

Enhancing palliative care for oncology patients: The effect of educational intervention on nurses competency and Attitude

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KEYWORDS

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ABSTRACT:

Background: Cancer is the second leading cause of death so the need for palliative care has increased to enhance patient's quality of life and alleviate suffering. Nurses level of competency and attitude about palliative care are important factors affecting quality of care applied for patients. **Aim:** Assess and evaluate the nurses' competency and attitude regarding palliative care of cancers patients. **Design:** Pre -experimental (one group pre/posttest) design. **Sample:** A convenient sample of all available nurses (120). **Setting:** The study was carried out in Aswan Oncology Institute. **Tools:** **Tool I:** A structured interview questionnaire for nurses to assess nurse's knowledge regarding palliative care, **tool II:** Nurses' observational checklist to assess nurses' practices related to palliative care and **tool III:** Nurses' attitude toward palliative care. **Results:** The total score of nurses' knowledges had improved from 51.8% to 75.9% pre/post the intervention, concerning nurses' total practices ,39.3% of the studied nurses had competent level of practice pre the intervention which improved to (82.1%) post intervention. Hundred percent of the studied nurses had negative attitude pre-palliative care intervention, while post 43.8% had negative attitude. **Conclusion:** Palliative care training package had significant improvement in nurses' attitude and competencies. **Recommendations:** Continuous in-service training program should be conducted periodically in order to update nurses' knowledge and improve their competencies levels regarding palliative cares.

1. Introduction

Cancer is the second leading cause of death worldwide, cancer cases are increasing annually, according to World Health Organization reported that global cancer statistical estimated 18.1million cancer cases around the world in 2020 of these 9.3 million cases were men and about 8.8 million women ⁽¹⁾. Approximately 70% of deaths from cancer occur in low- and middle-income countries. In 2018, there were about 134,632 new cancer cases and 89,042 cancer-related deaths in Egypt. Liver and breast cancers are the most common tumors in terms of incidence and mortality ⁽¹⁾. Approximately estimated that more than 40 million people internationally need palliative care and this number will increase ,especially in developed counties ⁽²⁾.

The current globe rise in incidence of cancer incerase need for palliative care ⁽³⁾. Palliative care it is an integral part of oncology care according to last recommendations of American cancer Society and European Society of Medical Oncology palliative care skill set includes physical and psychological symptoms management, communication, social and spiritual support. Palliative care is most effective when considered early in the treatment plan of the disease ⁽³⁾.

The **WHO** defines palliative care a crucial part of integrated, people-centered health services. Relieving serious health-related suffering, be it physical, psychological, social, or spiritual, is a global ethical responsibility ⁽⁴⁾.

One of the important factors influencing a successful delivery of palliative care are nurse's competency, attitudes and beliefs ⁽⁵⁾, so oncology nurses are closely involved with numerous supportive care issues encountered by cancer patients and their families ⁽⁶⁾.

Nursing competency can be defined as nurse's ability to effectively demonstrate a set of attributes, such as personal characteristics, professional attitude, values, knowledge and skills and to fulfill professional responsibility through practice.

Palliative care specialist nurses must have the basic knowledge and competency skills to assist cancer patients to have a normal life to be able to address all needs of patients with advanced cancer and their families ⁽⁷⁾.

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 ⁽⁸⁾.

Significance of the study

Worldwide, over 56.8 million people are estimated to require palliative care every year including 31.1 million prior to and 25.7 million near the end of life. Of all people who need palliative care, (67.1%) are adults over 50 years old and at least 7% are children. The majority of adults who need palliative care have chronic diseases such as cardiovascular diseases, cancer, chronic respiratory diseases, so many patients still require palliative care in most parts of the world ⁽⁹⁾.

Previous studies found that, nurses have lacked knowledge and skills in providing palliative care for those patients. The deficit in knowledge and skills underscore the need to promote knowledge and skills through continuing education and improving competencies related to palliative care practice so, it is necessary to conduct an educational program for nurses about the palliative care to enhance their knowledge and competencies that could help cancer patients to receive high quality competency based intervention that help them and their families to receive support through a difficult time ⁽⁷⁾.

Through the researcher student training at Aswan Oncology Institute , it was observed that most nurses who are working in oncology not adequately prepared to provide the palliative care and they have low level of knowledge ,practice and skills about it . This study addresses a critical gap by offering targeted training aimed at enhancing nurses' knowledge, skills, and practices. Improving these competencies is essential for delivering high-quality care to oncology patients, especially those in need of palliative care. Importantly, this study is considered the first one in this geographical location to evaluate the effect of educational intervention on nurses competency and Attitude on palliative care of oncology .

Aim of the study

This study aimed to assess and evaluate the nurses' competency and attitude regarding palliative care among patients with cancer.

Research hypotheses

H1: Nurses' competency level will be improved post palliative care educational intervention among oncology patients.

H2: Nurses' attitude will be improved post palliative care educational intervention among oncology patients.

Subjects and methods

Research design:

Pre-experimental (one group pre/posttest) design was utilized to conduct the current study.

Setting:

The study was conducted at Aswan Oncology Institute, Aswan, Egypt.

Sample:

A convenient sample of all available nurses (120) from both sex who are working in Aswan Oncology Institute.

Study duration:

This study was conducted at Aswan oncology institute during the period of five months from the beginning of November 2023 to the end of March 2024.

Study tools:

Three tools were being constructed and used for collecting data, these tools were formulated by the researcher after extensive literature review.

First tool: A structured interview questionnaire for nurses:

This questionnaire was be used to assess nurses' level of knowledge on palliative care of patients with cancer before and after the training package. It was developed by the researcher based on recent and relevant literature ^(10; 11; 12) it was filled by the nurses and consisted of two parts:

Part 1: Demographic characteristics of the studied nurses consisted of (6) item about the nurses' personal data age, gender, job degree, level of education, years of experience and attendance of training courses about palliative care.

Part 2: Nurses' knowledge regarding palliative care assessment questionnaire: Assessment of nurses' knowledge regarding palliative care for patients with cancer and included four section: -

Section 1: Questions about the philosophy and principle of palliative care (10 questions).

Section 2: Questions about management of common physical symptoms to patients with cancer. Nurses' knowledge regarding management of pain (13 questions), nurses' knowledge regarding management of dyspnea (9 questions) and nurses' knowledge regarding management of gastrointestinal problem (10 questions).

Section 3: Questions about nurses' knowledge about management of common psychological symptoms (14 questions).

Section 4: Questions assess nurses' knowledge regarding spiritual, social and family support to patient with cancer (9 questions).

Scoring system:

Regarding scoring system of nurse's knowledge: It consisted of (65 item) .A score of (2) given for yes answer, score of (1) for no answer and a score of (0) given for don't know answer.

These scores were summed-up and converted into a percent score: The total nurses' knowledge was considered satisfactory if the percent of score was 70 % or more and unsatisfactory if less than 70 %.

Second tool: Nurses' observational checklists regarding palliative care:

It used to assess nurses' practice level regarding palliative care among patients with cancer before and after the training package. This tool was adapted from ^(11, 13, 14) and modified by the researcher to conduct the study.

This tool was divided into three parts covering practice of palliative care for patients with cancer as follows:

Part 1: Nurses practice regarding common physical symptoms of cancer which include:

- I. Nursing assessment and management for acute/chronic pain (15 item).
- II. Nursing assessment and management for dyspnea (21 item).
- III. Nursing assessment and management for imbalanced nutrition (nausea, vomiting, diarrhea, cachexia) (24 item).
- IV. Nursing assessment and management for oral mucosal membrane (17 item).
- V. Nursing assessment and management for diarrhea (19 item).
- VI. Nursing assessment and management for skin care (bed sores) (17 item).

Part 2: Nurses practice regarding psychological symptoms of cancer (16 item).

Part 3: Nurses practice regarding spiritual symptoms of cancer (18 item).

Scoring system:

It consisted of (147 item). The item observed to be done correctly were scored (1) and the item not done was scored (0). These scores were converted into a percent score. The practice was considered adequate if the percent score was 70 % or more of the sum of the total practice score, and inadequate if less than 70 %.

Third tool: Assessment of nurses attitude regarding palliative care.

This tool was developed by the researcher based on recent and relevant literature ⁽¹⁵⁾ to assess nurses' attitude regarding palliative care and it consists of 20 questions about nurses' attitude on palliative care.

Scoring system: Attitude was assessed using a 5-point Likert scale used to assess nurses response ranging from 1-5 which (1= strongly disagree, 2 = disagree, 3 = uncertain, 4= agree , 5 = strongly agree). The nurses attitude level considered (positive) if the total score was equal or more than 75% and considered (negative) attitude if the total score has less than 75%.

Procedure:

I. Administrative design

Permission granted from the Dean of Faculty of Nursing, Aswan University, Aswan oncology institute directors. The researcher obtained approval for data collection. The study objective and nature were explained, so it became possible to carry out the study with a minimum resistance.

Ethical Considerations:

1. Research proposal was approved from the Ethical Committee in the Faculty of Nursing in 24/8/2023 and the code of ethics was (1120230648).
2. There is no risk for studying a subject during application of the research.
3. The study was followed common ethical principles in clinical research.
4. Oral consent was obtained from nurses who are willing to participate in the study, after explaining the nature and purpose of the study.
5. Confidentiality and anonymity was assured.
6. Study subjects have the right to refuse to participate and or withdraw from the study without any rational any time.
7. Study subject privacy was considered during collection of data.

II. Operational design:

The operational design for this study involved tools validity and reliability, pilot study and fieldwork.

Tools Validity and reliability

The tools were tested for content validity by the assent of five experts from the faculty of nursing (a jury of five expert's opinions). Those experts evaluated the tool for relevance, clarity, comprehensiveness, understanding, and applicability. All received modifications from the experts in the tools were be done.

The reliability of the designed tools was tested by Cronbach's alpha test:

First tool: The Cronbach's alpha of knowledge instrument was 0.85 .

Second tool: The Cronbach's alpha of practice instrument was 0.92 .

Third tool: The Cronbach's alpha of attitude instrument was 0.87 .

Pilot study:

A pilot study was conducted on 10% (12) nurses to examine the feasibility of the study. According to pilot study, the required modifications were made. Those nurses were included in the main study.

Methods

The study was carried over a period of five months from the beginning of November 2023 to the end of March 2024. The present study was conducted on four phases: assessment phase, planning phase, implementation phase and evaluation phase .

A. Assessment phase:

The researcher visited the setting (9.00 am to 2.00 pm) two days / week on morning shift and (5.00 pm to 9.00 pm) one day / week afternoon shift. The researcher started by introducing herself to the nurses and explained the purpose of this study. Each nurse was interviewed to fill in the structured interview questionnaire to assess their knowledge (**Tool I**) and attitude (**Tool III**) about palliative care of patients with cancer. The time needed to fill out each questionnaire was from 10-20 minutes. Also, each nurse was observed by the researcher to assess their practice related palliative care of patients with cancer (**Tool II**) the time needed to fill the observation checklist was 30 minutes.

B. Planning phase:

The researcher was design the palliative training package an Arabic instructions booklet .

Palliative educational intervention: It based on nurses' need assessment, literature review, researchers' experience, and experts' opinions. The researchers was design an Arabic instruction booklet which was include the following:

- Knowledge about palliative care including definition, benefits, principles, of palliative care.
- Nurses' knowledge and practice about management of common physical, psychological and spiritual symptoms to patients with cancer.
- Nurses knowledge and practice regarding psychological symptoms management of cancer including (grieving, depression , anxiety , ineffective coping , fear).
- The communication skills and communication methods during palliative care.

C. Implementation phase

It achieved through the sessions which conducted in the institute training room in coordination with the institute medical director and nurse manager. Session content and education program based on the literature review at a period of 8 weeks. The nurses divided into groups , each group was contain (5 nurses) to acquire the related information . Each session started by a summary of the previous session,

and objectives of the new one. Taking into consideration, the use of language that suits to the nurses educational level. Motivation and reinforcement during session used to enhance motivation for sharing in the study. The total number of sessions is four sessions.

First session: The researcher had clarified the knowledge about palliative care including definition, benefits, principles, aspect, philosophy of palliative care. Nurses' knowledge about common physical, psychological and spiritual symptoms of cancer. The duration of this session about 60 minutes.

Second session: It included main topics of practice about management of common physical psychological and spiritual symptoms to patients with cancer management of cancer and nurse's role in providing physical and emotional nursing care related to palliative care. The duration of practice session was taking about 60 minutes for theoretical issues and 120 minutes for practical issues .

Third session: It included increasing nurses positive attitude through increase nurses knowledge about palliative care ,enhancing good communication skills and effective communication methods ,teaching nurses ways to manage patients problems using creativity ,teaching decision making and giving decision support ,caring attitude that involving sensitivity and compassion. The duration of attitude session about 30 minutes.

Last session: At the end session, the researcher summarized the training program, continued to reinforce the gained information, answered any raised questions and give feedback and open discussion.

The researcher relied on multi-educational methods such as group discussion, demonstration, and re-demonstration and different illustrative methods such as power point, photos, and videos. Media utilized was be handouts and data show.

D. Evaluation phase

After implementation of palliative care training package, the post-test was conducted through a period of 6 weeks to evaluate its effectiveness on nurses' performance and attitude regarding palliative care by using the same data collection tools.

Statistical analysis

The data collected were tabulated & analyzed by using SPSS version 20 (Statistical Package for Social Science). Data was presented using descriptive statistics in the form of mean and standard deviation (X+SD) for quantitative data or number and percentage (No & %) for qualitative data.

Chi-square (X²) test and F (p value-test) of significance were used to compare the qualitative variables. T-test and T (p.value) were used to compare the quantitative variables. Statistical significance was considered at a p-value <0.05.

Table (1) Shows that a significant portion of oncology nurses, 59.8% (67 nurses), fall within the age range from 30 to 40 years. The majority 75.9% (85 nurses) of oncology nurses were female. More than half were married, had a technical institute education, and had ten or more years of experience (58.9%, 51.8% and 61.6%) respectively. Only a small percentage, 6.3% attended educational course related to palliative care.

Table (2) Shows that there was statistical significant difference between pre and post intervention regarding total knowledge scores (P. value.001) and the nurses knowledge about pain management, dyspnea, and spiritual scores. But there were no statistical significance between pre and post intervention regarding philosophy and principle of palliative care and psychology scores.

Table(3) Illustrates that nearly half of the nurses pre-intervention (48.2%) had unsatisfactory level of knowledge. After the intervention, this number dropped to 24.1%, while the proportion of satisfied knowledge levels raise significantly from 51.8% to 75.9%. This substantial shift underscores the success of the intervention in elevating overall knowledge and competence among the nursing staff. The analysis indicates that with targeted education, a significant improvement in palliative care proficiency can be achieved.

Table(4) Shows that there was significant improvements in total mean scores of nursing practices (p .value 0.001) including pain management, dyspnea, nutrition, oral care, and spiritual support, post-intervention. The increase in overall scores, alongside statistically significant results, demonstrates the effectiveness of the intervention in enhancing the quality and consistency of nursing practices in palliative care .

Figure (1) Illustrates that there was a significant improvement of the total nurses' practices after application of the palliative training package. The majority of nurses showed (82.1%) adequate level of practices after application of the palliative educational intervention (p .value 0.001).

Figure (2) Displays that there was a statistical significant difference pre and post implementation of palliative training package concerning the total score of nurses attitude regarding palliative care with significant improvement after application of the training intervention (p .value 0.001) and the percentage of positive attitude increased after application of the educational intervention.

Figures (3) Shows that there was a highly statistically positive linear correlation between the total practice scores and total knowledge scores at (p .value 0.0001, r . .986). but there was a negative correlation between the total scores of knowledge and attitude (.003, r . -.279).

Table (1): Percentage distribution of demographic data of the studied nurses (n=112)

Variables	N	%
Age		
< 30 years	17	15.2
≥30 <40yrs	67	59.8
≥40yrs and more	28	25.0
Gender		
Male	27	24.1
Female	85	75.9
Martial status		
Single	41	36.6
Married	58	51.8
Divorced	7	6.3
Widow	6	5.4
Level of education		
Secondary Nursing school	22	19.6
Technical Institute	66	58.9
Bachelor of Nursing	19	17.0
Postgraduate	5	4.5
Number of experience years		
< five years	15	13.4
5 – 10 years	28	25.0
Ten years	69	61.6

Attendance of training courses about palliative care		
Yes	7	6.3

Table (2) : Distribution of the total mean scores of nurses knowledge pre and post implementation of palliative educational intervention (n=112).

Variables		Mean	Std. Deviation	F .test Sig.	Minimum	Maximum
Philosophy and principle of palliative care	Pre	12.5357	6.17307	.514 .474	.001	20.00
	Post	13.0536	4.50393		.001	20.00
	Total	12.7946	5.39746		.001	20.00
Pain management	Pre	15.3125	9.05939	8.840 .003	.001	26.00
	Post	18.6339	7.59563		.001	26.00
	Total	16.9732	8.50530		.001	26.00
Dyspnea management	Pre	11.5893	5.46661	15.234 .000	.001	18.00
	Post	14.2679	4.78169		.001	18.00
	Total	12.9286	5.29695		.001	18.00
Gastrointestinal problem	Pre	14.9643	10.41649	32.965 .000	.001	28.00
	Post	22.6607	9.63061		.001	28.00
	Total	18.8125	10.72613		.001	28.00
Psychology care	Pre	19.2768	9.51453	1.364 .024	.001	28.00
	Post	20.5446	6.44294		.001	28.00
	Total	19.9107	8.13182		.001	28.00
Spiritual care	Pre	11.2054	5.62994	11.595 .001	.001	18.00
	Post	13.8036	5.78884		.001	18.00
	Total	12.5045	5.84401		.001	18.00
Total knowledge scores	Pre	80.4286	42.65506	9.285 .003	.001	130.00
	Post	96.3750	35.32682		.001	130.00
	Total	88.4018	39.88357		.001	130.00

Table (3) Level of nurses knowledge pre and post implementation of palliative educational intervention (n=112).

Variables		Follow up		Total
		pre	post	
unsatisfied	N	54	27	14.098
	%	48.2%	24.1%	
Satisfied	N	58	85	.0001
	%	51.8%	75.9%	

Table (4) : Distribution of the total mean scores of nurses practices pre and post implementation of educational intervention (n=112).

Variables	Follow up	Mean	Std. Deviation	T	P.value
Pain management	Pre	20.169	5.50	-8.909	.0001
	Post	26.03	4.27		
dyspnea management	Pre	31.95	7.510	-8.617	.0001
	Post	39.49	5.409		
nutrition management	Pre	34.13	9.99	-8.379	.0001
	Post	43.97	7.388		
oral mucosa management	Pre	24.74	7.388	-7.175	.0001
	Post	31.00	5.534		
Fluid defect management	Pre	20.01	4.732	7.336	.0001
	Post	24.08	3.478		
Skin care management	Pre	24.017	7.248	-8.644	.0001
	Post	31.30	5.198		
psychology care	Pre	20.241	6.172	-9.481	.0001

	Post	28.07	6.188		
spiritual care	Pre	23.81	6.910	-9.198	.0001
	Post	32.125	6.611		
Total practice	Pre	199.08	54.176	-8.697	.0001
	Post	256.08	43.306		

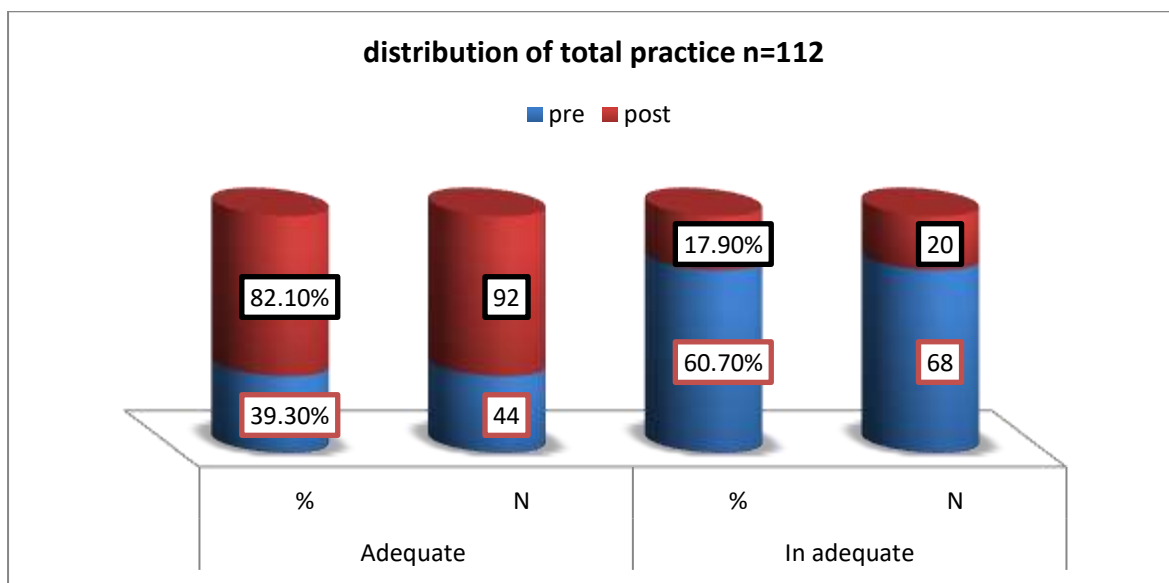


Figure (1): Percentage distribution of nurses practices pre and post implementation of palliative educational intervention (n=112)

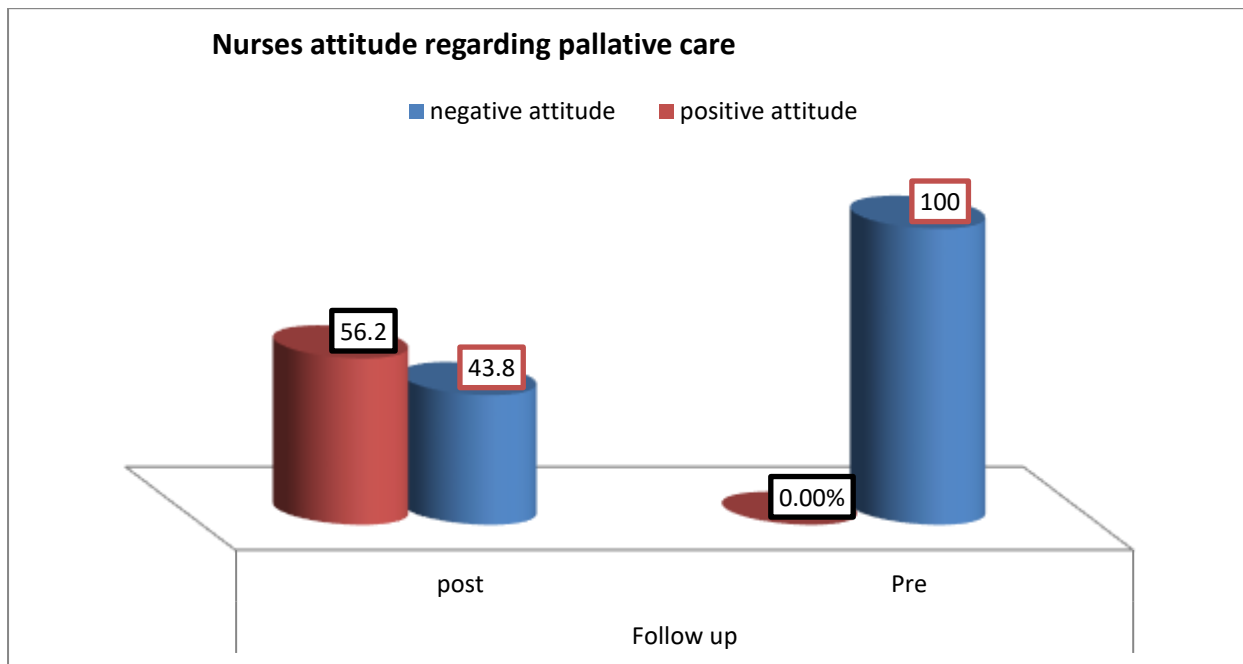
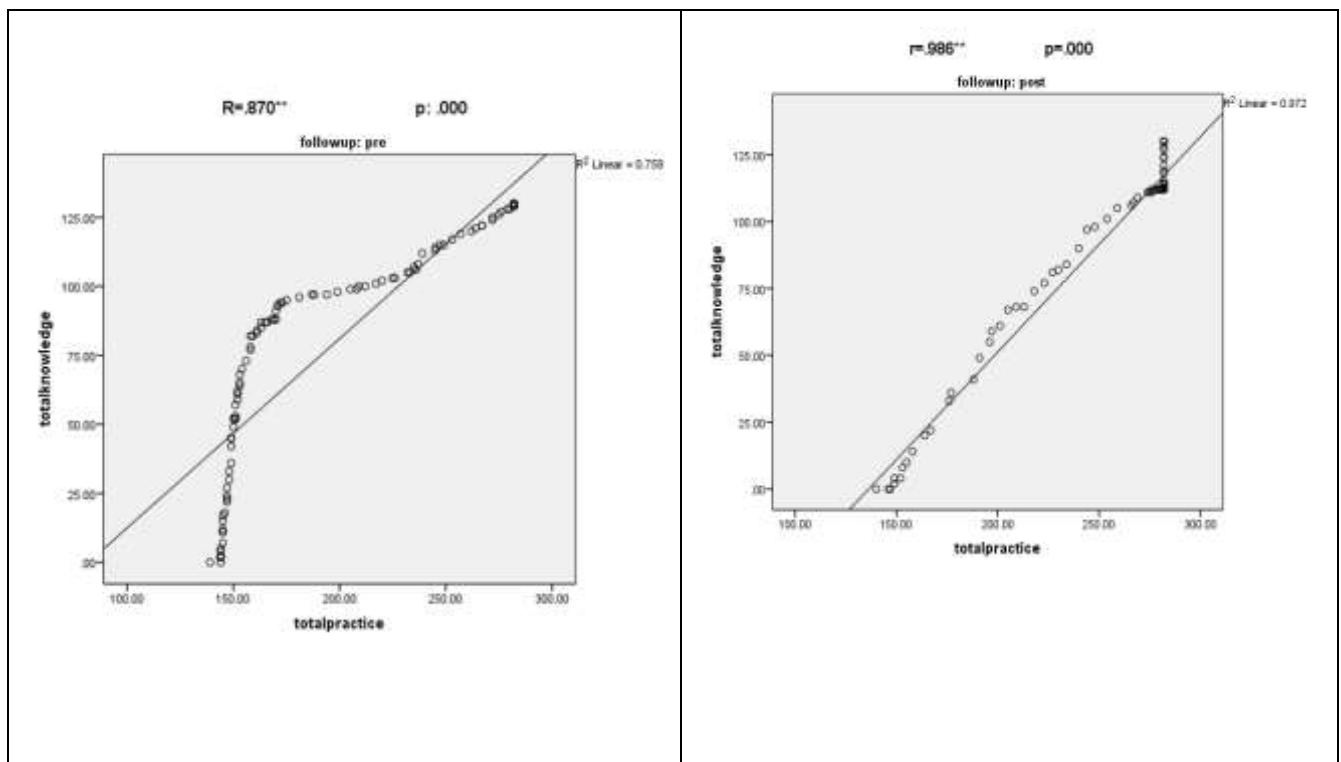
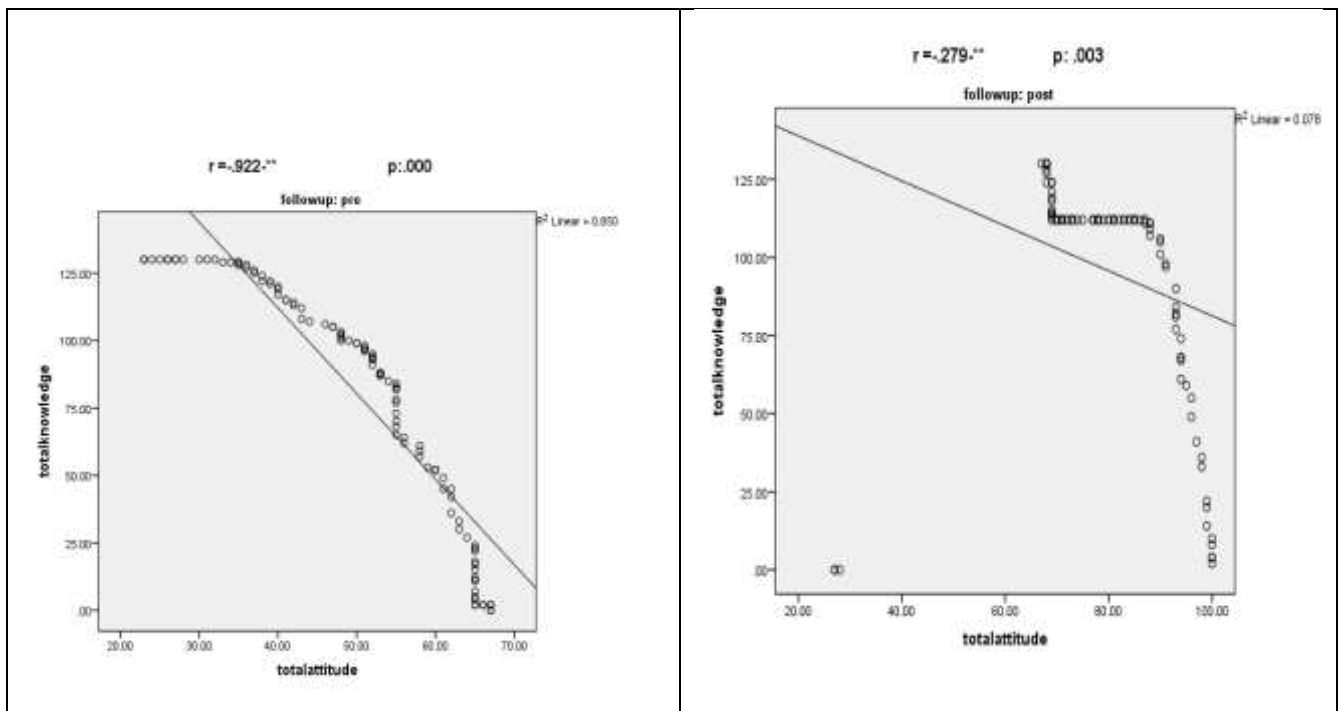


Figure (2):Percentage distribution of studied nurses pre and post implementation of palliative educational intervention concerning total nurses attitude regarding palliative care (n=112).





Figure(3): Correlation between knowledge and nurses practice and attitude pre and post intervention (n=112).

Discussion

Providing nurses with a comprehensive training package on palliative care for oncology patients is a pivotal step toward enhancing their competencies and skills in addressing the complex needs of terminally ill individuals. By equipping nurses with specialized knowledge, communication strategies, and emotional support techniques tailored to the unique challenges of palliative oncology care, this training aims to improve their performance in delivering compassionate and holistic end-of-life care (16).

By assessing factors such as communication effectiveness, symptom management, patient and family satisfaction, and overall quality of care provided, this evaluation seeks to demonstrate the tangible benefits of investing in specialized palliative care training for oncology nurses, ultimately enhancing the standard of care and quality of life for patients facing advanced cancer (17).

Regarding to demographic data of the studied nurses, the finding of the current study revealed that there was a significant portion of oncology nurses, fall within the age range of 30 to 40 years. The researcher point of view that the age distribution indicates a mix of experience levels among oncology nurses, with a significant number falling within the 30-40 age range. This diversity in age groups can bring varying perspectives and experience levels to the field.

In this line, a longitudinal study by **Lee**,⁽¹⁸⁾ tracking the career trajectories of oncology nurses and investigate factors influencing retention, career satisfaction, and professional growth, clarified that the age distribution of oncology nurses is a significant factor in workforce planning and healthcare delivery, while, **Pursio et al.**,⁽¹⁹⁾ reported that younger nurses often bring fresh perspectives and adaptability to the field. In the other hand, the finding of the current study contradicted with **Udayar et al.**,⁽²⁰⁾ who stated that the majority of oncology nurses are over 50 years old, with only 10% falling within the 30 to 40 age range.

In relation to the gender, the present study found that the majority of oncology nurses were female. Regarding the researcher opinion that the predominance of females oncology nurses due to nursing profession in Egypt at the past was limited to females only, but recently become for both gender..

This finding supported by **Albargawi et al.**,⁽²¹⁾ who found that female dominance in the field of oncology may impact leadership opportunities, caregiving dynamics, and workplace culture. On the contrary, **Park et al.**,⁽²²⁾ stated that oncology nursing is a predominantly male-dominated field, with 70% of nurses being male.

Concerning to the marital status, the present study findings demonstrated that more than half were married. The researcher opinion that the varying marital status among oncology nurses reflect the personal background of individuals in this profession. This finding is compatible with **Challinor et al.**,⁽²³⁾ and **Cohen & Venter**,⁽²⁴⁾ who reported that the marital status among healthcare professionals can influence job satisfaction, work-life balance, and mental well-being.

On the other hand, the finding of the current study on contrary with **Hwang & Yu**,⁽²⁵⁾ who suggested that the majority of oncology nurses are single, with only one fifth being married.

Concerning to educational level, the results of the current study revealed that more than half of the study were graduated from a technical institute, and had ten or more years of experience and majority had no training about palliative care. The researcher perspectives that the educational distribution illustrates a diverse background among oncology nurses, with a significant portion having attended technical institutes. This mix of educational backgrounds can contribute to a well-rounded team with varied skills and expertise. The distribution of experience levels among oncology nurses shows a majority with ten or more years of experience.

A study of **Martins Pereira et al.**,⁽²⁶⁾ and **Zaghloul et al.**,⁽²⁷⁾ reported that technical education of nurses may provide specialized training relevant to oncology care.

However, **Paiva et al.**,⁽²⁸⁾ suggested that the majority of oncology nurses have doctoral degrees in nursing, with only ten percentage had attended a technical institute. While, **Asefa et al.**,⁽²⁹⁾ reported that a significant number of oncology nurses are recent graduates with less than two years of experience.

The current study found that there was statistically significant difference between pre and post intervention regarding total knowledge scores and nurses' knowledge about pain management, dyspnea management and spiritual care scores with significance improvement after application of palliative training package. But there were no statistical significance difference between pre and post intervention regarding philosophy, principle and psychosocial care of palliative care.

From the researcher opinion this might be because they didn't attend any programs for continuing education or in-service training for specialized nursing knowledge. Also, the shortage of nurses number that didn't let them have time to attend courses or lack of awareness about the effect of training courses on performance of the nurses, resulted in poor knowledge in about palliative care of patient with cancer.

This results compatible with **Chua & Shorey**,⁽³⁰⁾ who reported that the level of knowledge about palliative care of the majority of the studied nurses generally was poor before implementing of educational program.

This result is nearly in the same line with, **Aljehani et al.**,⁽³¹⁾ who found that obvious improvement had found in participant knowledge on the post-intervention educational program compared to the pre-intervention educational program related to palliative care management expectations, including pain management, strategies for disease management using home interventions. This study on the contrary with **Dehghani et al.**,⁽³²⁾ who illustrated that two fifth of nurses had knowledge unsatisfactory after implementing of the educational program.

On the other hand a study of **Hao et al.**,⁽¹⁶⁾ reported that the interventions solely focused on theoretical or philosophical principles may not always lead to statistically significant improvements in practical knowledge or skills among nurses. Practical application and hands-on training may be necessary. However, **Kang et al.**,⁽³³⁾ suggested that interventions addressing psychological aspects of care within palliative settings may have varying outcomes. Comprehensive programs that integrate psychological training with other aspects of care may be more effective than standalone interventions.

The present study showed that there was a statistical significant differences between pre and post application of the training regarding all items of the nurses practice about palliative care with significant improvement after application of the training intervention.

According to the studied nurses' total practice scores, the findings of the present study revealed that more than half of the studied nurses had inadequate score of practice about palliative care of patients with cancer in the pre-program implementation compared with the majority of nurses had adequate practice scores after training program. **The researcher point of view** that this might be due to that they didn't have any previous training or educational program and moreover, about half of the nurses were graduates of the nursing institute, as its courses didn't include palliative care. Also, due to no pre-employment orientation the workload which may hinder the ability to read and upgrade their knowledge.

This results with the same line with a study of **Kassa et al.**,⁽³⁴⁾ who reported that the majority of the studied nurses had poor practice scores before educational intervention regarding palliative care practices for patients with cancer.

In the same line, supporting our results **Ayed et al.**,⁽³⁵⁾ clarified that there was statistical significant improvement in nursing staff practice after implementation of the educational program.

In this regard, **Anstey et al.**,⁽³⁶⁾ reported that the preparation of the training program had a significant impact on enhancing nurses' performance. The structured approach not only improved the participants' ability to retain information but also contributed to the development of their skills and competencies.

In the same line, **Salmani et al.**,⁽³⁷⁾ who compared the nurses' palliative care practices before and after specific training interventions have shown significant improvements in various aspects of care delivery, including pain management, symptom control, communication skills, and emotional support.

The present study revealed that there was a statistically significant difference between total nurses attitude regarding palliative care pre and post application with significant improvement after application of the training intervention, the percentage of positive attitude increased after application of the training program. The increase in the percentage of nurses exhibiting a positive attitude post-training further supports the effectiveness of the intervention. **Overall, the researcher point of view** that these findings indicate that the training program successfully enhanced the nurses' attitudes towards palliative care, which can potentially lead to better patient care and outcomes in this critical area of healthcare.

Nurses' attitudes play a crucial role in shaping their caring behaviors, which can vary significantly along a continuum. According to a study by **Achora and Labrague**,⁽²⁾ nurses' attitudes were found to be bimodal, reflecting either positive or negative perceptions. This bimodal distribution suggests that nurses may exhibit distinctly different approaches to patient care based on their underlying attitudes.

This finding on the contrary with other studies **Getie et al.**,⁽³⁸⁾ mentioned that the majority of the study respondents have a positive attitude regarding palliative care. A study of **Bibi et al.**,⁽³⁹⁾ indicated that majority of the nurses had positive attitudes towards palliative care. A study of **Zeru et al.**,⁽⁴⁰⁾ reported that more than half of nurses had a positive attitude towards palliative care. This discrepancy may be due to the difference in the study settings in which previous studies were in a high-income country where nurses may have varied access to palliative care training.

Also, on the other hand, a study of **Parveen et al.**,⁽⁴¹⁾ reported that the majority of the nurses in the study had a positive attitude towards cancer palliative care after receiving the training package. This could be related to the effectiveness of the contents of the palliative care training package as nurses' knowledge level increased, and attitudes became more positive.

The current study revealed that there was a highly statistical positive linear correlation between the total practice scores and total knowledge scores after application of the training program. **The researcher point of view** that this might be due to the direct effect of the educational program which improved nurses' knowledge and practice. Nurses' knowledge and practice scores turned out to be strongly and positively correlated.

This result is supported by **Papagiannis et al.**,⁽⁴²⁾ who found that there was a statistically significant positive correlation of nurses' knowledge score with nurses' practice. Also, this agrees with, **Hanshaw & Dickerson**,⁽⁴³⁾ who illustrated that there was a positive correlation between total knowledge scores and practice after implementation of educational program. This study is on contrast with **Doğru & Aydın**,⁽⁴⁴⁾ and **Tamang et al.**,⁽⁴⁵⁾ who noted that there was no a statistical significant correlation between total nurses' practice and total nurse's knowledge.

The current study revealed that there was a negative correlation between the total knowledge and attitude scores **The researcher point of view** that this result could be justified that the competency based program improved nurses' level of knowledge which affecting negatively on their attitudes.

In addition, **Hassan et al.**,⁽⁴⁶⁾ clarified that there was a knowledge, attitude, and practice gap among health care workers when it comes to providing palliative treatment to a patient, which may have an impact on the well-being of patients. A study of **Alqahtani et al.**,⁽⁴⁷⁾ suggested that healthcare professionals require more exposure to palliative care via comprehensive education and training programs.

A study of **Mohamed & Hassan**,⁽⁴⁸⁾ found that nurses' knowledge influences their attitudes, and stated that a more positive attitude can be achieved by an activation program and concurrent nurse education.

Conclusion

The present study concluded that, nurses at oncology departments at Aswan oncology institute, had unsatisfactory knowledge , in adequate practice and negative attitude regarding palliative care of patients with cancer pre the educational intervention .There were a significant improvement and a positive effect in nurses' knowledge , practice and competencies after the implementation of the educational intervention in relation to palliative care for patients with cancer than before educational intervention. There was a highly statistical positive correlation between the total performance score and total knowledge score.

Recommendations:

1. Continuous in-service training program ,regular conferences and workshops should be conducted periodically in order to update nurses' knowledge and improve their competencies levels regarding palliative care.
2. Developing an educational program for parents to promote spiritual wellbeing and coping for patients with cancer.
3. Further studies in different care setting or hospitals with larger probability study sample were needed
4. Continuous assessment of the ability of nurses to provide palliative care for patients.
5. Providing psychological support for nurses who are providing palliative care.
6. geographical locations in Aswan was highly recommended to increase the applicability and generalizability of results to the overall nursing staff population.

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