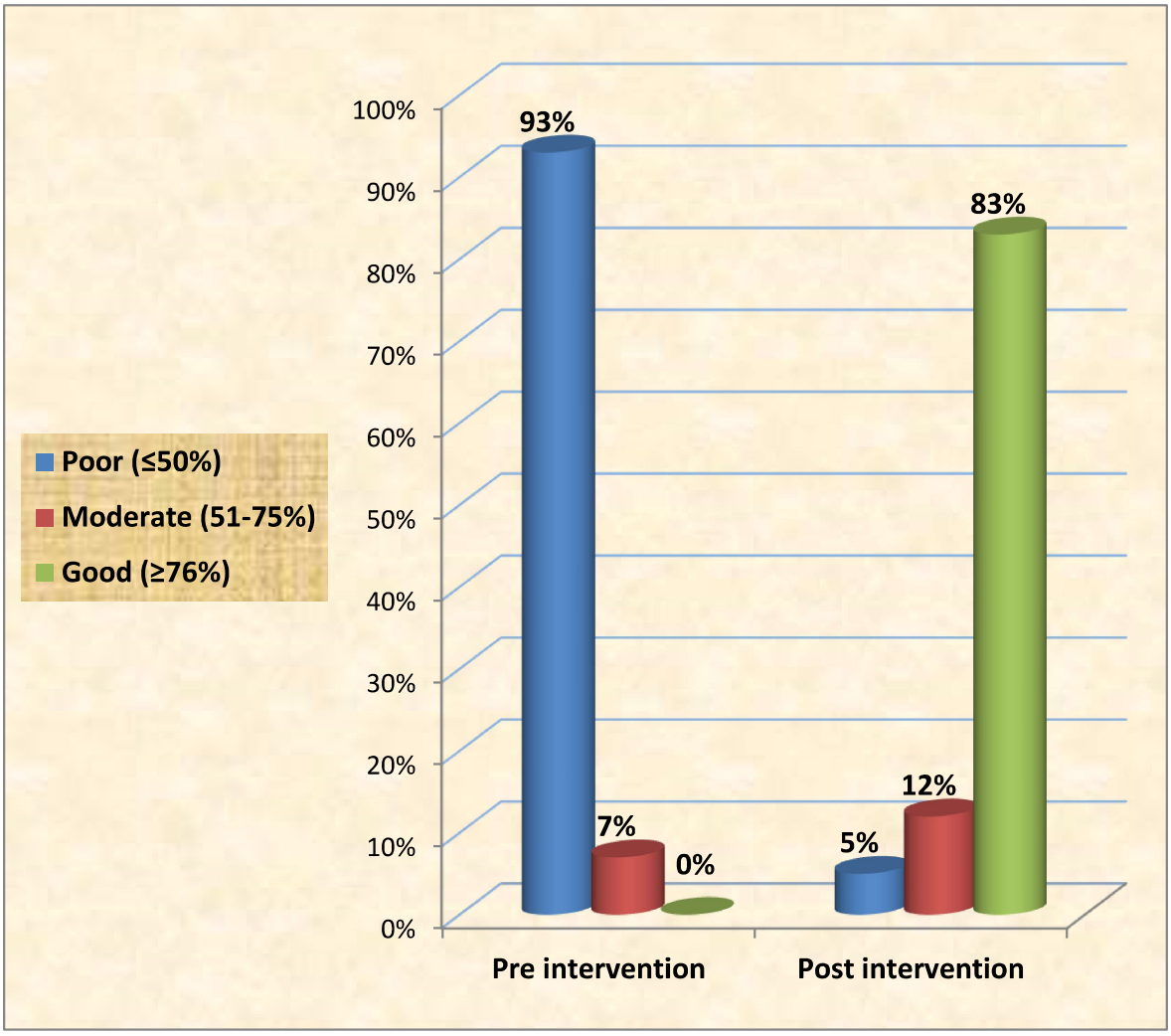

Figure 2) Percentage distribution of the studied nurses regarding their total attitude toward palliative care pre and post palliative care guideline implementation (No=100).

Table 4: Comparison of studied nurses' practices about relieving dyspnea, ventilation and oxygen therapy pre and post palliative care guideline implementation. (No=100)

Nurses' practice	pre implementation				post implementation				χ^2	P
	Done		Not done		Done		Not done			
	N	%	N	%	N	%	N	%		
Relieving dyspnea										
1-Administer prescribed anxiolytic medications as indicated for anxiety or panic associated with dyspnea.	10	10 %	90	90 %	88	88 %	12	12 %	**121.729**	**<0.001****
2-Assist with relaxation techniques, guided imagery	17	17 %	83	83 %	90	90 %	10	10 %	**107.10**	**<0.001***
3-Administer prescribed bronchodilators and corticosteroids	81	81 %	19	19 %	92	92 %	8	8%	**5.181**	**0.03***
4-Administer prescribed diuretics and monitor fluid balance	16	16 %	84	84 %	82	82 %	18	18 %	**87.15**	**<0.001****
5-Administer prescribed oxygen therapy.	13	13 %	87	87 %	80	80 %	20	20 %	**90.22**	**<0.001****
6-Administer prescribed opioids via oral route	15	15 %	85	85 %	83	83 %	17	17 %	**92.51**	**<0.001****
7-condition changes that should be reported to the healthcare provider and nurse	12	12 %	88	88 %	86	86 %	14	14 %	**109.56**	**<0.001****
Ventilation and oxygen therapy										
1-Turns off the alarms of the ventilator prior to disconnecting	23	23 %	77	77 %	80	80 %	20	20 %	**65.03**	**<0.001****
2- performs suction the endotracheal tube before removal.	23	23 %	77	77 %	82	82 %	18	18 %	**69.79**	**<0.001****
3-allows for continuous provision of supplemental oxygen.	17	17 %	83	83 %	90	90 %	10	10 %	**107.10**	**<0.001****
4-administers morphine if a patient exhibits signs of shortness (nasal flaring, air hunger, color changes or gasping)	19	19 %	81	81 %	83	83 %	17	17 %	**81.95**	**<0.001****

Table (5): Comparison of studied nurses' practices about non pharmacological interventions to improve sleep in ICU, Pain assessment and management pre and post palliative care guideline implementation. (No=100)

Nurses' practice	pre implementation				post implementation				χ^2	P
	Done		Not done		done		Not done			
	N	%	N	%	N	%	N	%		
Non pharmacological interventions to improve sleep in ICU										
Treat underlying medical and psychiatric disorders	16	16 %	84	84 %	88	88 %	20	20%	**103.84**	**<0.001 ** **
Control environmental disruptions (e.g., noise and light exposure	41	41 %	59	59 %	89	89 %	11	11%	**50.63**	**<0.001 ** **
Minimize unnecessary interruptions during the patient's normal sleep hours	19	19 %	81	81 %	87	87 %	13	13%	**92.81**	**<0.001 ** **
Review settings of mechanical ventilation to reduce dysynchronous breathing and central apneas	15	15 %	85	85 %	87	87 %	13	13%	**103.72**	**<0.001 ** **
Provide sleep hygiene education as appropriate	17	17 %	83	83 %	89	89 %	11	11%	**104.05**	**<0.001 ** **
Review patients' history for symptoms that might suggest pre-existing sleep disorders – treat disorder	4	24 %	76	76 %	80	80 %	20	20%	**62.82**	**<0.001 ** **
Pain assessment and management										
Make frequent assessments to identify patient pain, distress	11	11 %	89	89 %	92	92 %	8	8%	**131.33**	**<0.001 ** **
Leave intravenous access in place	19	19 %	81	81 %	86	86 %	14	14%	**90.005**	**<0.001 ** **
Continue provision of analgesics and opioids to relief pain and distress	15	15 %	85	85 %	91	91 %	9	9%	**115.93**	**<0.001 ** **
Use non pharmacological intervention such as:										
Put the patient in comfortable position	15	15 %	85	85 %	100	100%	0	0%	**147.82**	**<0.001 ** **
Apply hot or cold local packages	24	24 %	76	76 %	86	86 %	14	14%	**77.62**	**<0.001 ** **

Nurses' practice	pre implementation				post implementation				χ^2	P
	Done		Not done		done		Not done			
	N	%	N	%	N	%	N	%		
Encourage patient to drink herbal drinks	14	14 %	86	86 %	92	92 %	8	8%	**122.12**	**<0.001 ******
Apply breathing technique	14	14 %	86	86 %	92	92 %	8	8%	**122.12**	**<0.001 ******
Apply movement restriction-resting	24	24 %	76	76 %	90	90 %	10	10%	**88.86**	**<0.001 ******
Communicate with patient, &family	7	7%	93	93 %	92	92 %	8	8%	**144.51**	**<0.001 ******
Use therapeutic touch	24	24 %	76	76 %	74	74 %	26	26%	**50.020**	**<0.001 ******
Apply massaging techniques	11	11 %	89	89 %	69	69 %	31	31%	**70.083**	**<0.001 ******
Distract the patient by listening to light music/watching TV	23	23 %	77	77 %	65	65 %	35	35%	**35.795**	**<0.001 ******
Help the patient to pray	14	14 %	86	86 %	77	77 %	23	23%	**80.028**	**<0.001 ******
apply guided imagery technique	13	13 %	84	84 %	75	75 %	25	25%	**70.189**	**<0.001 ******
Use comfort devices (special mattress)	100	100 %	0	0%	100	100	0	0%	**0.000**	**1.00**

Table (6): Comparison of studied nurses' practices about physical care at the end of life, Psychosocial and spiritual support pre and post palliative care guideline implementation. (No=100)

Nurses' practice	pre implementation				post implementation				χ^2	P
	Done		Not done		done		Not done			
	N	%	N	%	N	%	N	%		
Physical care at the end of life	47	47%	51	51%	92	92%	8	8%	**47.76**	**<0.001****
Psychosocial support										
identifying patients' psychosocial needs	23	23%	77	77%	85	85%	15	15%	**77.37**	
recognize and understand the patient's grief and sorrow	29	29%	71	71%	83	83%	17	17%	**59.17**	**<0.001****
Supporting the patient in coping with a life-limiting illness	21	21%	79	79%	94	94%	6	6%	**109.03**	**<0.001****
provide care as the patient and his or her family are able to identify resources to cope with the distress and bereavement the illness causes	32	32%	68	68%	80	80%	20	20%	**46.75**	**<0.001****
Spiritual support										
assessing and recognizing the patient's spiritual needs and distress during the dying process,	14	14%	86	86%	85	85%	15	15%	**100.83**	**<0.001****
nurses' capability in dealing with spiritual and religious perspectives as an element of care	26	26%	74	74%	81	81%	19	19%	**60.79**	**<0.001****

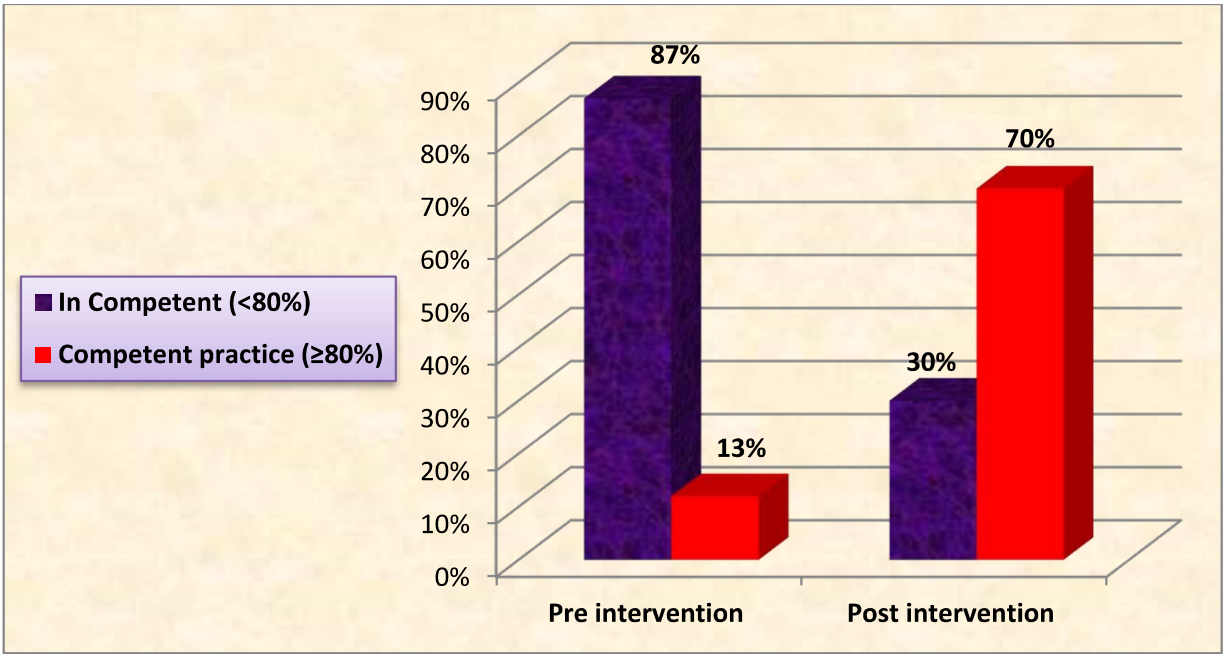

Figure 3) Distribution of the studied nurses' total practices regarding to palliative care pre and post palliative care guideline implementation (No=100)

Table 7) coefficient correlation between nurses' knowledge, attitude, and practices pre and post palliative care guideline implementation

Correlation	R	P –value
Knowledge with practice		
Pre implementation	0.399	<0 .001**
Post implementation	0.397	< 0.001**
Knowledge with attitude		
Pre implementation	0.092	>0.05
Post implementation	0.094	>0.05
practice with attitude		
Pre implementation	0.099	>0.05
Post implementation	0.484	<0 .001**

Discussion

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**.** [19]. So the study aimed to evaluate the effect of palliative care guidelines on nurse's knowledge, attitude and practices at intensive care unit.

Regarding socio demographic characteristics of the studied nurses, the present study reveals that more than the three quarters of them had age less than thirty years old with mean 28.51± 5.75. This might be due to nurses working in critical area usually new graduated. The result was in the same line with ***Ayed et al ,(2015)*** [6] in their study about "The Nurses' Knowledge and Attitudes towards the Palliative Care " who reported that three quarters of the studied nurses were within the age 20-30 years .Also, this result agrees with ***Kassa et al,(2014)*** [17] whose study was about "Assessment of knowledge, attitude, practice and associated factors towards palliative care among nurses working in selected hospitals, Addis Ababa, Ethiopia" and reported that nearly two thirds of the studied nurses at the age category 25-30 years.

In relation to gender**,** the current study reveals that more than two thirds of the studied nurses were females. This might be related to the nursing education in Egypt was exclusive for females for many years. This result supported by ***Metwaly, and Hamad,(2021)***[14] whose study was about "Effect of palliative care program on nurses' performance regarding prostate cancer and patients' outcomes " and reported that most of nurses were females. This result also agreed with ***Kassa et al,(2014)*** [17]who found that two thirds of them were females. But this results disagreed with ***Ayed et al .,(2015)*** [6] who found that more than two thirds of the studied nurses were males.

According to level of education, the findings of this study displayed that nearly half of the studied nurses had technical nursing institute and three quarters had an experience from one to less than 5 years. This finding disagreed with ***Metwaly, and Hamad,(2021)***[14]**)** who founded that less than half of the studied nurses had secondary school diploma in nursing, and more than two thirds of them had more than 5 years of experience. Also disagreed with ***Abusyriah, (2020)***[20] who studied about "Staff nurses' knowledge and attitude toward the

concept of palliative care" and reported that more than half of nurses had three months to one year of experience.

According to attendance of training courses about palliative care, the current study reveals that majority of the studied nurses had not attended any previous training courses about palliative care.it may be due to the shortage number of nurses in intensive care unit and they have work over load that prevent them from attending any training courses.

This result was in the same line with ***Metwaly, and Hamad,(2021)***[14] who found that most of nurses hadn't attend any training courses about palliative care. But this result contradicted with ***Ayed etal .,(2015)*** [6] who reported that more than half of the sample had obtained training course.

Concerning knowledge about palliative care ,the results of the current study reveals that, the total mean knowledge score of nurses about palliative care was low pre palliative care guideline intervention, This may be due to the fact that palliative care is not well integrated within the health care system and is based on the efforts of individuals rather than health care policy. Also, palliative care education was not incorporated into nursing curricula and nurses were overworked in critical care units. Therefore, they have limited time to enhance their knowledge about palliative care. This result was supported by ***Kassa et al ,(2014)*** [17] who reported that the majority of nurses had poor knowledge about palliative care. The possible reason for this might be that only a few nurses 'have been trained on palliative care.

This results agreed with ***Kim et al, (2020)*** [8] who stated in a study about " Knowledge, attitude, confidence, and educational needs of palliative care in nurses caring for non-cancer patients: a cross-sectional, descriptive study "the total nurses' knowledge mean score was low. Also, this results in agreement ***Hassan et al, (2016)*** [12] in his study about " Knowledge and practices of critical care nurses regarding palliative care of cancer patients and suggestion for nursing guidelines booklet " reported that the majority of studied nurses had unsatisfactory knowledge scores regarding total items of palliative care. This could be due to that these nurses have not been trained on palliative care, limited attention to nurses' continuing education and with ***Al shaikh et al.,(2015)*** [21] whose study was about " Nurses' knowledge about palliative care an intensive care unit in Saudi Arabia " documented that nurses had insufficient knowledge of palliative care and how to apply it in ICU setting.

The current study reveals that, there was an increase in mean score of total knowledge post palliative care guideline intervention with highly statistical significance differences. Also, the minority of the studied nurses had satisfactory level of total knowledge regarding palliative care pre palliative care guidelines implementation, while post implementation, most of them had satisfactory level of total knowledge. This improvement indicated that, palliative care guideline was a successful strategy to increase knowledge of nurses about palliative care. This result supported by ***Balicas, ,(2018)*** [22] whose study was about "The effect of palliative care nursing education to improve knowledge in palliative care of hospital-based nurses caring for patients with chronic, serious illness" and stated that a high statistical significance in the improvement of knowledge in palliative care nursing after a brief palliative care nursing education. Also, this result in the same line with ***Sabaq & Khalaf ,(2016)***[13] in their study about" Effect of Educational Program on Nurses' Performance Regarding Neonatal Palliative Care" and reported that after implementation of the program, there was a significant improvement with the number of nurses who achieve a good score in the post period. This result also consistent with ***Metwaly, and Hamad,(2021)***[14] reported that majority of the studied nurses had unsatisfactory level of knowledge in preprogram phase, whereas most of them had satisfactory level of knowledge in post program phase. These findings are supporting the first research hypothesis

In relation to comparison of the studied nurses' total attitude toward palliative care pre and post palliative care guideline implementation. This result shows that most of the studied nurses had poor attitude pre palliative care guideline implementation, while post implementation, majority of them had good attitude toward palliative care. This might be due to the fact that training provides the nurses with insight about the problem and the opportunity to create awareness and have more information for participants who involved in the training to have favorable attitude in this regard.

This finding is in agreement with the findings of ***Sabaq & Khalaf ,(2016)***[13] who stated that after program implementation, the highest percentage of nurses had good attitude towards neonatal palliative care, and ***Ayed et al ,(2015)***[6] showed that more than half of the studied nurses had moderate attitude toward palliative care , also agreed with ***Kassa et al ,(2014)*** [17] founded that three quarter of nurses had favorable attitude towards palliative care. On other hand ***Abusyriah, (2020)*** [20] reported that majority of nurses had moderate attitude towards palliative care. These findings are supporting the second research hypothesis

As regards comparison of the studied nurses' total practices related to palliative care, the current study reveals that minority of the studied nurses had competent level of practice pre intervention. This finding could be explained by minority of studied nurses have been trained on palliative care; nurses do not feel competent enough to deliver palliative care to terminally ill patient and lack of hospital policies and resources unavailability. This result agreed with ***Basal & Younis , (2017)***[15] whose study was about " Critical Care Nurses' Knowledge, Practice, Obstacles and Helpful Measures Towards Palliative Care for Critically Ill Patients" reported that the level of practice scores about palliative care were unsatisfactory among all nurses. This might be due to lake of in-services training programs for critical care nurses about palliative care. Also, consistent with ***Anteneh et al , (2016)***[23] whose study was about **"**Assessment of Nurses' Knowledge, Attitude, Practice and Associated Factors towards Palliative Care: In the Case of Amhara Region Hospitals" stated that more than half of respondents had poor practice towards PC.

The current study revealed that, more than two thirds of nurses had competent level of practices post palliative care intervention. the improvement in nurses' practice reflected the success of guidelines program that focused on weaknesses in nurses' practice and their development. This finding agreed with ***Metwaly, and Hamad,(2021)***[14] reported that most of the studied nurses had total satisfactory level of practice after the program. These findings are supporting the third research hypothesis.

Regarding to coefficient correlation between nurses' knowledge, attitude and practices pre and post palliative care guideline.it was noted that, there was a positive significant correlation between knowledge and practices pre and post intervention while there was a positive significant correlation between practices and attitude post implementation, This might be due to the guideline improved level of nurses' knowledge which affects positively their practice regarding caring for patients. On the same line with ***Metwaly, and Hamad,(2021)***[14] documented that that there was a strong positive correlation between total knowledge score and total practice score after the program, with highly statistically significant difference. But this result disagreed with ***Hassan et al, (2016)*** [12] reported that there was no statistically significant relation between practices and knowledge level of studied nurses.

While there was no significant correlation between knowledge and attitude pre and post implementation at ($p>0.05$). This finding disagreed with ***Kim etal, (2020)*** [8] reported that total knowledge was significantly correlated with

attitude .On other hand ***Abusyriah, (2020)*** [20] reported that there was a low positive correlation between knowledge and attitude toward palliative care. The fourth hypothesis is partially supported because there is no significant correlation between knowledge and attitude pre and post implementation

Conclusion:

Based on the results of the present study, it can be concluded that, palliative care guideline had a positive effect on improving nurses' knowledge, attitude and practice toward palliative care. Also, there were significant positive correlation between nurses' knowledge and practice pre and post palliative care guideline implementation, and positive significant correlation between nurses' attitude and practice post implementation.

Recommendations:

1. Educational programs regarding palliative care should be conducted by the nursing personnel both in the hospital and intensive care settings.
2. Availability and accessibility of written palliative care guidelines in critical care units in order to update the nurses' knowledge improve practice and develop a positive attitude towards palliative care.
3. Palliative care course should be incorporated in the different nursing curricula to strengthen graduates' level of understanding.

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الملخص العربي

تقييم تأثير ارشادات الرعاية التلطيفية على معارف واتجاهات وممارسات الممرضات في وحده العنايه المركزه

المقدمة: الرعاية التلطيفية عبارة عن رعاية طبية متخصصة للأشخاص الذين يعانون من مرض خطير. الرعاية التلطيفية تعمل على توفير الراحة من الأعراض والتوتر الناتج عن المرض. والهدف منها هو تحسين نوعية الحياة لكل من المريض والأسرة. **الهدف من الدراسة:** تهدف هذه الدراسة إلى تقييم تأثير ارشادات الرعاية التلطيفية على معرفة واتجاهات وممارسات الممرضات في وحدة العناية المركزة. **فرضيات البحث** :1: سيتم تحسين معرفة الممرضات فيما يتعلق بالرعاية التلطيفية بعد تنفيذ إرشادات الرعاية التلطيفية. 2: سيتم تحسين اتجاهات الممرضات بشكل ملحوظ بعد تنفيذ إرشادات الرعاية التلطيفية .3: سيتم تحسين ممارسات الممرضات بشكل ملحوظ بعد تنفيذ إرشادات الرعاية التلطيفية. 4: سوف كون هناك ارتباط كبير بين معرفة واتجاهات وممارسات الممرضات بعد تنفيذ إرشادات الرعاية التلطيفية

نوع البحث: تم استخدام تصميم بحثي شبة تجريبي في هذا البحث. **طريقة البحث:** وتم تنفذها في وحدة العناية المركزة العامة ووحدة العناية المركزة الطارئة بمستشفى جامعة بنها. وكانت عينة ملائمة لجميع الممرضين الموجودين الذين يعملون في العناية المركزة وعددهم 100. **ادوات جمع البيانات**: أولا: استبيان ذاتيًا للممرضات يهدف إلى تقييم معرفة الممرضات فيما يتعلق بالرعاية التلطيفية وشمل جزأين: الجزء الأول: يختص بتقييم البيانات الاجتماعية والديموغرافية للممرضات لتقييم معرفة الممرضات فيما يتعلق بالرعاية التلطيفية، والثاني: معلومات الممرضات أتجاه الرعاية التلطيفية، **وثانيا:** تقييم سلوكيات الممرضات المتعلقة بالرعاية التلطيفية. وثالثا: تقييم ممارسات الممرضات المتعلقة بالرعاية التلطيفية. **النتائج:** أوضحت أن 78.0٪ من الممرضات الخاضعات للدراسة تقل أعمارهن عن ثلاثين سنة، و44.0٪ حاصلين على معهد تمريض فني و 76.0٪ لديهن خبرة من 1 <5 سنوات. فيما يتعلق بمعرفة إجمالي الممرضات قبل / بعد التدخل. فقط (10٪) من الممرضات الخاضعات للدراسة كان لديهن مستوى مرض من المعرفة الكلية فيما يتعلق بالرعاية التلطيفية للتدخل الإرشادي للرعاية التلطيفية، وتحسن إلى (79٪) بعد تنفيذ الرعاية التلطيفية. فيما يتعلق باتجاهات الممرضات قبل تنفيذ إرشادات الرعاية التلطيفية 93٪ منهن حصلن على درجة اتجاه سيئ، بينما 83٪ منهن حصلن على درجة اتجاه جيد بعد تنفيذ الإرشادي الرعاية التلطيفية. فيما يتعلق بالممارسات الممرضات فى الرعاية التلطيفية 13٪ منهن يتمتعن بمستوى كفء من الممارسات قبل تنفيذ الإرشادي الرعاية التلطيفية وقد تحسنت إلى 70٪ بعد التنفيذ. **الخلاصة:** أستخلصت هذه الدراسة أن ارشادات الرعاية التلطيفية كان لها تأثير إيجابي على تحسين معرفة الممرضات، الاتجاهات والممارسات تجاه الرعاية التلطيفية. أيضًا، كان هناك ارتباط إيجابي كبير بين معرفة الممرضات والممارسات قبل وبعد تنفيذ الإرشادي للرعاية التلطيفية. التوصيات: توافر واتاحت الوصول إلى إرشادات مكتوبة للرعاية التلطيفية في وحدات الرعاية الحرجة من أجل تحديث معرفة الممرضات وتحسين الممارسة وتطوير اتجاه إيجابي نحو الرعاية التلطيفية.