

Nurses' Performance Regarding Palliative Care among Patients with Cancer

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Abstract

Background: Cancer is the serious diseases that's second leading cause of death globally, the increased cancer incident cases, growing aging population, and decreasing number of caregivers have made palliative care more imperative in Egypt. palliative care plays an integral role in these patients' journey of care. Palliative care provides by multidisciplinary to develop a plan of care that focuses on each patient's and family's concerns, values and goals. **Aim of the study:** Is to assess Nurses' performance regarding palliative care among patients with cancer **Research design:** A descriptive exploratory design was used to achieve aim of the study. **Subject:** A convenient sample of 35 nurses working at radiation oncology & nuclear center **Setting:** The study was conducted in radiation oncology & Nuclear medicine center affiliated to Ain Shams University hospitals Cairo/Egypt. **Tools of data collection:** Three tools utilized for data collection(1) Self-administered questionnaire to assess nurses' knowledge regarding palliative care among patients with cancer (2) An observational checklist to assess nurses' practice during implementation of palliative care among patients with cancer (3) Nurses attitude Likert Scale to measure nurses' Attitude regarding palliative care **Results:** Revealed that 74.3% of the studied nurses had unsatisfactory level of knowledge, 94 % of the studied nurses had unsatisfactory level of practices, and 62.9 % of the studied nurses had negative attitude regarding palliative care among patients with cancer. **Conclusion:** There was unsatisfactory level of knowledge practice and attitude regarding palliative care among studied nurses. **Recommendation:** Establish periodical in-service training program to improve nurses' performance regarding palliative care, encourage multidisciplinary researches in the same study in order to cover large group of nurses.

Keywords: palliative care, cancer, knowledge and practice, nurses' attitude, nurse's performance

Introduction:

Cancer has become the leading cause of death worldwide. one of six death person due to cancer ,death figures caused by this disease continue to be on the rise worldwide every year (Paknejadi et al., 2019). World health organization reported Global cancer statistical there were an estimated 18.1million cancer cases around the world in 2020 of these 9.3 million cases were in men and about 8.8 million in women (WHO, 2020).

Growing current global incidence of cancers makes palliative care important

(Eleke et al., 2020). Cancer is a serious disease causes numerous symptoms due to both the disease itself and the side effects regarding method of treatments, and consequently decrease the patients' quality of life. range of complex this symptom that cannot always be dealt with effective manner by generalist oncology services. the most common symptoms are pain, fatigue, nausea, dyspnea, loss of appetite, constipation and anxiety and the frequency and severity of symptoms vary depending on the type and stage of the disease (Menekli et al., 2021).

The need for palliative care has increased significantly with the global rise in occurrences of chronic diseases such as cancer (Eleke et al., 2020). Palliative care can be provided throughout the continuum of illness and concurrently with disease directed treatment. The palliative it is integral part of oncology care according to 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 (Spoozak & Scarborough, 2019).

The World Health Organization defines that 'It is an approach that aims to diagnose, evaluate, treat, reduce or prevent the suffering of physical, psycho-social and spiritual problems of patients and families who have problems accompanying life-threatening diseases and thus improve their quality of life' (Menekli et al., 2021)

One of the important factors influencing a successful delivery of palliative these factors include nurses 'knowledge, attitudes, beliefs, and practice (Eleke et al., 2020). nurses allocate more of their time with patients and families than other disciplines and nurses play an important role in providing palliative care, so they are expected to have sufficient knowledge to provide the best care for these patients (Farmani et al., 2019).

Significant of study:

Early involvement of the palliative care team results in better outcomes for patients in terms of length of hospital stay, and family satisfaction with the care received. there is also a cost benefit in involving the palliative team in the care of cancer patients as a result of frequent reassessing of unwanted or nonbeneficial therapies (Barasa et al., 2021). Due to the ageing of populations worldwide, it is

estimated that more than 40 million people internationally need palliative care and this number will increase, especially in developed countries (Menekli et al., 2021).

In addition to the nurses 'knowledge, practice and attitudes toward caring for cancer patients affect their ability to care for and communicate with patients facing these issues (Eleke et al., 2020). Nurses give support for patients and their families to cope with illness and treatment-related symptoms during the care they provide, this requires nurses should be has a combination of knowledge, skills, and positive attitudes in a way that is sensitive, meaningful, so, this research spotlighted on nurses' performance regarding palliative care among patients with cancer.

Aim of the study

This study aimed to assessing nurses' performance regarding palliative care among patients with cancer through:

- Assess the nurses' knowledge level regarding palliative care among patients with cancer.
- Assess the nurses' practice level regarding palliative care among patients with cancer.
- Assess the nurses' attitude level regarding palliative care among patients with cancer.

Research questions:

The study is based on answering the following research questions:

- What is the nurses' knowledge level regarding palliative care among patients with cancer?
- What is the nurses' practice level regarding palliative care among patients with cancer?
- What is the nurses' attitude level regarding palliative care among patients with cancer?

Subjects and Methods

- Technical design
- Operational design
- Administrative design
- Statistical design

1. Technical design: The technical design includes research design, setting, subjects and tools of data collection used in this study.

A. Research design: A descriptive exploratory design was conducted to achieve the aim of this study.

B. Setting: The study was conducted at oncology & Nuclear medicine center affiliated to Ain Shams University hospitals.

C. Subjects: A convenience sample composed of all available nurses (35) in the previously mentioned setting at the time of data collection was recruited in this study.

D. Tools of data collection: Three tools were used in current study for data collections as following:

I-Nurses Self-administered questionnaire regarding palliative care (Appendix I):

The self-administered questionnaire was used to assess nurses' level of knowledge regarding palliative care among patients with cancer. It was developed by the researcher in simple Arabic language based on recent and relevant literature from (Perry, 2021; Harding & Kwong, 2020; Magee, 2019; Berman, 2016; Kozlov, 2016; Lavy, 2016; Wilson, 2016; Joy, 2015) it was filled by the study subjects.

This questionnaire was divided into two parts as follows:

The 1st part: Demographic characteristics of the studied nurses it included the nurses' personal data as age, gender, job degree, level of education, number of experience years and training courses.

The 2nd part Nurses' knowledge regarding palliative care assessment questionnaire: Assessment of nurses'

knowledge regarding palliative care among patients with cancer included four sections:

▪ **Section 1:** Questions about general concept of palliative care as: definitions and dimension of palliative care (4 MCQ questions).

▪ **Section 2:** questions about management of common physical symptoms to patients with cancer as, nurses' knowledge regarding management of pain (6 MCQ questions), nurses' knowledge regarding management of dyspnea (3 MCQ questions), nurses' knowledge regarding management of fatigue (3 MCQ questions), nurses' knowledge regarding management of anorexia and oral mucositis (5 MCQ questions), nurses' knowledge regarding management of nausea and vomiting (3 MCQ questions), nurses' knowledge regarding management of chronic diarrhea (4 MCQ questions), nurses' knowledge regarding management of chronic constipation (4 MCQ questions).

▪ **Section 3:** Questions about nurses' knowledge among management of psychological symptoms depression and anxiety (6 MCQ questions).

▪ **Section 4:** to assess nurses' knowledge regarding spiritual, social and family support to patient with cancer: (24 questions true/false questions).

❖ Scoring system:

Regarding scoring system of nurse's knowledge assessment: it included 62 questions in the form of (38) multiple-choice questions MCQ, and (24) true/false questions it was categorized as follows:

▪ Each question was scored as "1" for correct answer and "0" for incorrect answer.

▪ Total Satisfactory level of knowledge $\geq 75\%$ of the maximum score [≥ 47 degree out of 62 degrees].

▪ unsatisfactory level of knowledge $< 75\%$ of the maximum score [less than 47 degrees].

Tool (II): Nurses' observation checklist regarding palliative care (Appendix II)

It was used to assess nurses' practice level regarding palliative care among patients with cancer. This tool was in English language and it was adapted from: (Perry, 2021; Doenges & Frances, 2019) and modified by the researcher.

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

The 1st part: Nursing management of common physical symptoms which include:

- I- Nursing assessment and management for acute/chronic Pain (15 items).
- II- Nursing management for dyspnea and restlessness abnormal breathing (27 items).
- III- Nursing management for Fatigue (16 items).
- IV- Nursing management for imbalanced Nutrition (24 items).
- V- Nursing management for impaired oral mucous membrane (17 items).
- VI- Nursing management of deficient fluid volume: vomiting, diarrhea (15 items).
- VII- Nursing management for blood transfusion (45 items).

The 2nd part: Nursing management of common psychological symptoms as; grieving, ineffective coping, ineffective denial and fear (19 item).

The 3rd part: Nursing management of spiritual symptoms among patients with cancer (15 items).

❖ Scoring system:

Scoring system of Nurses' observation checklist which contain total score of practice was 193 marks, each done correctly step was given one score and each step not done or incomplete was given zero.

the total score of nurse's practices was categorized as follows:

- $\geq 75\%$ Total Satisfactory practice level which equal $[\geq 146$ degree out of 193 degrees]
- $< 75\%$ Total Unsatisfactory practice level which equal less than 146 degrees.

Tool III: Assessment of Nurses attitude regarding palliative care:

This tool was used to measure nurses' Attitude regarding palliative care It was Adapted from (Budkaew, 2013) and it was translated into Arabic language.

❖ Scoring system:

- Responses were Participant responses to statements on Likert scale ranging from 1:5 which (1=strongly agree, 2 = agree, 3 = neutral, 4 = disagree, 5 = strongly disagree).
- The scores of items were summed-up and were converted into a percent score. the nurses attitude level was considered (positive) if the total score was equal or more than 75%, and it was considered (negative) attitude if the total score had less than 75%.

2. Operational design: It included preparatory phase, validity and reliability, pilot study, field work.

A- Preparatory phase:

It included reviewing of relevant literature, and theoretical knowledge of various aspects of the study using books, articles, internet, periodicals and journals to develop tools of data collection, and the reference was written in the style of APA 7th edition.

It was concerned with construction and preparation of different data collection tools (nurses' knowledge assessment questionnaire, an observational checklist, and attitude scale).

B- Face and content Validity:

- Face validity aimed at inspecting the items to determine whether the tools measure what supposed to measure.
- Content validity was conducted to determine whether the content of the tools cover the aim of the study. This stage developed by a jury of 7 experts, 4 of them professors and 1 assistant professor of medical surgical nursing at faculty of nursing, Ain Shams University. Also 1 professor and 1 lecture of Clinical Oncology at Faculty of Medicine Ain Shams University.
- The experts reviewed the tools for clarity, relevance, comprehensiveness, simplicity and applicability; minor modification was done.

Reliability of proposed tools was done statistically through Cronbach's Alpha reliability analysis for the following:

- The Cronbach's alpha of knowledge instrument was 0.77 with reliability Coefficient of this instrument was 0.68.
- The Cronbach's alpha of practice instrument was 0.96. with reliability Coefficient of this instrument was 0.92.
- The Cronbach's alpha of attitude instrument was 0.71 with reliability Coefficient of this instrument was 0.70.

Pilot study: it was conducted to test feasibility and applicability of the study tools. It was carried out on 10 % of total study subjects (4 nurses). There were no modifications were done. the nurses who included in the pilot study were included in the main study group.

Field Work:

The collection of data of the current study lasted over a period of 3 months; the beginning of October 2021 to the end of in December 2021, through the following phases:

- The researcher visited the selected settings during the morning and the afternoon shifts

(9.00 am to 3.00 pm) for five days/week (Saturday to the Wednesday).

- The aim and nature of the study were explained to studied nurses and were obtained verbal consent to gain their permission and cooperation to conducted the study.
- The involved 35 nurse were informed individually about the purpose and nature of the study, and the average number of nurses who are assessed by the researcher was four to five nurses per day.
- The data were collected from the pre-determined numbers of nurses in the oncology center.
- The researcher filled the observational checklist in the morning, afternoon shifts during actual nurses' care of patients with cancer.
- The observational checklist was used prior to administration of the questionnaire to ensure the maximal realistic observations of the nurses' practice and minimize the possibility of bias.
- Observational checklist conducted during nurses' routine to patients with cancer, checklist took about 30- 45 minutes for each period and concern for three times for each nurse practice.
- The self-administered knowledge questionnaire and attitude scale was filled by the studied nurses individually. It took 30-40 minutes during their free time, the answer recorded by the nurses themselves.

3. Administrative design:

Before starting data collection, the researcher prepared an official letter was issued from the faculty of nursing Ain Shams university to the director of oncology & Nuclear medicine center, affiliated to Ain Shams University hospital the study was conducted, purpose of the study was explained to the Matron and head nurses of the departments and requesting the permission of the hospital under the study.

4. Ethical Considerations:

All ethical issues were taken into consideration during all phases of the study.

The ethical research considerations in this study included the following:

- 1- Ethical approval of protocol was obtained from scientific research ethical committee in faculty of nursing and approval of protocol was obtained from scientific research ethical committee in oncology & Nuclear medicine center affiliated to Ain Shams University hospitals before starting the study.
- 2- The researcher clarified the objective and aim of the study to the nurses included in the study.
- 3- The researcher assured maintaining anonymity and confidentiality of the subjects.
- 4- Nurses were informed that they allowed choosing to participate or not in the study and they had the right to withdraw from the study at any time without giving any reasons. Ethics, values, culture, and beliefs were respected.

5. Statistical design:

The collected data were organized, categorized, tabulated and analyzed, the data were coded and entered using (the statistical package for social science) (SPSS 26.0.) Number and percentage for qualitative variable were done.

- Data was presented as number and percent.
- Normally distributed data was presented as mean \pm SD.
- Pearson's correlation coefficient was used to test correlation between variable
- **Chi-square (X^2) test** of significance was used in order to compare proportions between qualitative parameters.
- **The Spearman's rank coefficient of correlation** is a nonparametric measure of rank correlation (statistical dependence of ranking between variables).

Results:

Table (1): reveals that 45.7%, were ranged from 31 to 40 years old, and 82.9% of the study nurses was female. As regard work position 40% of the studied nurses was a

charge nurse and 42.9% of them had technical nursing institute education. Also, the 71.4% of the studied nurses had more than 10 years' experience, while no nurses had any course regarding palliative care.

Table (2): clarifies that 94.3% of the studied nurses had unsatisfactory knowledge regarding care of the physical symptoms among patient with cancer. Meanwhile, 85.7% of the studied nurses had unsatisfactory knowledge regarding care of psychological symptoms and spiritual & social support of patients with cancer and his family through palliative care with the lowest mean score.

Figure (1): describes that 74.3% of the studied nurses had unsatisfactory level of knowledge regarding palliative care among patients with cancer.

Table (3): presents that 97.1 of the studied nurses had unsatisfactory level of practice among management for dyspnea, management of fatigue, and nursing management among psychological symptoms (grieving, fear, ineffective coping, and ineffective denial) for patient with cancer. On the other hand, 100% of the studied nurses had unsatisfactory level of practice toward nursing management of deficient fluid Volume (vomiting, diarrhea with the lowest mean score "0.34 \pm 0.15").

Figure (2): Shows total practice among nurses. As evident from the figure 94% of studied nurses were unsatisfactory level of practice regarding palliative care among patients with cancer.

Figure (3): Show that 62.9% of the studied nurses had negative attitude, while 37.1% had positive attitude regarding palliative care among patients' cancer.

Table (4): displays that there was highly statistically significant relation between total practice, total attitude and total knowledge regarding palliative care among patients with cancer $P \leq 0.05$.

Table (5): reveals that there was positive correlation between total knowledge and attitude of nurses regarding palliative care among patients with cancer. As well as, there was positive correlation between total knowledge and practice of nurses regarding palliative care among patients with cancer.

Table (1): Frequency and percentage distribution of demographic characteristics among studied nurses. n=35

Demographic characteristics	N	%
Age		
20 < 25 years	4	11.4
26 < 30 years	2	5.7
31 < 40 years	16	45.7
< 40 years	13	37.1
Mean ± SD	37.05 ± 7.54	
Gender		
Male	6	17.1
Female	29	82.9
Work position		
Head nurse	11	31.4
Charge nurse	14	40.0
Staff nurse	10	28.6
Level of education		
Secondary Nursing school	12	34.3
Technical Institute	15	42.9
Bachelor of Nursing	8	22.9
Postgraduate	0	0
Number of experience years		
< five years	6	17.1
5 – 10 years	4	11.4
> ten years	25	71.4
Mean ± SD	10.74 ± 3.86	
Courses		
Yes	0	0
No	35	100.0

Table (2): Number, percentage and mean scores distribution of subtotal knowledge dimensions regarding to palliative care among patients with cancer n=35

Items	Knowledge				Score max = 1	
	Satisfactory		Unsatisfactory		Mean	Std. Deviation
	N	%	N	%		
Basic knowledge about palliative care	23	65.7	12	34.3	0.79	0.17
Nurse knowledge regarding care of the physical symptoms of patient with cancer	2	5.7	33	94.3	0.69	0.11
Nurse's knowledge regarding care of psychological symptoms for patients with cancer (depression, anxiety)	5	14.3	30	85.7	0.64	0.23
Nurses' knowledge regarding spiritual and social support of patients with cancer and families through palliative care	5	14.3	30	85.7	0.70	0.16

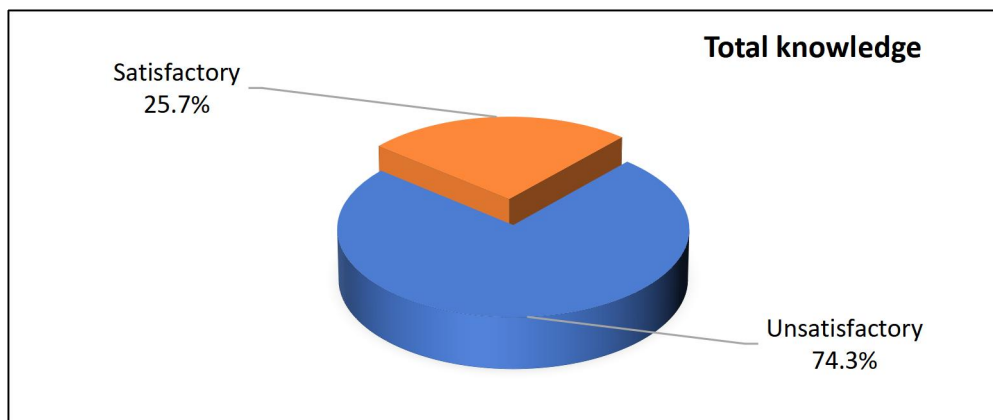


Figure (1): Percentage distribution of total nurses' knowledge regarding palliative care among cancer patients.

Table (3): Frequency and percentage distribution of subtotal nurses' practices dimensions regarding palliative care among patients with cancer. n=35

Items	Satisfactory		Unsatisfactory		Score max= 1	
	N	%	N	%	Mean	Std. Deviation
Total nursing management for acute/chronic Pain	3	8.6	32	91.4	0.37	0.24
Total nursing management for dyspnea and Abnormal breathing.	1	2.9	34	97.1	0.47	0.24
Total management of fatigue	1	2.9	34	97.1	0.39	0.25
Total Impaired oral mucous membrane(mucositis)	8	22.9	27	77.1	0.52	0.22
Total nursing management for imbalanced nutrition	2	5.7	33	94.3	0.42	0.27
Total nursing management of deficient fluid volume.	0	0	35	100	0.34	0.15
Blood transfusion	4	11.4	31	88.6	0.67	0.24
Total nursing management of psychological symptoms (grieving, fear ineffective coping, ineffective denial)	1	2.9	34	97.1	0.43	0.27
Spiritual care	3	8.6	32	91.4	0.41	0.32
Total mean practice	2	6	33	94		

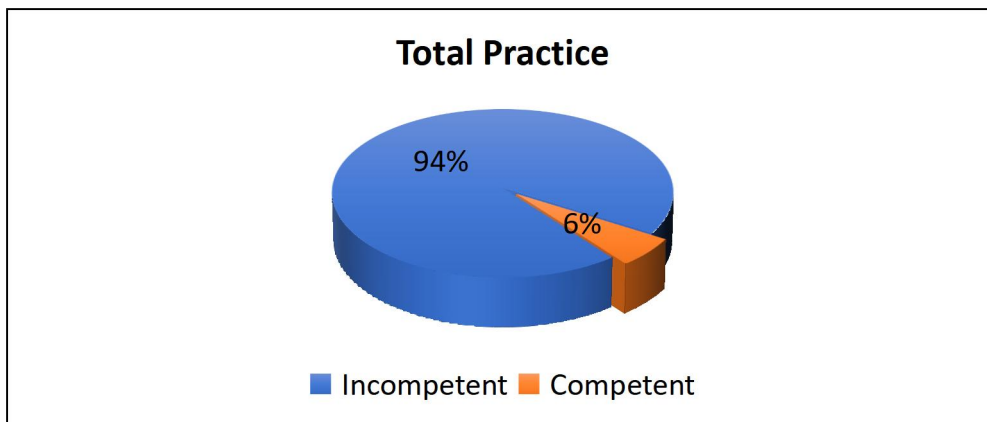


Figure (2): Percentage distribution of total nurses' practices regarding palliative care among patients with cancer.

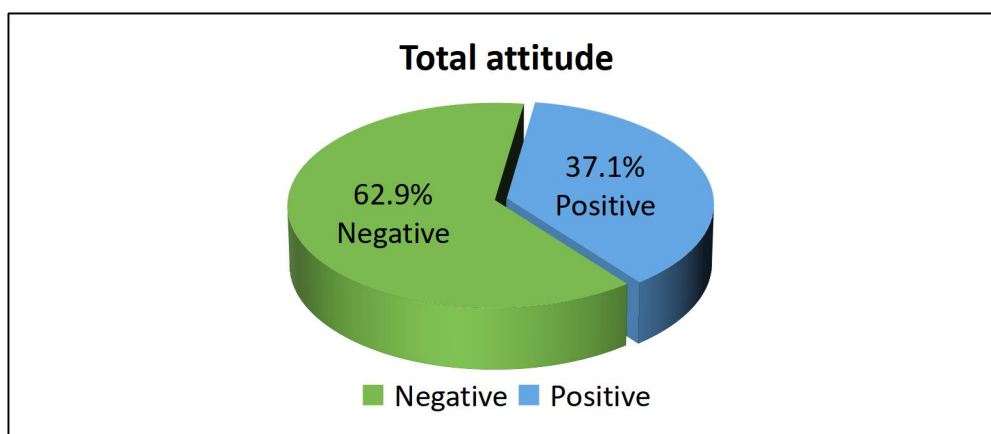


Figure (3): Percentage distribution of total nurses' attitude regarding palliative care among patients with cancer.

Table (4): Statistically relation between total knowledge, total practice and total attitude regarding palliative care among patients with cancer.

Items	Total knowledge				χ^2	P value
	Unsatisfactory		Satisfactory			
	N	%	N	%		
	Total practice					
Unsatisfactory	26	100	7	77.8	6.12	0.01*
Satisfactory	0	0	2	22.2		
	Total attitude					
Negative	20	76.9	2	22.2	8.56	0.003*
Positive	6	23.1	7	77.8		

Table (5): Correlation between total knowledge, total practice and total attitude regarding palliative care among patients with cancer.

Item		Total knowledge	Total attitude
Total knowledge	R		
	P value		
Total attitude	R	0.49**	
	P value	0.003*	
Total practice	R	0.41**	0.32
	P value	0.01	0.06

Discussion:

Palliative care its core tenets involve the relief of suffering and provision of comfort to maintain patient quality of life for as long as life would remain. Nursing roles in palliative care delivery include developing plans of care and support for patients and families, they are hence pivotal in the delivery of palliative care. Nurses are the most valuable palliative care team members who address the physical, psychological, social, and spiritual dimensions of care (Menekli et al., 2021 and Eleke et al., 2020)

Demographic characteristics of the studied nurses (table 1).

According to the demographic characteristics of studied nurses' (table 1) the result revealed that, the mean age of studied subjects was 37.05 ± 7.54 , and less than half of them their age was ranged from 31 years to 40 years, this finding is consistent with Paknejadi et al., (2019) in study entitled "Nurses' Knowledge of Palliative Care and Its Related Factors" who found that, the majority of participants their age ranged from 30- 40 years.

In relation to gender, the current study showed that, the majority of the nurses in the studied subjects were females. This finding might be due to nursing profession in Egypt at the past was limited to females only, but recently become for both genders.

This finding is agree with Eleke et al., (2020). in study entitled "Knowledge of palliative care among professional nurses in

south east Nigeria: A needs assessment for continuing education Chinemerem" who found that, majority of Studied subjects were females.

As regard to work position, the current study revealed that, more than one third of the studied nurses were a charge nurse. This result might be related to shortage of gradated nurses and lack of interest to engagement of new nursing staff to oncology unit. this finding disagreed with Paknejadi et al., (2019) who found that, the majority of the participant there in position of staff nurse.

Concerning to educational level, results of the current study revealed that, more than one third of studied were graduated from technical nursing institute, and about one third of them had secondary nursing school. This finding could be due to the highly qualified nurses usually involved in administrative work. this finding goes at the same line with Hassan et al., (2016) in study entitled by " Knowledge and practices of critical care nurses regarding palliative care of patients with cancer and suggestion for nursing guidelines booklet" Who stated that, more than one third of studied subject were had a technical degree in nursing.

Regarding years of experience, the current study revealed that, about three quarters of studied nurses had more than 10 years of experience this result could be due to the nurses don't continue for a long period of time in the oncology unit due to increasing workload and responsibilities on the nurses ,this finding is disagreed with Farmani et al., (2019) his research title "Dataset on the nurses' knowledge, attitude

and practice towards palliative care” who reported that, half of study subjects had less than 5 years of experience.

Concerning to training course, the current study revealed that, no one of studied nurses had attended any training courses regarding palliative care. This might be due to limited attention to nurses’ continuing education or training programs especially about palliative care. As well limited time to attend courses or due to lack of awareness about effect of training courses and how they improve the performance of the nurses that affect quality of care.

This result supported by **Ibrahim et al., (2017)** in study entitled “Impact of Palliative Care Program on Nurse's Knowledge and practice Regarding care of Patients with End-Stage Renal Disease” Who found that, the majority of the studied sample didn't receive a training program about palliative care. Based on the researcher point of view, all nursing staff in oncology center should be enrolled in training sessions to improve their performance.

Part II: Nurses knowledge regarding palliative care among patient with cancer (table 2).

Q1: What is the nurses' level of knowledge regarding palliative care among patients with cancer?

Concerning to nurses’ knowledge regarding general concept of palliative care the current study had revealed that, near to two thirds of studied nurses had satisfactory level of knowledge regarding basic information about responsibility for providing palliative care, and majority of them had a correct response of knowledge regarding definition of palliative care and benefits of palliative care.

This finding supported by **Sorifa & Mosph, (2015)** who has a study about "Knowledge and Practice of Staff Nurses on Palliative Care" who found that, more than

half of studied nurses had satisfactory level toward knowledge regarding the definition, philosophy and potential beneficiaries of palliative care.

Concerning nurse’s knowledge regarding physical symptoms the current study reveals that, majority of the studied nurses had unsatisfactory knowledge regarding care of the physical symptoms among patient with cancer. This finding in agree with **Paknejadi et al., (2019)** who reported that, majority of nurses had poor knowledge toward Palliative care regarding management of pain and other physical symptoms.

Also this result supported by **Pasaol, (2019)** in study entitled “Assessment of Knowledge, Attitude, Practice and Barriers toward Palliative Care among Pediatric Oncology Health Care Providers in Southern Philippines” who show that, more than half of the oncology nurses had insufficient knowledge toward physical symptoms in palliative care to the oncology patients.

Concerning nurse’s knowledge regarding psychological symptoms the current study illustrates that, majority of studied nurses had insufficient knowledge regarding palliative care for psychological symptoms. This finding might be due to the studied nurses had tasks limit and inadequate communication between nurses and physicians about patients’ psychological states.

This finding disagrees with **Kassa et al.,2014)** in their research about “Assessment of knowledge, attitude and practice and associated factors towards palliative care among nurses working in selected hospitals, Addis Ababa, Ethiopia “who found that, about three quarters of studied nurses had good knowledge toward psychological aspect of care.

Concerning Nurses’ knowledge regarding spiritual and social support of patients with cancer and families through palliative care

the current study demonstrates that, majority of studied nurses had unsatisfactory level of knowledge toward spiritual and social support of the patients with cancer by mean score 0.70 ± 0.16 . This result might be due to inadequate communication between nurses and patients with cancer. and misunderstanding of multi challenges faced patients with cancer and their families.

This finding is supported by **Hassan et al., (2016)** who reported that, about three quarters of studied nurses had unsatisfactory knowledge scores about spiritual issues.

Concerning to total nurses' knowledge level regarding palliative care (figure 1) the finding of current study reveals that about three quarters of studied nurses had unsatisfactory knowledge scores regarding total items of palliative care. This could be due to, these nurses have not been trained on palliative care, limited attention to nurses' continuing education, nurses' staff was not familiar with the concept of "palliative care". Our results reinforce the findings of these works; **Farmani et al., (2019)**, **Kassa et al., (2014)**, and **Hassan et al., (2016)**, All of them also reported that, the majority of studied nurses had limited total score of knowledge toward palliative care. This result answers the first question asking about nurses' level of knowledge regarding palliative care among patients with cancer.

Part III: Nurses practices regarding palliative care among patients with cancer (table 3).

Q2: What is the nurses' level of practice regarding palliative care among patients with cancer?

Concerning to nurses' practice toward management of pain the current study revealed that, majority of the studied nurses had unsatisfactory level of practice regarding management of pain. Nurses didn't assessment of pain correctly and three quarter of them just Administer analgesics

as order without use any nonpharmacological method to relive pain or use cutaneous stimulation, such as heat and cold packs toward patients with cancer.

this finding is against with **Farmani et al., (2019)** who found that, there are more than two third of studied subjects had satisfactory level of practice regarding assessment and management of pain. from the investigator point of view, patients with cancer cannot describe their pain level correctly. So, the nurses did not depend on the scales that evaluate pain level.

Concerning the nurses' practice toward management of dyspnea the current study revealed that, majority of the studied nurses obtained the unsatisfactory level of practices regarding management of dyspnea among patients with cancer. nurses didn't provide assessment of dyspnea correctly and didn't evaluation and documentation during dyspnea attack. moreover, there was a lack of consideration to non-pharmacological aspects of caring for breathlessness such as use of relaxation techniques, this result may due to lack of training and unavailability of procedure books.

These findings are contradicted with **Morsy et al., (2014)** in study entitled "Nurses' Knowledge and Practices about Palliative Care among Cancer Patient in a University Hospital - Egypt" who found that, most of studied nurses had obtained the highest practices score regarding practice management of dyspnea. The majority of nurses assessed the respiration (rate, rhythm, depth), presence cough, and nurses provided oxygen therapy as doctor order.

As regard nurses' practice toward fatigue the current study revealed that, majority of the studied nurses had unsatisfactory level of practice regarding management of fatigue among patients with cancer. most of nurses didn't assessment of fatigue or Schedule daily activities and encourage patient for exercise to relive fatigue

this finding may be due to workload and nurses didn't have enough time to complete patient assessment or management, practice depends on their ability to diagnose the symptoms and assess the needs of the patient. This finding is in agreement with **Morsy et al., (2014)** who found that, most of studied subjects had insufficient level of practice regarding fatigue management.

Regarding nurses' practice for management mucositis the current study revealed that, more than three quarters of studied nurses had unsatisfactory level of Practice regarding management of mucositis among patients with cancer, and our result showed 82% of studied nurses did not assess oral status periodically and 62% of them didn't provide brushing with soft toothbrush for patients. Also, all of them didn't document patient responses and use alternative treatments. this result might be because this aspect is frequent and common problem in cancer therefore, nurses were supposing the patient able to dealing with this symptom.

This findings agreed with **Abu Sharour, (2019)** which their research about "A cross-sectional study on oncology nurses' knowledge and practice of oral mucositis among patients with cancer in Jordan" who found that, more than two thirds of studied sample had unsatisfactory level of practice regarding nursing care for oral mucositis, and his results showed 70% of studied nurses did not assess oral status by right method.

Considering nurses' practice toward imbalanced nutrition the current study illustrated that, majority of studied nurses had insufficient level of practice regarding management of imbalanced nutrition, nurses carried out incomplete nutritional assessment through monitoring only daily food intake and they neglected the other aspects of nutritional assessment such as obtaining full dietary history, anthropometric measurement, identification of and performing physical

assessment to for detecting manifestations of malnutrition in proper diet and incomplete health education about nutrition intake.

This finding are accordance with **Bibi et al., (2020)** in study entitled "Oncology nurses' knowledge, attitude and practices towards palliative care in tertiary care hospitals of Lahore, Pakistan" who reported that, The most of studied subjects not provide palliative care practices toward imbalanced nutritional.

Concerning the nurses' practice toward management of deficient fluid volume as vomiting, chronic diarrhea the current study revealed that, the hundred percent of studied nurses had unsatisfactory level regarding management of deficient fluid Volume toward patients with cancer. nurses didn't assessment vomiting, diarrhea amount, criteria, color, odor, and frequency & contributing factor or observe for bleeding tendencies or document intake & output for patients as it is. this finding could be due to lack of awareness and resources that provide to nurses about importance of deficient hydration for patients with cancer.

This finding was in line with **Bibi et al., (2020)** who reported that, there are majority of studied nurses had insufficient level of Palliative care practices toward gastrointestinal symptoms these were not standardized as the participants did not exhibit accurate nursing procedures.

Regarding nurses' practice toward blood transfusion the current study revealed that, there are more than three quarter of studied nurses had unsatisfactory level regarding blood transfusion procedure among patients with cancer. This finding disagrees with **Hijji et al., (2010)** In research study about "Nurses' practice of blood transfusion in the United Arab Emirates: an observational study" who concluded that, about a three quarter of studied nurses had unsatisfactory level of practice regarding blood transfusion.

The current study revealed that, majority of the studied nurses had unsatisfactory level of practice regarding management of psychological symptoms as grieving, ineffective coping, ineffective denial, and fear support for patient with cancer.

This may be due to lack of communication of nurses with patients' and marginalization of psychological states for patients with cancer. This result incongruent with **Sorifa & Mosph, (2015)** who found that, nearly half of studied subjects had satisfactory level regarding psychological aspect among palliative care.

As regard to nurses' practice regarding spiritual care among patients with cancer the current study revealed that, majority of studied nurses had unsatisfactory level of practice regarding spiritual care among patients with cancer. this result could be due to nurses not follow patient around the day, there need to deal with patients more time to provide quality of palliative care.

This result supported by **Farmani et al., (2019)** who found that, there are nearly half of studied nurses had low score of regarding addressing spiritual problem regarding to palliative care. these results incongruent with **Sorifa & Mosph, (2015)** who found that, more than a three quarter of studied sample had satisfactory level of practice regarding psychological aspect among palliative care.

Concerning to total nurses' practice level regarding palliative care (figure 2) the finding of this study clarified that, most of the studied nurses had unsatisfactory level of total practice regarding of palliative care. This could be due to, the nurses perform only the professional activities such as taking vital signs, giving treatment, but they didn't perform patient full assessment for annoying symptoms, nurse's dependent on junior doctor to perform assessment and follow up

of symptoms have a lack of clinical skills to palliative care. Furthermore, lack of facilities like, unavailability of guideline books, procedure book about dimensions of care, palliative care to patient with cancer, lack of job description, unavailability of online books, lack of interest of nurses to attend workshops, seminars and conferences, all these factors contributed to the unsatisfactory practice level of nurses regarding palliative care among patients with cancer. this result answers the second question asking about nurses' level of practice regarding palliative care among patients with cancer.

This result of current study in consistent with previous studies an regard to practice level. Our finding aligned with **Wang-Qin & Hong-Lin, (2018)** and **Pasaol, (2019)** who found that, more than three quarters of the participants had inappropriate practice towards palliative care.

But this result is opposite to **Farmani et al., (2019)** and **Sorifa & Mosph, (2015)** who reported that, About three quarters of studied subjects had high total score regarding practice regarding to palliative care.

Part IV: Nurses attitudes regarding palliative care among patient with cancer (figure3)

Q3: What is the nurses' level of attitude regarding palliative care among patients with cancer?

Regarding to nurses' level of attitude, the current study revealed that, less than two third of studied nurses had negative attitude toward palliative care among patients with cancer. About two thirds of the studied nurses had strongly agree for statements "Medical personnel find it more satisfaction to work with patients who are expected to improve than with patients who are likely to die".

This finding could be attributed to; the nurses are inconspicuous the concept of Palliative care they are under the misapprehension that the patients have sufficient skill & attitude to deal with cancer symptoms. This result answers the third question asking about nurses' level of attitude regarding palliative care among patients with cancer.

This finding agreed with **Wang-Qin & Hong-Lin, (2018)** stated in study about "Nurse Staffs' Knowledge, Attitudes, and Practices toward Palliative Care in China: a Cross-Sectional Survey" who showed that the attitude of majority of participated nurses about Palliative care were their attitude not positive enough. This finding disagreed with **Bibi et al., (2020)** who found that more than three quarters of the study subjects had positive attitude towards palliative care.

Part VI: Relation between total nurses' knowledge, total practice and total attitude regarding palliative care among patients with cancer (table 4).

Regarding relation between total level of knowledge, total level of practice and total level of attitude among studied nurses regarding palliative care, the current study revealed that, there was highly statistically significant relation between total level of knowledge, total level of practice, it means that nurses knowledge increases with the increase of practice. Furthermore, total level of attitude and total level of knowledge regarding palliative care among studied nurses.

This result in the same line with **Abu Sharour, (2019)** who found that there was statistically significantly positive relation between level of knowledge of studied nurses and level of performance.

However, This finding against with **Morsy et al., (2014) and Hassan et al., (2016)** who found that, there no statistically

significant relation between total nurses' knowledge scores and total nurses' practice scores.

Part VII: correlations between nurses' knowledge, practice and attitude (table 5).

Regarding correlation between total level of nurse's knowledge and total level of nurses' attitude, and practice. the current study showed that, there was positive correlation between total level of knowledge and total level of attitude regarding studied nurses toward palliative care among patients with cancer. As well as, there was positive correlation between total level of nurses' knowledge and total level of nurses' practice regarding palliative care among patients with cancer.

This finding agree with **Sorifa & Mosph, (2015)** who concluded that, there was high positive correlation between knowledge and practice among studied nurses their knowledge increases with the increase in practice. But this finding incongruent with **Ibrahim et al., (2017)** who reported that there was no statistical significant correlation between total level of knowledge and total level of practice among studied nurses.

Conclusion:

Based on the findings of present study, it can be concluded that, more than three quarters of studied nurses had unsatisfactory level of knowledge toward palliative and most of them had unsatisfactory level of practice, and near to two thirds of them had negative attitude towards palliative among patients with cancer.

There was statistically significant relation between total knowledge and their age and level of education. There was highly statistically significant relation between total practice, total attitude and total knowledge regarding palliative care among cancer patients and there was positive correlation

between total knowledge and attitude of nurses regarding palliative care among cancer patients. As well as, there was positive correlation between total knowledge and practice of nurses regarding palliative care among cancer patients.

Recommendations:

On the light of current study, the following recommendations are suggested:

- Continues in-service training programs should be designed and carried out to oncology nurses to promote the knowledge, attitude, and practice about palliative care for the cancer patients based on nurse's needs. Of study findings
- The integration of palliative care for all patient who suffer of threatening illnesses in education curriculums of student nurses.
- Standard nursing procedure booklet should be available at oncology ward, to Support nurses with simple, detailed, clear Arabic booklet include all needed information about palliative care, cancer care.
- Increase number of nurses at oncology unit to be able to fulfillment needs of patients and improving quality of care.
- Repeat this study on large sample size and in various settings for generalization of study findings.
- Research should be implemented on evidence base of practices and methods of palliative care.

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