Assessment of Nurses' Knowledge and Practices in Delivering Palliative Care for Oncology Patients

Nada Salim Hussein[1], Magda Ahmed Mohamed[2] & Rasha Ali Ahmed Abd Elmawla[3]
[1.] Assistant Lecture of Medical Surgical Nursing, Faculty of Nursing, Aswan University, Egypt
[2.] Professor of Medical Surgical Nursing, Faculty of Nursing, Assiut University, Egypt
[3.] Assistant Professor of Medical Surgical Nursing, Faculty of Nursing, Assiut University, Egypt

Abstract:
Background: Palliative care is a cornerstone of comprehensive oncology management, requiring a multidimensional approach to manage physical, psychological, social, and spiritual needs. The level of nurses' knowledge and practice concerning palliative care significantly influences on effectiveness of care provided to patients. **Aim:** To identify nurses' knowledge and practices in delivering palliative care for oncology patients. **Design:** Descriptive research design. **Sample**: A selected sample of (120) accessible nurses. **Setting:** The study was performed in Aswan Oncology Institute, Egypt. **Tools: Tool I: A** structured interview questionnaire for nurses to evaluate nurses' knowledge concerned to palliative care and divided into two parts, **part 1:** Demographic characteristics of the studied nurses and **part 2:** A questionnaire designed to evaluate nurses' knowledge of palliative care: **Tool II:** Nurses' observational checklist to evaluate nurses' practices concerned to palliative care and divided into two parts: part 1, nurses' practices regarding common physical symptoms of cancer**;** part 2, nurses' practices concerning psychological symptoms of cancer; and part 3, nurses' practices concerning spiritual symptoms of cancer. **Results:** The analysis of the study concluded that 51.8% of the participating nurses demonstrated an unsatisfactory level of knowledge, while 39.3% exhibited an incompetent level of practice. **Conclusion:** The study identified an unsatisfactory level of knowledge and practice related to palliative care among the participating nurses. Additionally, a positive correlation was observed between the nurses' overall knowledge and their practical performance. **Recommendation:** Provide regular continuing education programs to improve nurses' performance concerning to palliative care.

Keywords: Knowledge, Nurses, Oncology patients, Palliative care & Practice.

Introduction:

Cancer is regarded as a major public cause of mortality, accounting for roughly 10 million fatalities in 2020 **(WHO, 2022).** Furthermore, according to global demographic data, the number of cancer cases is expected to rise over time, reaching approximately 420 million cases by 2025 **(WHO, 2022).**

Due to the ongoing global rise in the occurrence of cancer continues, there is urgent demand for palliative care (**Barasa et al., 2021).** Palliative care is a cornerstone of comprehensive oncology management, focusing on alleviating suffering and enhancing the well-being of cancer patients and their families **(Berg et al., 2021).**

Nurses have a key function in this multidisciplinary strategy, addressing physical symptoms, psychological challenges, and social and spiritual needs. As cancer remains a major contributor to illnes and death worldwide, the demand for effective palliative care continues to grow. However, the effectiveness of care provided is often dependent on the knowledge and practices of the nursing staff, underscoring the need for targeted assessments and training **(Abouelela et al., 2022).**

Knowledge about palliative care principles is critical for nurses to provide high-quality care. Studies have shown that deficiencies in knowledge can lead to inadequate symptom control, reduced patient satisfaction, and caregiver distress. Assessing nurses' knowledge serves as a foundation for identifying educational needs and improving their competency in palliative care delivery **(Jung & Matthews, 2021).**

Beyond knowledge, the practical application of palliative care principles is vital. Nurses must integrate theoretical knowledge into everyday clinical settings, managing complex cases with compassion and skill, and implement multidisciplinary care plans to respond to the dynamic needs of oncology patients. Identifying gaps in practice helps institutions develop targeted interventions and protocols to enhance care delivery **(Lin et al., 2021).**

Nurses face several challenges in delivering optimal palliative care, including time constraints, emotional burnout, lack of resources, and insufficient training opportunities. Understanding these challenges is crucial to developing strategies that address systemic issues, support nurses' well-being, and ensure

sustainable improvements in care quality **(Alshammari et al., 2022).**

Significance of the Study

Globally, every year approximately 56.8 million individuals need palliative care, with 31.1 million requiring it earlier in their illness and 25.7 million requiring it in the final stages of life. Of all people who need palliative care, 67.1% of the population are over 50, while at least 7% are juveniles. **(Connor, 2020).**

Previous studies found that nurses help patients and their families in managing sickness side effects of therapy throughout the care they deliver. This necessitates nurses to possess both knowledge and competency in a thoughtful and compassionate manner. So, this study performed to determine nurses' knowledge and practices concerned to palliative care of oncology patients. **(Radwan et al., 2022).**

Aim of the study

This study carried out to measure nurses' knowledge and practices in delivering palliative care for oncology patients.

Research questions

To accomplish the study's objective, the following research questions were developed:

1. What is the level of nurses' knowledge in delivering palliative care for cancer patients**?**
2. What is the level of nurses' practices in delivering palliative care for cancer patients**?**

Patients and Method

Research design:

A descriptive research design was used.

Setting:

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

Sample:

A selected sample of 120 accessible nurses of both genders who are working in Aswan Oncology Institute.

Study tools: Two data collected tools were being developed and implemented by the researcher.

First tool: A structured interview questionnaire for nurses:

This questionnaire was performed to measure nurses' degree of knowledge on palliative care of oncology patients. It was adopted by the researcher relied on recent and relevant literature (**Mohamed et al., 2023; Ahmed et al., 2020; Perry et al., 2020; Wilson et al., 2016**); it was filled by the nurses and consisted of two portions:

Part (1): Demographic characteristics of the studied nurses consisted of six items about: age, sex, job degree, degree of education, years of work

experience, and participation in training programs about palliative care.

Part (2): A questionnaire designed to evaluate nurses' knowledge of palliative care: This assessment focuses on nurses' understanding of palliative care for oncology patients and included four section:

Section (1): Includes 10 questions focusing on the philosophy and principles of palliative care.

Section (2): Addresses nurses' knowledge of managing common physical symptoms in cancer patients, comprising 13 questions on pain management, 9 questions on managing dyspnea, and 10 questions related to the management of gastrointestinal issues.

Section (3): Consists of 14 questions evaluating nurses' knowledge in handling common psychological symptoms.

Section (4): Contains 9 questions that assess nurses' understanding of providing spiritual, social, and family support to cancer patients.

Scoring system: Concerning to the nurse's knowledge score method, it consisted of 65 items. For a yes response, a score of (2) is assigned; for a no response, a score of (1); and for a don't know response, a score of (0).

The total scores were added up and transformed into a percentage: the total nurses' knowledge was considered satisfactory if the percent score was 70% or more and unsatisfactory if less than 70%.

Second tool: Nurses' observational checklists regarding palliative care:

It was utilized to evaluate nurses' proficiency concerning to palliative care among oncology patients. This instrument was adjusted from **Harris et al. (2014), Basal and Younis (2017), and Perry et al. (2020)** and modified by the researcher to conduct the study.

This tool was consisting of three parts involving the practice of palliative care for oncology patients as follows:

Part (1): Nurses practice regarding controlling common physical symptoms which included:

1. Nursing assessment and management for acute/chronic pain (15 item).
2. Nursing assessment and management for dyspnea (21 item).
3. Nursing assessment and management for imbalanced nutrition (nausea, vomiting, diarrhea, cachexia) (24 item).
4. Nursing assessment and management for oral mucosal membrane (17 item).
5. Nursing assessment and management for diarrhea (19 item).
6. Nursing assessment and management for skin care (bed sores) (17 item).

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

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

Scoring system: It consisted of 147 items, with each correctly performed item receiving a score of 1, while items not performed were scored 0. These scores were converted into a percentage. Practice was deemed adequate if the percentage was 70% or higher of the total practice score and inadequate if it was below 70%.

Administrative design

The Dean of the Faculty of Nursing at Aswan University and the directors of Aswan Oncology Institute gave their approval. The researcher secured permission for data collection and provided a clear explanation of the study's goal and nature, ensuring its implementation with minimal resistance.

Ethical considerations

The Ethical Committee of the Assiut University Faculty of Nursing gave its approval No (1120230648) to conduct the research proposal ensuring the protection of participants' rights and well-being throughout the study. The study posed no risks to participants and strictly followed ethical guidelines for clinical research. After being briefed about the nature and objective of the study, nurses gave their verbal permission for voluntarily agreed to participate in the research. All collected data was coded and securely stored, with personal identifiers removed. Participants' privacy and dignity were upheld at all times.

Operational design
Validity and reliability of tools

The validity of tools was assessed by panel of five experts from the faculty of nursing (a jury of five experts' opinions). Those experts evaluated the tool for relevance, clarity, comprehensiveness, understanding, and applicability. All received modifications from the experts in the tools were done. The reliability of the formulated tools was evaluated by Cronbach's alpha test: the first tool, the knowledge tool's Cronbach's alpha, was 0.85, and the second tool, the Cronbach's alpha of the practice instrument, was 0.92.

Pilot study

A pilot study was carried out on 10% (12) nurses to assess the practicality of the study. According to the pilot study, the necessary adjustments were applied. Those nurses were involved in the main study.

Fieldwork

• The study was conducted within a designated period of two months from the early of November 2023 to the late of December 2023 through the following.

• The researcher worked two morning shifts from 9:00 am to 2:00 pm and one afternoon shift from 5:00 pm to 9:00 pm per the week. In order to get the nurses' approval and involvement in the study, the researcher began by introducing herself and getting their oral consent.

• The researcher examined four to five nurses on average each day, and each of the 120 participating nurses received individual information regarding the study's goals and design.

• Each nurse participated in a structured interview to complete a questionnaire designed to evaluate their knowledge (Tool I) regarding palliative care for oncology patients, which lasted approximately 20 to 30 minutes.

• Also, each nurse was evaluated by the researcher to determine their practices concerning to palliative care of oncology patients **(Tool II),** which lasted approximately 30-45 minutes.

Statistical analysis

The obtained data was arranged and interpreted using SPSS version 20. Descriptive statistics were applied. with quantitative variables demonstrated as mean and standard deviation (X±SD) and qualitative variables demonstrated as numbers and percentages (No & %). To compare qualitative variables, the Chi-square (X^2) test and F (p-value) test were used, while the t-test and T (p-value) were employed for quantitative variables. A p-value of less than 0.05 was considered statistically significant.

Limitations of the study

• Lack of cooperation of some nursing staff.

• The drop-out of some nurses due to maternity leave, which affected their participation.

Results

Table (1): Percentage distribution of demographic characteristics among the nurses in the study (n=112)

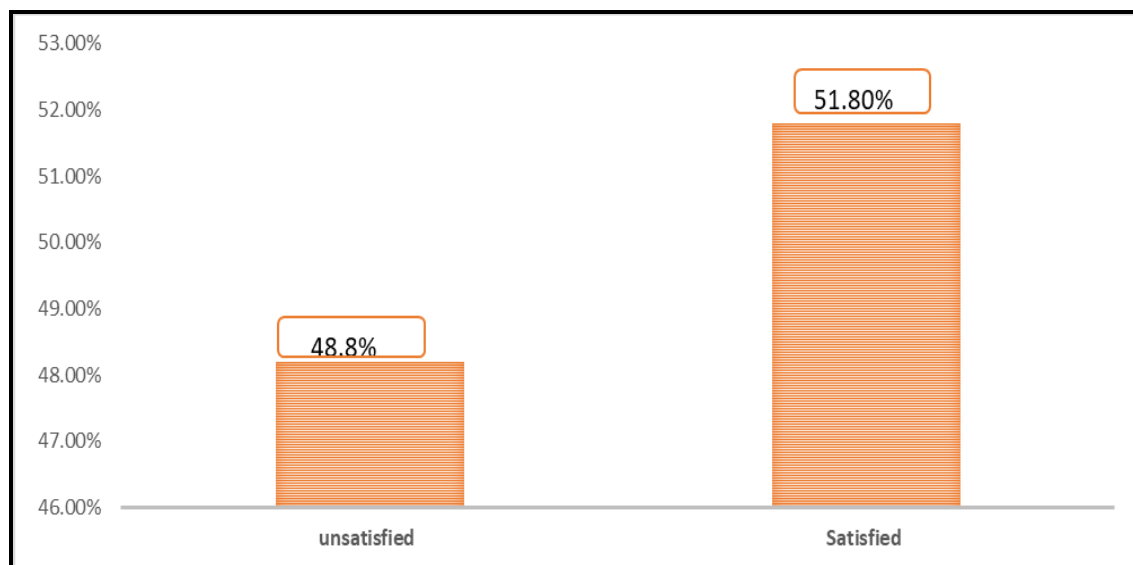| Variables	N	%
Age		
< 30 years	17	15.2
≥30 <40yrs	67	59.8
≥40yrs and more	28	25.0
Gender		
Male	27	24.1
Female	85	75.9
Marital status		
Single	41	36.6
Married	58	51.8
Divorced	7	6.3
Widow	6	5.4
Level of education		
Secondary Nursing school	22	19.6
Technical Institute	66	58.9
Bachelor of Nursing	19	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
No	105	93.7

Figure (1): Nurses' overall level of knowledge concerning to palliative care (n=112).
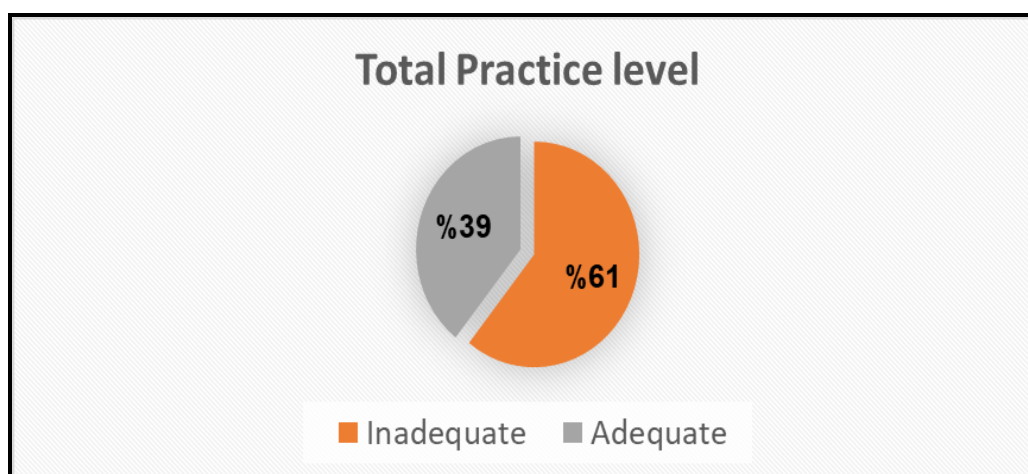
Figure (2): Distribution of nurse's practices regarding palliative care (n=112).

Table (2): Relationship between knowledge and the demographic data (n=112)

Variables	Unsatisfied		Satisfied		P. value
	N	%	N	%	
Age					
< 30 years	0	0.00	17	15.2	0.001*
≥30 - 40yrs	26	23.2	41	36.6	
40yrs and more	28	25.0	0	0.00	
Gender					
Male	0	0.00	27	24.1	0.001*
Female	54	48.2	31	27.7	
Level of education					
Secondary Nursing school	0	0.00	22	19.6	
Technical Institute	30	26.8	36	32.1	
Bachelor of Nursing	19	17.0	0	0.00	
Postgraduate	5	4.5	0	0.00	0.001*
< five years	0	0.00	15	13.4	
5 – 10 years	0	0.00	28	25.0	
Ten years	54	48.2	15	13.4	
Attendance of training courses about palliative care					
No	47	42.0	58	51.8	0.017*
Yes	7	6.2	0	0.00	

Table (3): Relationship between nurses' practice and their demographic features (n=112).

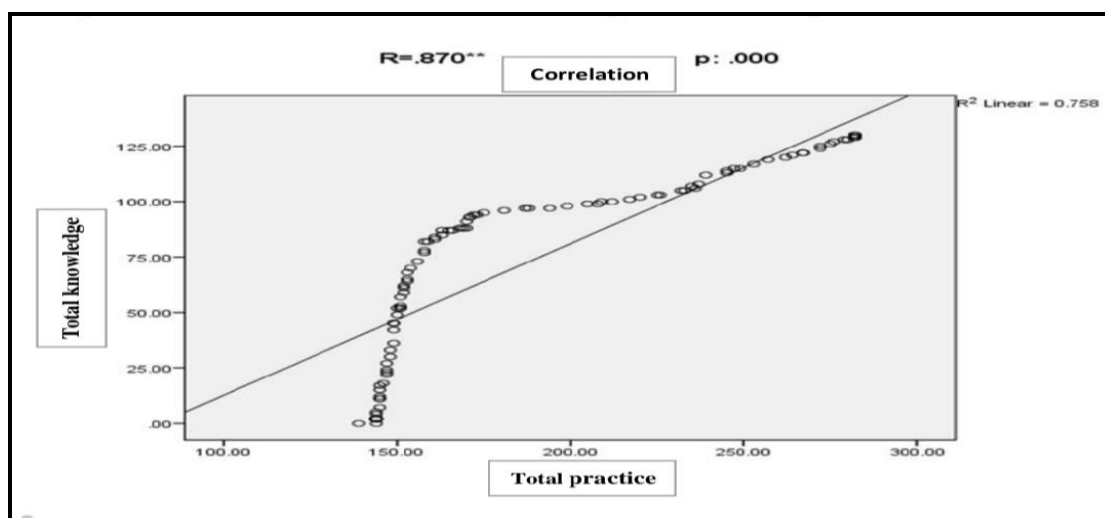| Variables	N	Mean	Std. Deviation	F (p.value)
Level of Education				
Secondary Nursing school	22	280.7273	2.78058	
Technical Institute	66	191.4848	40.25123	75.131
Bachelor of Nursing	19	145.7368	1.59311	P=.000
Postgraduate	5	143.0000	2.23607	
Attaining training				
No	105	202.8095	53.93374	2.908
Yes	7	143.2857	1.88982	P=.004
Years of experience				
< five years	15	282.0000	.00000	478.389
5 – 10 years	28	252.6429	20.55924	
Ten years	69	159.3333	17.94900	P=.000

Figure (3): Correlation between knowledge of nurses and their practice (n=112)

Table (1): Illustrates that greater than half of the nurses involved in the study (59%) belonged to the age category of ≥30-<40 years. The greater portion of participants were married women (75.9% and 51.8%), and their educational level was limited to Technical Institute (58.5%); most nurses (61.6%) had 10 years of experience. Furthermore, the greater proportion of the nurses participating in the study (93.7%) had never taken any previous professional education skills development related to palliative care for oncology patients.

Figure (1): Illustrates that greater than half of the nurses involved in the study demonstrated a satisfactory level of knowledge (51.8%).

Figure (2): Illustrates that the greater proportion of the nurses included in the study had an inadequate degree of their overall practice level (61%).

Table (2): The analysis clarifies a statistically significant variation between overall knowledge of nurses involved in the study and their ages in years, gender, level of education, and attaining training courses about palliative care for cancer patients. While the nurses were 30-40 years old, female, had a technical level of education, and did not attain training courses, they had a satisfactory level.

Table (3): A statistically significant variation was observed between the studied nurses' overall practice in providing palliative care to patients with cancer and their years of experience. The nurse with technical nursing education and higher experience time had an adequate level.

Figure (3): Demonstrates a positive correlation between the nurses' involved in the study and overall knowledge and their overall level of practical skills.

Discussion
Evaluating nurses' proficiency in providing palliative care for cancer patients is crucial to preserving high-standard, patient-centered care, help in identifying areas where nurses excel, and highlight gaps requiring further education or training. Regular assessment of knowledge and practice not only ensures adherence to evidence-based practices but also enhances nurses' confidence and competence in delivering comprehensive palliative care **(Parajuli et al., 2021).**

The present analysis highlighted a largest proportion of oncology nurses were ranged in age from 30 to 40 years. From the researcher's perspective is this age range the researcher opinion that indicates this age range may reflect a period of professional maturity where nurses have moved beyond entry-level roles and are more likely to engage in specialized care such as oncology and palliative care. This stage of career development often aligns with greater confidence in clinical decision-making, increased responsibility, and a deeper understanding of patient-centered approaches.

This finding aligns with **Lee (2020),** who highlighted the importance of age distribution in workforce planning and healthcare delivery. However, **Udayar et al. (2024)** reported contrasting results, stating that the majority of oncology nurses are over 50 years old, with only 10% within the 30 to 40 age range.

Concerning to the gender, the present analysis found that the largest portion of oncology nurses were females. Regarding the researcher's opinion that nursing in Egypt was predominantly a female profession, although it has become more inclusive of both genders in recent years.

This result is confirmed by **Albargawi et al. (2022),** who noted the impact of female dominance in

oncology nursing on leadership opportunities and workplace dynamics. On the contrary, **Park et al. (2024)** suggested that oncology nursing is male-dominated, although this study faced credibility issues due to potential sampling biases.

Concerning the marital status, the present analysis demonstrated that greater than half were married. The researcher point of view, his reflects the diverse personal circumstances of individuals within the nursing profession. Being married may influence nurses' perspectives on empathy, communication, and emotional resilience, which are essential in palliative care. Additionally, marital status can affect job satisfaction and work-life balance, potentially impacting levels of stress, availability for shift work, and overall professional performance. A study by **Challinor et al. (2020)** similarly emphasized the role of marital status in shaping healthcare professionals' mental well-being.

However, **Hwang & Yu (2021)** found that most oncology nurses were single, with only one fifth being married.

Regarding to the educational level, the finding of the present study concluded that greater than half of the nurses were graduates of technical institutes, with the majority having greater than 10 years of experience but lacking formal training in palliative care. Regarding the researcher's opinion, his educational diversity fosters a team with varied practical skills and experiential knowledge. However, the absence of specialized training in palliative care underscores the need for structured educational programs to ensure evidence-based, holistic care. Bridging the gap between experience and formal education is essential to optimize patient outcomes in oncology settings.

A study by **Martins Pereira et al. (2021)** highlighted that technical education can provide specialized training relevant to oncology care. However, according to **Paiva et al. (2021)**, the majority of oncology nurses hold doctorates in nursing. However, a sizable portion of oncology nurses are recent graduates with less than two years of experience, according to **Asefa et al. (2021).**

The present study illustrated that around half of the studied nurses were satisfied with their degree of knowledge about palliative care of oncology patients. According to a study by **Sayed et al. (2021)**, continuous courses is very essential because cancer is considered the primary reason of death worldwide.

A contradictory finding reported in an investigation carried out by **Etafa et al. (2020)** conducted that there is a dearth of knowledge among nurses about the care of oncology patients.

Based on the scores of nurse's practices, the present investigation demonstrated that approximately two-thirds of the nurses had insufficient practice scores related to palliative patient care, as indicated by the researcher this may be attributed to the lack of previous exposure to structured training or educational programs specifically focused on palliative care. Additionally, nearly half of the nurses had completed their education at technical nursing institutes, which typically do not include comprehensive coursework in palliative care within their curricula. This highlights a critical gap in both pre-service education and ongoing professional development, emphasizing the urgent need for targeted training to enhance nursing competencies in this field.

The current results are in alignment with **Kassa et al. (2024),** who stated that the degree of practice performance in palliative care for oncology patients was generally poor. highlighted a strong This result is consistent with a study by which reported that the level of practice in palliative care for oncology patients was generally poor.

The present study identified a notable disparity in the nurses' overall knowledge based on their ages in years, gender, level of education and participation in training courses on palliative care for cancers patients. Additionally, from the researcher's perspective, the higher levels of knowledge observed among certain groups—particularly younger nurses—may be attributed to their greater openness to learning and adaptability to new concepts. Younger nurses may also be more recently exposed to updated curricula and evidence-based practices, which can enhance their theoretical understanding and willingness to engage in continuous professional development.

Supporting our result is a study done by **Bahr et al. (2020)** was conducted on all nurses working in the oncology department, which revealed a statistically significant correlation between nurses' experience by years and the knowledge scores of nurses.

In addition, the finding was agreed upon with the study carried out by **Msosa et al. (2021),** who showed that a statistically significant association between nurses' age and their overall knowledge scores.

The current study revealed that there is a notable variation in the overall practice scores of nurses depending on their years of experience, especially concerning their practices related to palliative care for oncology patients and their level of experience. The researcher point of view that more experienced nurses may demonstrate stronger practical skills due to prolonged exposure to patient care scenarios, while less experienced nurses might require additional guidance and hands-on training to meet palliative care standards effectively.

However, **Ahmed et al. (2020)** explored nurses' experiences and perceptions of palliative care training

interventions and provided rich insights into the factors contributing to significant improvements in practice.

Supporting our result is a study done by **Guerrero et al. (2022),** who found that nurses with higher levels of education and more years of experience tend to demonstrate better performance. Also, a study by **McCloskey et al. (2020)** reported that older nurses with extensive experience often bring a wealth of knowledge, skills, and emotional intelligence to their patient interactions.

The findings of this study contradict those of **Howard & Embree (2020),** who indicated that nurses holding baccalaureate degrees exhibit a higher level of performance compared to those with secondary school degrees. The current results are in alignment with **Craig et al. (2021),** who highlighted a strong and statistically significant relationship between age and practice of nurses. On the other hand, this result is constructed with **Amberson et al. (2020),** who identified a statistically significant relation between the age of nurses and their practice performance scores."

However, the findings by **Tawalbeh (2020)** do not show a significant role in influencing of the overall practice of nurses regarding demographic characteristics as qualifications of nurses.

Regarding the relation of years of experience in the medical department and total practice, the current study reported that there was a highly statistically significant correlation between years of experience and the total score of practice. The researcher found this finding indicates that as nurses' experience in the medical field increases, their practical performance in delivering palliative care for oncology patients tends to improve. This correlation underscores the value of clinical exposure in enhancing hands-on skills, decision-making abilities, and the overall quality of patient care.

The current results are agreed with **Gallagher, Ford et al. (2020),** who clarified a positive relation coefficient among practice scores and experience in years. But this study contrasted with a study by **Blanié et al. (2020),** who reported the practice mean scores of nurses (pre- and post-test) did not significantly correlate with their demographic attributes, such as experience by years.

The current study found that the overall practice scores and the total knowledge scores had a highly statistically significant positive linear association. From the researcher's point of view, this strong correlation may be attributed to the direct impact of the educational program, which effectively enhanced both the knowledge and practical competencies of the participants. These findings suggest that improving nurses' theoretical understanding through targeted

education can lead to measurable improvements in their clinical practice, particularly in the context of palliative care for oncology patients.

The present study concluded that there was a highly statistically positive linear correlation between the total practice scores and total knowledge scores. **Papagiannis et al. (2020),** who identified a statistically significant positive link between nurses' practice and their knowledge score, support this finding. In contrast to this study, **Doğru & Aydın (2020)** who noted no statistically significant relationship between nurses' overall knowledge and their entire practice.

Conclusion

The study found more than half of the nurses demonstrated a satisfactory level of knowledge (51.8%), and a significant portion (61%) exhibited inadequate total practice levels. A substantial correlation between nurses' knowledge and variables like age, gender, educational attainment, and training attendance was found by statistical analysis, with females aged 30-<40 years and those with technical education showing higher knowledge levels. Similarly, years of experience were significantly associated with better practice levels, with more experienced nurses demonstrating adequacy. Additionally, there was a positive correlation between nurses' total knowledge and their practical performance.

Recommendations

1. Incorporate a standardized palliative care training program for nurses within healthcare institutions, to be completed annually. This program should be accredited by a national nursing council and include both theoretical and hands-on clinical components. Institutions should allocate protected time during work hours for nurses to attend these trainings, and completion should be linked to performance appraisals and career advancement.

2. Incorporate palliative care education as a mandatory component of nursing programs, with a focus on both theoretical and practical aspects to prepare nurses for real-world challenges.

3. Provide accessible continuing education programs, such as online courses and certification programs, to keep nurses updated on the latest evidence-based practices in palliative care.

4. Foster collaboration between nurses, physicians, and other healthcare professionals can enhance the excellence of palliative care through shared knowledge and teamwork.

5. Provide resources such as counseling and peer support groups to help nurses manage the emotional challenges of palliative care, reducing

burnout and enhancing their capacity to deliver compassionate care.

6. Conduct periodic evaluations of nurses' knowledge and practices to pinpoint areas for improvement and design targeted training programs to effectively address those specific needs.

Reference

Abouelela, M., Khalil, S., & Magbool, F. (2022): Effectiveness of Video-discharge Instructions about Colostomy Self-care on Awareness and Self-efficacy of Low-Literacy Patients. Assiut Scientific Nursing Journal, Vol. 10, No. (30), Pp. 86–94.

Ahmed, N., Ahmed, G., & Khalil, S. (2020): Effect of Nursing Protocol on Nurses' Performance and Venous Thromboembolism Risks Among the Patients with Cancer Undergoing Surgery. Assiut Scientific Nursing Journal, Vol. 8, No. (22), Pp. 22–35.

Ahmed, S., Ghanem, H., Hassan, A., & Khalil, S. (2020): Assessment of Nurses' Knowledge and Practice for Patients Undergoing a Bronchoscopy [Suggested Nursing Care Guidelines]. Assiut Scientific Nursing Journal, Vol. 8, No. (20), Pp. 85–93. https://doi.org/10.21608/asnj.2020.80500.

Albargawi, M., Albaz, N., Alyousif, S., & Alzahem, A. (2022): International trends of nursing career path: A systematic review. Saudi Journal for Health Sciences, Vol. 11, No. (1), Pp. 1–9.

Alshammari, F., Sim, J., Lapkin, S., & Stephens, M. (2022): Registered nurses' knowledge, attitudes and beliefs about end-of-life care in non-specialist palliative care settings: A mixed studies review. Nurse Education in Practice, Vol. 59, No. (11), Pp. 103–294.

Amberson, T., Perry, D., & Nash, L. (2020): The relationship between age and nursing practice in oncology departments. Oncology Nursing Forum, Vol. 47, No. (1), Pp. 33–41.

Asefa, A., Mekonen, T., & Eshetu, G. (2021): Educational background and experience levels among oncology nurses in Ethiopia. Ethiopian Journal of Health Sciences, Vol. 31, No. (3), Pp. 167–174.

Bahr, H., Mousa, M., & Elghazaly, H. (2020): Relationship between nurses' knowledge and their duration of experience in oncology departments. Journal of Cancer Nursing, Vol. 15, No. (4), Pp. 204–212.

Barasa, L., Shah, J., Weru, J., & Ali, S. (2021): Assessment of Palliative Care Needs in a Kenyan Intensive Care Unit Using a Trigger-Based Model. Journal of Pain and Symptom Management, Vol. 62, No. (2), Pp. 260–266. https://doi.org/10.1016/j.jpainsymman.2020.12.016.

Basal, A., & Younis, G. (2017): Critical Care Nurses' Knowledge, Practice, Obstacles and Helpful Measures Towards Palliative Care for Critically Ill Patients. American Journal of Nursing Science, Vol. 6, No. (4), Pp. 293–303. https://doi.org/10.11648/j.ajns.20170604.13.

Berg, M., Ngune, I., Schofield, P., Grech, L., Juraskova, I., Strasser, M., & Halkett, G. (2021): Effectiveness of online communication skills training for cancer and palliative care health professionals: A systematic review. Psycho-Oncology, Vol. 30, No. 9, Pp. 1405–1419.

Blanié, A., Tran, N., & Rollin, S. (2020): Lack of correlation between demographic characteristics and oncology nursing practice scores. Nursing Research and Practice, Vol. 2, No. 1, Pp. 1–9.

Challinor, J. Alquwez, N., & Balekian, D. (2020): Marital status and its impact on job satisfaction among healthcare professionals. Healthcare Management Review, Vol. 45, No. 3, Pp. 255–265.

Connor, S. R. (2020): Global Atlas of Palliative Care at the End of Life (2nd ed.). London: Worldwide Palliative Care Alliance, Pp. 445–480.

Craig, C., Hart, P., & McMahon, T. (2021): Age as a determinant of nursing practice in oncology settings. Journal of Nursing Management, Vol. 29, No. 3, Pp. 321–329.

Doğru, A., & Aydın, S. (2020): Exploring the relationship between knowledge and practice among oncology nurses. International Journal of Nursing Studies, Vol. 102, No. 22, Pp. 103493.

Etafa, W., Mengistu, M., & Bedilu, A. (2020): Knowledge gaps among oncology nurses in Ethiopia: Challenges in cancer care. Ethiopian Journal of Health Sciences, Vol. 30, No. 2, Pp. 145–154.

Gallagher, L., Cantrell, D., & Schultz, J. (2020): Relationship between years of experience and nursing practice. Journal of Advanced Nursing, Vol. 76, No. 8, Pp. 1907–1915.

Guerrero, C., Lopez, M., & Santos, R. (2022): Education and experience as predictors of oncology nursing performance. European Journal of Oncology Nursing, Vol. 56, Pp. 102064.

Harris, M., O'Reardon, C., & Gaude, J. (2014): Nursing care for patients at end of life in the adult intensive care unit. Journal of Nursing Education and Practice, Vol. 4, No. 6, Pp. 84–89.

Howard, S., & Embree, J. (2020): Education and performance: The role of degree level in oncology nursing. Journal of Nursing Education, Vol. 59, No. 5, Pp. 245–251.

Hwang, J., & Yu, S. (2021): Trends in marital status among oncology nurses: Implications for workforce planning. Asia-Pacific Journal of Oncology Nursing, Vol. 8, No. 3, Pp. 223–230.

Jung, M., & Matthews, A. (2021): Understanding nurses' experiences and perceptions of end-of-life care for cancer patients in Korea: A scoping review. Journal of Palliative Care, Vol. 36, No. 4, Pp. 255–264.

Kassa, H., Mekonnen, M., & Yohannes, T. (2024): Improving oncology nursing practice through training programs: A longitudinal study. Journal of Palliative Nursing Practice, Vol. 12, No. 1, Pp. 45–56.

Lee, T. (2020): Career trajectories of oncology nurses: Factors influencing retention and satisfaction. Journal of Career Development in Nursing, Vol. 20, No. 1, Pp. 12–23.

Lin, H., Chen, C., Lu, C., Lin, S., & Huang, C. (2021): Nurses' knowledge, attitude, and competence regarding palliative and end-of-life care: A path analysis. Peer J, Vol. 9, No. 1, Pp. e118–164.

Martins, S., Carvalho, A., & Casanova, J. (2021): Technical education and its relevance in oncology nursing. Journal of Advanced Nursing Education, Vol. 15, No. 2, Pp. 98–107.

McCloskey, R., Abel, C., & Evans, J. (2020): The contributions of experienced nurses to oncology care. Journal of Geriatric Oncology Nursing, Vol. 46, No. 3, Pp. 156–163.

Mohamed Ahmed, M., Mohamed, M., Mahran, G., & Mohamed, S. (2023): Palliative care challenges for COVID-19 patients among critical care nurses. Assiut Scientific Nursing Journal, Vol. 11, No. 36, Pp. 208–221. https://doi.org/10.21608/asnj.2023.202784.1551

Msosa, A., Banda, P., & Simwaka, C. (2021): The relationship between age and knowledge among oncology nurses. Journal of African Nursing, Vol. 7, No. 2, Pp. 56–67.

Paiva, D., Santos, R., & Costa, P. (2021): Educational attainment and professional profiles in oncology nursing. European Journal of Oncology Nursing, Vol. 28, No. 3, Pp. 87–94.

Papagiannis, D., Antoniou, C., & Marinos, P. (2020): Correlation between nurses' knowledge and practice in oncology units. Journal of Cancer Nursing Research, Vol. 24, No. 4, Pp. 225–233.

Parajuli, J., Hupcey, J. E., Kitko, L., & Birriel, B. (2021): Palliative care: Oncology nurses' confidence in provision to patients with cancer. Clinical Journal of Oncology Nursing, Vol. 25, No. 4, Pp. 77–90.

Park, H., Kim, J., & Lee, M. (2024): Gender trends in oncology nursing: A shift towards male dominance. Global Perspectives in Nursing, Vol. 13, No. 2, Pp. 65–72.

Perry, L., Hoerger, M., Malhotra, S., Gerhart, J. I., Mohile, S., & Duberstein, P. (2020): Development and validation of the Palliative Care Attitudes Scale (PCAS-9): A measure of patient attitudes toward palliative care. Journal of Pain and Symptom Management, Vol. 59, No. 2, Pp. 293–301.e8. https://doi.org/10.1016/j.jpainsymman.2019.09.008

Radwan, S., El-Khedr, S., & Abd El-Rahman, A. (2022): Effect of educational program on nurses' competency regarding providing palliative care for children with advanced stage of cancer. Tanta Scientific Nursing Journal, Vol. 24, No. 1, Pp. 10–45.

Sayed, A., Hassan, R., & Zaki, S. (2021): Continuous training in oncology nursing: Addressing the burden of cancer. Middle East Journal of Nursing Research, Vol. 20, No. 2, Pp. 33–41.

Tawalbeh, W. (2020): The relationship between demographic factors and nursing practices in palliative care. Journal of Palliative Care Research, Vol. (22), No. (2), Pp. 56–67

Udayar, R., Sharma, D., & Singh, M. (2024): Age demographics in oncology nursing: Implications for workforce sustainability. Indian Journal of Nursing Research, Vol. 6, No. 1, Pp. 23–32.

Wilson, O., Avalos, G., & Dowling, M. (2016): Knowledge of palliative care and attitudes towards nursing the dying patient. British Journal of Nursing, Vol. 25, No. 11, Pp. 600–605.

World Health Organization/International Agency for Research on Cancer. (2020): Egypt fact sheet. Retrieved from https://gco.iarc.fr/today/data/factsheets/populations/818-egypt-fact-sheets.pdf