American Journal of Nursing Science
2023; 12(4): 69-79
http://www.sciencepublishinggroup.com/j/ajns
doi: 10.11648/j.ajns.20231204.11
ISSN: 2328-5745 (Print); ISSN: 2328-5753 (Online)

Confidence and Educational Needs of Palliative Care in Oncology Nurses Caring for Patients with Advanced Cancer in a Teaching Hospital: A Cross-Sectional Study

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To cite this article:

Nada Hamad Almutairi, Rana Abdullah Alsubhi, Lama Hikmat Ghurab, Shahad Atyan Almalki, Dhuha Youssef Wazqar. Confidence and Educational Needs of Palliative Care in Oncology Nurses Caring for Patients with Advanced Cancer in a Teaching Hospital: A Cross-Sectional Study. *American Journal of Nursing Science*. Vol. 12, No. 4, 2023, pp. 69-79. doi: 10.11648/j.ajns.20231204.11

Received: May 17, 2023; **Accepted**: July 28, 2023; **Published**: August 4, 2023

Abstract: *Background*: Palliative care can improve terminally ill patients' quality of life. Despite the rising interest in palliative care for patients with cancer, the palliative care skills, and levels of confidence of oncology nurses who care for those patients have rarely been studied in developing countries, such as Saudi Arabia. *Aim:* To assess the confidence and educational needs of palliative care in oncology nurses who are caring for patients with advanced cancer in a teaching hospital in Jeddah, Saudi Arabia. *Method:* A quantitative, descriptive cross-sectional design was carried out on 108 oncology nurses who were working in oncology, medical, and daycare units in a teaching hospital. Palliative Care Self-Efficacy Scale and socio-demographic survey were used to collect data. Data were analyzed using IBM SPSS version 25.0. *Results:* The results showed that the confidence level of palliative care is moderate (M=30.36, SD=2.53). Nurses were less confident and needed education in discussing patients' wishes after death. There were significant differences in the levels of confidence in palliative care according to marital status, country, and period of working in oncology units or with cancer patients (p<.005). *Conclusion and Recommendations:* The current study contributes to the empirical literature on oncology and palliative care nursing in Saudi Arabia and sheds light on the impotence of palliative care educational programs. Adequate guidance should be available to support the establishment of effective palliative care education programs to improve the level of confidence and cover the educational needs of oncology nurses.

Keywords: Confidence, Cross-Sectional, Educational Needs, Palliative Care, Patients with Advanced Cancer, Saudi Arabia

1. Background

Nurses are an essential resource for providing safe and effective care to the world's population. When patients and families are dealing with serious illness, nurses spend more time with them than any other healthcare workers [1]. According to the WHO [2], palliative care is an important component of integrated, person-centered healthcare and a global ethical responsibility to alleviate serious health-related suffering whether physically, emotional, sociological, or spiritual. Nurses have a critical role in providing various components of palliative care to patients with cancer [3]. Cancer patients constitute a unique group requiring palliative nursing care, which is delivered in many ways and covered diverse stages of disease to increase the quality of care (QOL) of those patients [4]. As the need for palliative care becomes more obvious, a death statistics analysis in Wales and England (2006-2014) revealed that by 2040, 160,000 additional individuals each year will require cancer palliative care if the present mortality trend continues [5]. Furthermore, the global burden of cancer in low-income countries and chronic diseases among the elderly would rapidly rise [6]. Therefore, strengthened, and improved palliative nursing care especially for patients with cancer is essential [7].

One of the significant aspects affects the service of palliative care is nurses' attitudes, knowledge, and skills

which infer not only what nurse knows but also what they can do during the evaluation and treatment of patients [8]. Researchers mentioned that nurses working in oncology units have higher levels of knowledge in palliative care than nurses working in the other wards [9]. Other researchers found that oncology nurses had negative attitudes toward death and low levels of confidence during caring for terminally ill cancer patients that affected the standard of care [10]. Lack of confidence, knowledge, and skills of the healthcare professionals in providing cancer palliative care is perceived as barriers and difficulties to meeting the needs of patients and their families [11]. In addition, continuous education is fundamental for nurses to increase their palliative care confidence and knowledge [12]. Therefore, educational needs and confidence of palliative care should be examined to create cancer palliative care education programs based on evidence in countries.

In Saudi Arabia, cancer is a public health problem that needs more attention. The urgent need of oncology healthcare professionals, particularly oncology nurses, is one of the most significant obstacles to providing effective cancer and palliative care [13]. In light of oncology nursing shortages, lack of palliative care centers and training, and increased patients with advanced cancer, cancer palliative care education programs is critical for oncology nurses. Therefore, to develop such programs and trainings, we should assess the educational needs and confidence of palliative care in nurses providing care for patients with advanced cancer. The necessity of palliative care education and services in Saudi hospitals should be addressed [13]. However, despite the rising attention in palliative care for patients with cancer, the skills and levels of confidence of oncology nurses who are caring for those patients have occasionally been studied in developing countries, such as Saudi Arabia.

2. Literature Review

Cancer palliative care is a usefully maintained care modality for the early detection, treatment, and prevention of diseases that impact patients with cancer and their family caregivers [2]. Its aims are to maintain well-being, increase QOL, decrease distress and support self-respect for this population who are in conditions or diseases that takes them near to death [2]. The lack of confidence among oncology nurses in providing palliative care lowers the QOL for patients with advanced cancer [6]. There may be many factors which may negatively influence the confidence level associated with cancer palliative care in oncology nurses, such as, inadequate education, poor pain management and assessment knowledge, poor of communication skills, language barriers, and work experience [6, 8, 9]. In addition, oncology nurses had high levels of educational needs regarding cancer palliative care [6, 11]. Nevertheless, insufficient knowledge about the level of confidence of oncology nurses and educational needs in applying all palliative care domains [11].

In a study, oncology nurses reported limited knowledge, lack of confidence, and problems in providing palliative care, especially with regard to managing psychological symptoms [10]. In another survey, oncology healthcare providers, including nurses, indicated not feeling confident in providing palliative care, demanding to improve symptoms management skills, particularly cancer pain [6]. Significant results were noted in palliative care educational needs of oncology nurses in a cross-sectional study; 50% had inadequate spiritual education and 75% of those had inadequate pain management education [3]. Additionally, another study showed the significance of education for the practice of palliative care, mainly when prepared according to the demands of the oncology nurses themselves [4, 11].

Earlier research indicated that education is critical for increasing oncology nurses' confidence in palliative care [6, 12, 13]. The Vital Palliative Care of European Certificates are home-study courses that have significantly improved the levels of confidence (end of life care, symptoms assessment and management, and involving spiritual methods in a clinical setting) [12]. Researcher indicated that to deliver effective cancer palliative care for patients and their family caregivers, a combined and continuous palliative care education program must be established according to the palliative care confidence and educational needs of the staff.

3. Study Purpose and Research Questions

This study aim was to assess the confidence and educational needs of palliative care in oncology nurses who are caring for patients with advanced cancer in a teaching hospital in Jeddah, Saudi Arabia. Research questions were: 1) What is the confidence level of palliative care among oncology nurses caring for patients with advanced cancer in the King Abdulaziz University Hospital, Saudi Arabia?, 2) What are the educational needs of palliative care among oncology nurses caring for patients with advanced cancer in the King Abdulaziz University Hospital, Saudi Arabia?, and 3) Are there any significant differences in the levels of confidence and educational needs of palliative care among oncology nurses caring for patients with advanced cancer based on their demographic and work characteristics?

4. Methods

4.1. Study Design

A descriptive, cross-sectional quantitative design was used in this study. Descriptive study means to observe and document aspects of a situation and describe phenomenon or variables without attempting to infer causal connections [14]. A cross-sectional design is the collection of data for describing the phenomena at one point in a fixed time [14]. Therefore, this design is suitable to collect data through a questionnaire assessing oncology nurses' confidence levels and education needs regarding cancer palliative care.

4.2. Setting

The study was conducted out at King Abdulaziz University

Hospital (KAUH). Oncology nurses working in oncology, medical, chemotherapy daycare units were invited to participate in this study. The KAUH is provided tertiary care with a capacity reached more than 1000 beds; it has more than 100 critical care beds, 23 operating rooms. It has also many departments including oncology inpatient and outpatient clinics. This hospital has been accredited by CBAHI for three years starting from 27 November 2019 and ending on 26 November 2022. Also, it has accreditation from Canada [15].

4.3. Study Sample and Sample Size

A Convenient sampling method was used to recruit participants. The participants were included based on the following criteria: a) working in adult oncology or medical or daycare units, b) having at least one year of oncology nursing experience, c) speaking and writing English fluently, and d) agreeing to participate. The exclusion criteria were as the following: a) nurses working with non-cancer patients, b) nurses on sick or maternity leaves, and c) nursing working in administrative positions.

The sample size was calculated based on Raosoft software with 95% confidence level, 5% margin of error, and 50% response distribution. The responsible personal was contacted to get the accurate number of oncology nurses working in oncology and medical units at KAUH. A total sample of 108 participants was estimated to be required in this study.

4.4. Instruments

Data were collected from the questionnaire, which included oncology nurse demographic and work characteristics (gender, age, marital status, nationality, educational levels, experience of cancer care, oncology units, received cancer palliative care education [No or Yes], and previously cared for patients with advanced cancer [No or Yes]) developed by investigators and from the Self- reporting Palliative Care Self-Efficacy Scale [16]. The palliative care confidence scale was developed to assess the level of confidence and educational needs of palliative care. It contains 12 items on four points Likert scale and four subscales: (1): if they need further basic instruction, (2): if had the confidence to perform with close supervision/coaching, (3): if had the confidence to perform with a consultation, and (4): if had the confidence to perform independently [16]. The highest score is 48 and the lowest score 12. Higher scores were considered as higher level of confidence. The Palliative Care Self-efficacy subscales' Cronbach's alphas were from 0.87 to 0.92 [16]. The Palliative care Self-efficacy Scale's Cronbach alpha was 0.83 in this study. This scale revealed good reliability and validity. The internal consistency of measurement instruments, as well as the interrater reliability of instrument scores, are all evaluated using reliability estimates. Validity refers to the degree to which a test's interpretations are justified, and it is determined by the test's intended application [24]. Reliability and validity have different aspects but are approximately related. A scale can be reliable without prevailing valid. However, if a scale is valid, it is usually also reliable. Reliability indicates how a method always measures something. If the same result can be attained by obtaining the same methods for the same event, the scale is examined as reliable. Validity describes how accurately a method measures what it is aimed to measure. If research has high validity, that means it generates outcomes that correspond to real properties, characteristics, and variations in soliciting information. High reliability is one pointer that the scale is valid. If a method is not reliable, it assumable isn't valid [25].

4.5. Data Collection Procedures

Data were collected from March 9 to 23, 2022. With the cooperation of head nurses and team leaders, researchers visited the oncology and medical units and explained the study purpose and method to oncology nurses. Participants who gave their oral consent to participate then filled out the study questionnaires on paper after their shifts or during their break time. The researchers revisited the units on daily basis to collect the completed questionnaires from participants. Submission of a complete questionnaire to the researchers means agree to participate (implied consent).

4.6. Ethical Considerations

Ethical approvals from the Nursing College and KAUH were obtained before the data collection process. The researchers approached participants after receiving official approval from the nursing director at the chosen hospital. Before asking eligible participants to participate in the study, all study information was presented to them. The participants' rights were respected and protected without harm, and the confidentiality of the acquired data and anonymity were guaranteed to them. A letter of information was also attached to the study questionnaire. All participants were told that they can leave the study at any time.

4.7. Data Analysis

The data were analyzed using IBM SPSS version 26.0 for Windows [17], with the general significance level set at $p < .05$. To describe the participants' characteristics and main study variables (confidence levels and educational needs of palliative care), descriptive statistical analysis [means, standard deviations (SD), percent, and frequencies] were performed. Analysis of variance (ANOVA) and independent sample t-tests were used to test for differences in the main study variables by participant socio-demographic characteristics and Pearson correlation to measures the correlation between age and the levels of confidence of palliative care. In addition, to assess the reliability of the instrument in this study; Cronbach's alpha was conducted.

5. Results

A total of 108 oncology nurses were included in this study (Table 1). The average participant age was 31 (SD = 7.517) years old [ranging from 21 to 62 years old], and more than half (82.4%) were female, single (51.9%), and Saudi (61.1%). The

majority of the participants (66.70%) held a Bachelor of Nursing degree. About 54% had less than 5 years of working experience in oncology units or with cancer patients. Forty-seven percent of the participants attended palliative care courses or training for cancer patients. Most participants were working in medical or oncology units, and only 20.4% were working in the chemotherapy daycare unit.

Table 1. *Demographic and Work Characteristics of the Participants (N = 108).*

Variables	Categories		Frequencies	Percent
Gender	Male		19	17.60%
	Female		89	82.40%
Marital status	Single		56	51.90%
	Married		49	45.40%
	Divorced/ widow		3	2.80%
Country	Saudi Arabia		66	61.10%
	Philippines		6	5.60%
	India		34	31.50%
	Lebanon		1	0.90%
	Jordon		1	0.90%
Nursing educational level	Nursing Diploma		26	24.10%
	Bachelor of Nursing		72	66.70%
	Master's degree in nursing		6	5.60%
	PhD Degree in Nursing		4	3.70%
Period of Working on oncology unit or with cancer patient	No		19	17.60%
	Less than 5 years		58	53.70%
	From 6 -10 years		19	17.60%
	From 11- 15 years		6	5.60%
	more than 16 years		6	5.60%
Courses attending	Yes		51	47.20%
	No		57	52.80%
Oncology unit	Medical		61	56.50%
	Surgical		13	12.00%
	Palliative and Radiation		12	11.10%
	Daycare/Chemotherapy area		22	20.40%
Age	Mean	Standard deviation	Minimum	Maximum
	31.08	7.517	21	62

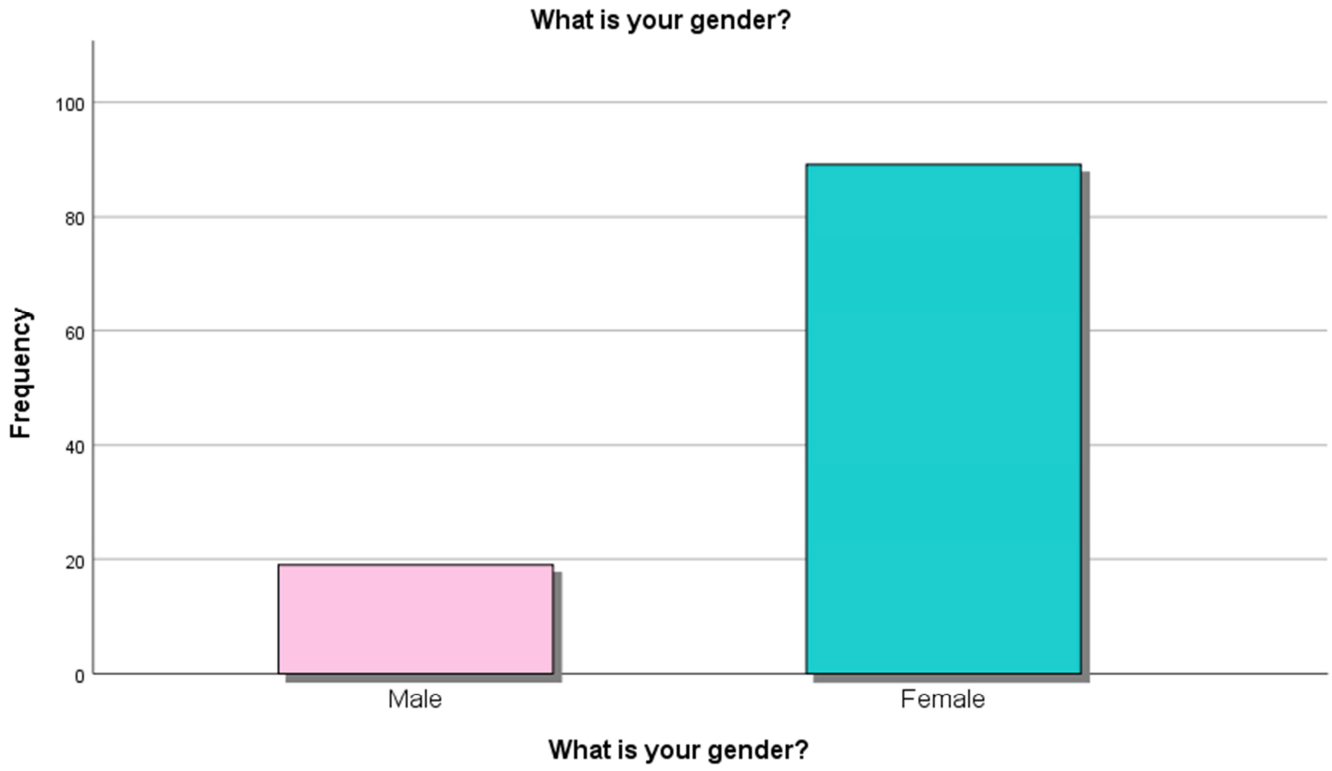

Figure 1. *The frequency between male and female genders.*

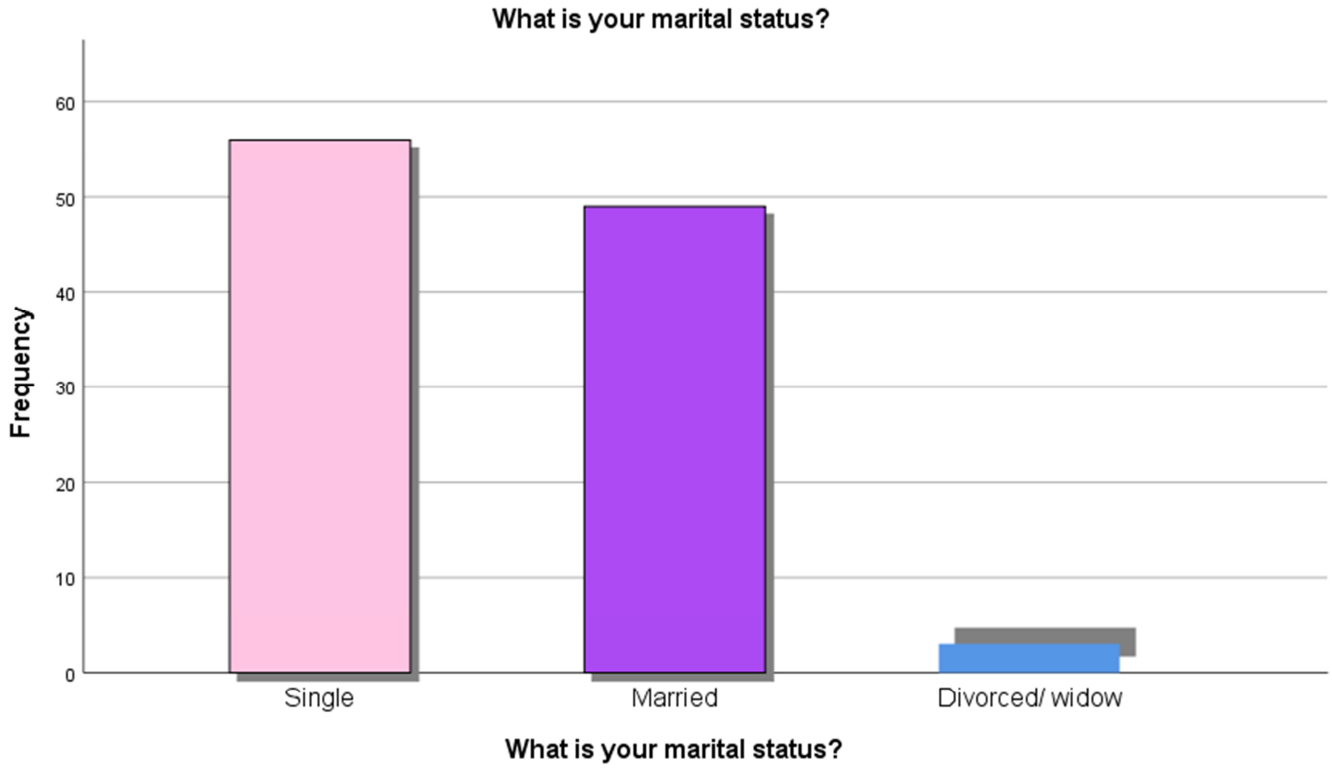

Figure 2. *The frequency between marital status.*

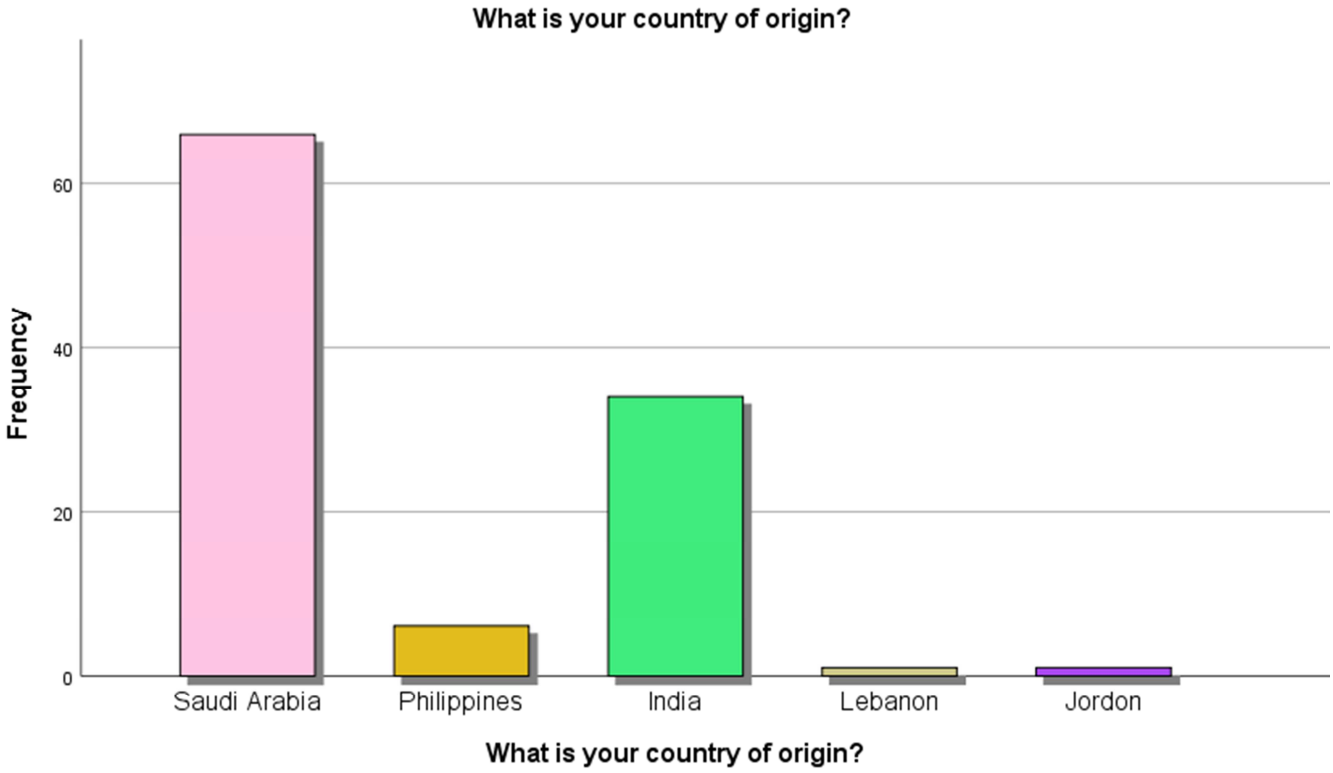

Figure 3. *The frequency between the country of origin.*

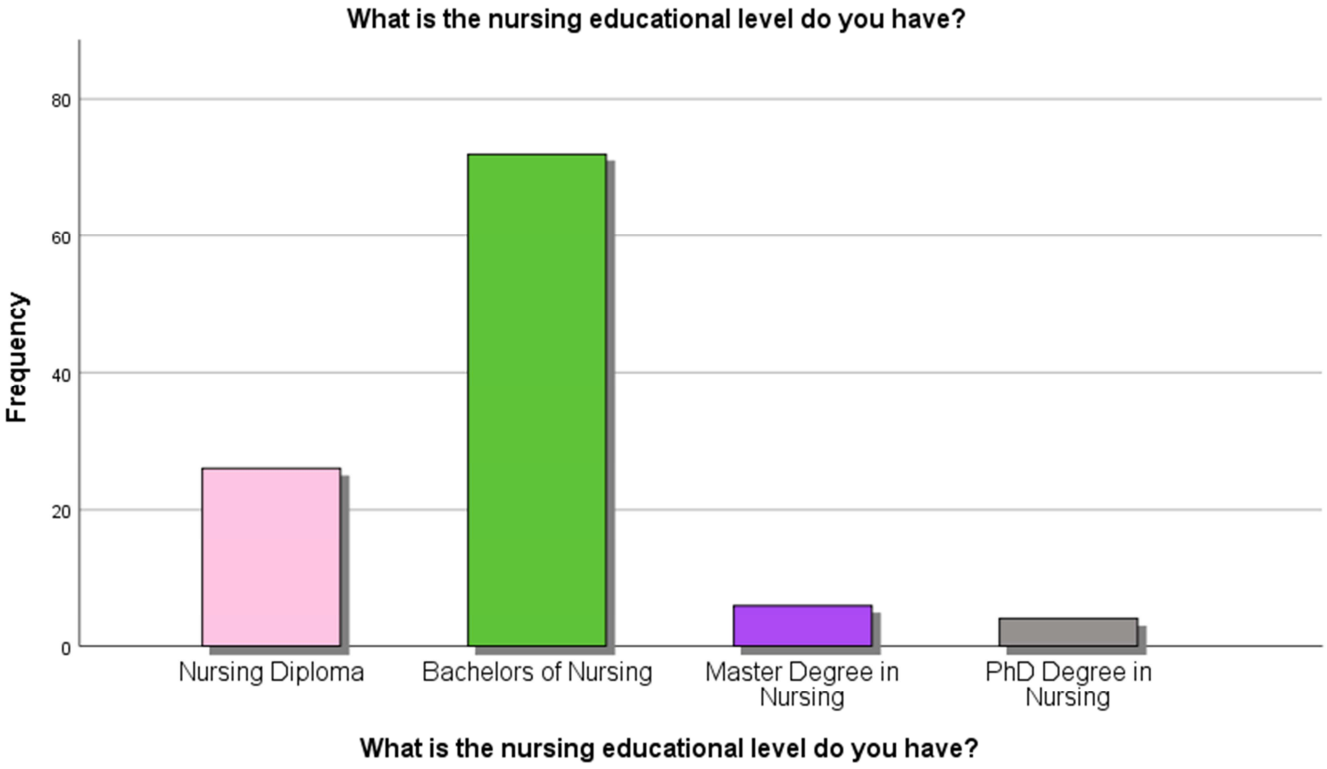

Figure 4. *The frequency of nursing education degrees.*

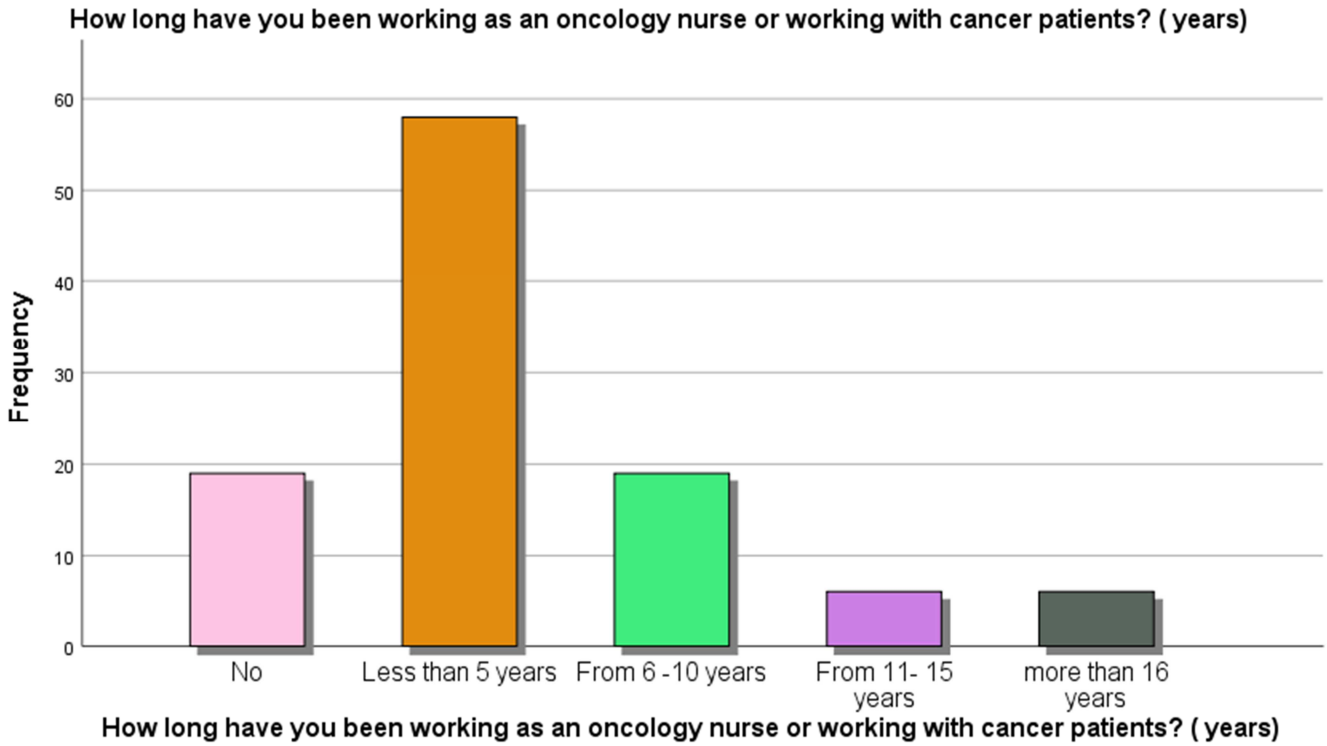

Figure 5. *The frequency of oncology nurse working with cancer patients.*

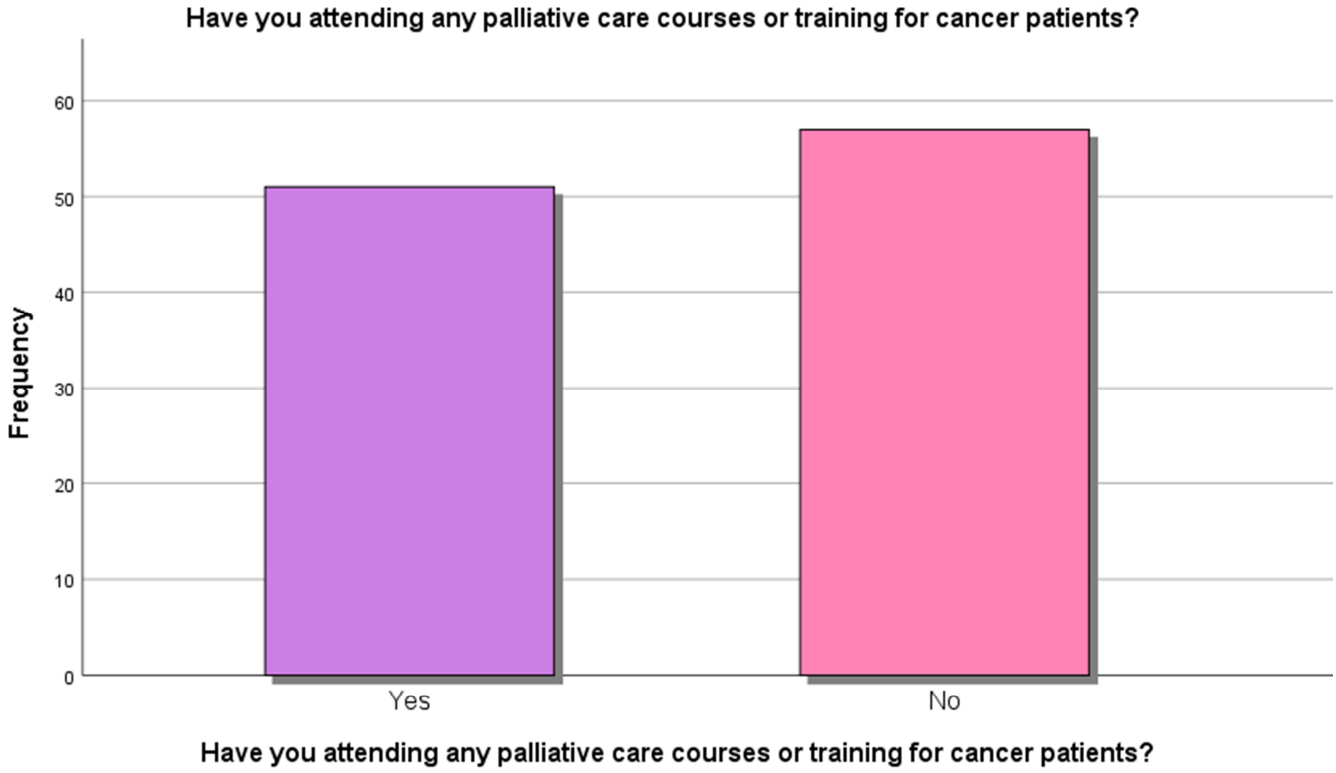

Figure 6. *The frequency of nurses attending or training for cancer patients.*

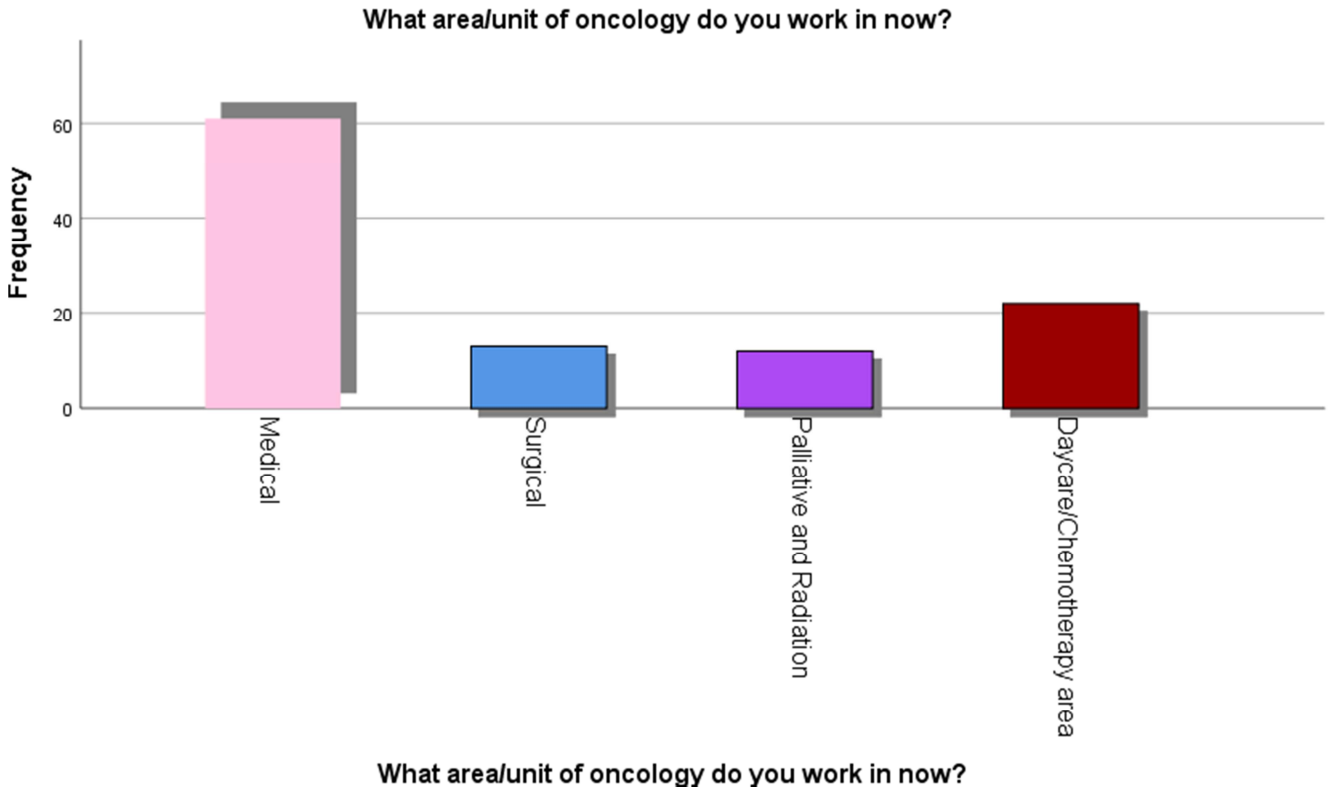

Figure 7. *The frequency of nursing working on oncology units.*

The results presented that the confidence level of palliative care was moderate (M=30.36, SD=2.53) (Table 2). Regarding scale items, the nurse was more confident in (Supporting the patient or family member when they become upset), (Reacting to reports of pain from the patient), (Reacting to and coping with reports of constipation) and (Reacting to and coping with nausea/vomiting), (Answering queries about the effects of certain medications) and (Reacting to and coping with terminal dyspnea (breathlessness). Nurses were less confident in (Discussing patient's wishes for after their death) and in

(Reacting to and coping with terminal delirium).

Table 2. *Descriptive Analysis of Confidence and Educational Needs in term of mean scale scores (N= 108).*

Item	Need further basic instruction (1)	Confident to perform with close supervision/coaching (2)	Confident to perform with consultation (3)	Confident to perform independently (4)	Mean	Ranking
Answering patients' questions about the dying process	27 25.00%	30 27.80%	34 31.50%	17 15.70%	2.38	9
Supporting the patient or family member when they become upset	13 12.00%	30 27.80%	34 31.50%	31 28.70%	2.77	1
Informing people of the support services available	22 20.40%	28 25.90%	34 31.50%	24 22.20%	2.56	5
Discussing different environmental options (e.g., hospital, home, family)	22 20.40%	31 28.70%	36 33.30%	19 17.60%	2.48	6
Discussing patient's wishes for after their death	32 29.60%	36 33.30%	28 25.90%	12 11.10%	2.19	10
Answering queries about the effects of certain medications	15 13.90%	33 30.60%	37 34.30%	23 21.30%	2.63	4
Reacting to reports of pain from the patient	13 12.00%	32 29.60%	36 33.30%	27 25.00%	2.71	2
Reacting to and coping with terminal delirium	20 18.50%	42 38.90%	29 26.90%	17 15.70%	2.4	8
Reacting to and coping with terminal dyspnea (breathlessness)	15 13.90%	43 39.80%	33 30.60%	17 15.70%	2.48	6
Reacting to and coping with nausea/vomiting	12 11.10%	35 32.40%	37 34.30%	24 22.20%	2.68	3
Reacting to and coping with reports of constipation	11 10.20%	38 35.20%	34 31.50%	25 23.10%	2.68	3
Reacting to and coping with limited patient decision-making capacity	22 20.40%	35 32.40%	34 31.50%	17 15.70%	2.43	7
Total score Mean (SD)					30.36 (2.53)	

According to Table 3, there were significant differences in in the levels of confidence of palliative care according to marital status (F = 6.226, p = 0.003), country (F = 3.069, p = 0.020), and period of working on oncology units or with cancer patients (F = 3.057, p = 0.020). There were no significant differences in the levels of confidence of palliative care according to gender (t = - 0.410, p = 0.683), nursing educational level (F= 0.82, p = 0.695), courses attending or training (t = 1.285, p = 0.211), oncology unit (F= 1.426, p = 0.237). There is a positive moderate association between levels of confidence of palliative care and age (r = 0.346, p =.000).

Table 3. *Relationships between the participants' mean scores of palliative care self-efficacy and their demographic and work characteristics (N= 108).*

Variables	Test	Statistics	p-value
Gender	Independent Samples Test	-0.410	0.683
Marital status	ANOVA	6.226	0.003
Country	ANOVA	3.069	0.020
Nursing educational level	ANOVA	0.482	0.695
Working on oncology unit or with cancer patient	ANOVA	3.057	0.02
Courses attending	Independent Samples Test	1.258	0.211
Oncology unit now	ANOVA	1.436	0.237
Age	Pearson Correlation	0.346	0.00

6. Discussion

The purpose of this study was to assess the confidence level and educational needs of palliative care among nurses caring for patients with advanced cancer in Jeddah, Saudi Arabia. The current study found that palliative care confidence was moderate, and there were considerable differences in the level of palliative care confidence depending on marital status, country, and length of experience and time working in oncology units or with cancer patients. The participants were highly confident in their abilities to support the patients or family members when they become distressed and react to patient reports of pain with the consultation. However, they demonstrated a lack of confidence and a need for further education in talking about patients' needs after their loss and reacting to and terminal delirium coping.

The level of confidence among oncology nurses in pain management in this study was similar to that reported in a cross-sectional survey conducted at Korea's Konyang University College of Nursing [6]. The researchers indicated that nurses were highly confident in managing symptoms and

pain, but they needed significant education in managing material and human and capitals to offer palliative care [6]. Because pain and symptom management are crucial nursing foundations, oncology nurses should be confident in assessing and managing pain in patients with cancer. Oncology nurses' higher knowledge score on pain management and other symptoms is assumable because they frequently manage and provide care for chronically ill patients who require painkillers daily [10]. On the other hand, the findings of a descriptive cross-sectional study, examining attitudes and information regarding cancer pain management, found that Saudi nursing students have insufficient information and negative attitudes about pain management in patients with cancer [18]. Another cross-sectional descriptive study, examining knowledge, attitude, and confidence toward palliative care among 141 Mongolian nurses, found a lack of confidence in oncology nurses' skill to talk about spiritual and psychological issues with their dying patients and family caregivers [19], which is consistent with our study findings.

Discussing patients' wishes and after-death support are core components of cancer palliative care. Family members and patients often need spiritual support to deal with the losses associated with dying, and some bereaved family members develop complicated grief and need treatment [22]. Supporting end-of-life patients' spiritual and psychological needs is an essential component of holistic patient care [22]. In addition, when either the patient or the caregiver refuses to realize the diagnosis. This can provide ineffective delivery of palliative care. Honesty between oncology nurses and patients or family caregivers is deemed essential to the best care. Furthermore, in the absence of honest communication with patients, nurses believe that they always strive to provide them with high-quality palliative care, comprising appropriate end-of-life assistance, but they are frustrated by their inability to do so. This frequently results in dissatisfaction, demoralization, rage, and the fear of not doing what is best for the patients [23]. Because nurses are in the skilled category and spend the majority of their time in direct care, as well as they are not permitted to discuss any prognoses with their patients, they frequently reported a lack of communication skills and inadequate continues professional education and training [23]. Our study findings highlight the necessity of continuing education for oncology nurses and nursing students in order to increase their palliative care skills and confidence. Nurses' core knowledge about palliative care, as well as their attitudes toward and actions in better delivering that care, can all be influenced by initiatives that encourage palliative care nurse education.

Nurses with broad experience working in oncology units or with cancer patients demonstrated high levels of confidence in this study, which is supported by a previous study among Mongolian nurses [19]. Because of the combined influence of healthcare personnel's knowledge, attitudes, beliefs, and experiences, palliative care can be administered successfully. Attitudes about death and dying care are exacerbated by nurses' perceptions of poor preparation and stress, which can have a negative influence on care quality. Furthermore, according to a quasi-experimental study with a pretest-posttest design, the effect of palliative care training on nurses' perceived self-efficacy, psychosocial support, and symptom management improved significantly after intervention, which supports the findings of the study that investigated the need for more qualified nurses who could discuss patients' wishes after their death [26]. Another descriptive correlation study has indicated that the majority of oncology nurses were confident in giving palliative care to cancer patients, and years of oncology experience and palliative care training were both strongly related to perceived confidence in delivering palliative care to patients with advanced cancer [20]. Nurses' sociodemographic and work characteristics such as educational position, experience years, palliative care education, and clinical trainings all influenced their palliative care knowledge and confidence [21]. Therefore, sociodemographic and work characteristics should be considered when developing effective cancer palliative care education programs.

7. Conclusions

This is the first study conducted in Saudi Arabia examining the palliative care confidence and educational needed in oncology nurses. The current study contributes to the empirical literature of oncology and palliative care nursing in Saudi Arabia and sheds light about the impotence of palliative care educational programs. Nurses had a lack of knowledge and less confidence in providing palliative care, especially in discussing patients' wishes for after death and reacting to and terminal delirium coping. Insufficient palliative care knowledge and inadequate confidence can have a negative impact on nursing staff in terms of dealing with cancer patients, which leads to a decrease in the quality of life for advanced cancer patients. Palliative care is an important aspect of cancer care that can affect cancer patients' quality of life. Assessing the palliative care confidence and educational needed in oncology nurses in the Saudi clinical settings, specifically, addresses cancer patients' quality of life relating palliative care is recommended.

7.1. Study Limitations

This study had some limitations. First, we utilized convenience sampling which may cause discrepancies in our results. Second, the applicability of findings is limited given the study was conducted at a single site. Furthermore, the number of oncology nurses working in the selected hospital limited the number of participants in this study. Conducting studies in multiple centers, lager samples, and the use of different sampling methods are needed to confirm the results of this study. Finally, we faced problem with limited time, nursing staff overwork.

7.2. Nursing Recommendations

Education and training cancer palliative care programs for oncology nurses should receive more attention in Saudi

Arabia. Adequate guidance should be available to support the establishment of effective palliative care education programs to improve the confidence and cover the educational needs of oncology nurse regarding palliative care. The Saudi Ministry of Health (MOH) would provide financial support and incentives to recognized palliative care education centers where oncology nurse can receive specialized palliative care training. Oncology nurses need additional education in the providing of palliative care in order to deliver holistic, person-centered care to cancer patients. More research such as qualitative studies is required to discover the educational needs of oncology nurses working in Saudi cancer care settings and palliative care centers.

References

[1] Schroeder, K., & Lorenz, K. (2018). Nursing and the future of palliative care. Asia-*Pacific Journal of Oncology Nursing*, *5* (1), 4–8. https://doi.org/10.4103/apjon.apjon_43_17.

[2] World Health Organization (WHO). (2019). *Palliative care*. Retrieved from https://www.who.int/health-topics/palliative-care.

[3] Parajuli, J., Hupcey, J., & Walsh, A. (2022). Validation of the Palliative Care Nursing Self-Competence Scale for oncology nurses in the United States. *American Journal of Hospice and Palliative Medicine®,* 104990912110690. https://doi.org/10.1177/10499091211069077.

[4] Hassankhani, H., Rahmani, A., Taleghani, F., Sanaat, Z., & Dehghannezhad, J. (2019). Palliative Care Models for Cancer Patients: Learning for planning in nursing. *Journal of Cancer Education*, *35* (1), 3–13. https://doi.org/10.1007/s13187-019-01532-3.

[5] Etkind, S. N., Bone, A. E., Gomes, B., Lovell, N., Evans, C. J., Higginson, I. J., & Murtagh, F. E. M. (2017). How many people will need palliative care in 2040? Past trends, future projections and implications for services. *BMC Medicine*, *15* (1). https://doi.org/10.1186/s12916-017-0860-2.

[6] Kim, S., Lee, K., & Kim, S. (2020). Knowledge, attitude, confidence, and educational needs of palliative care in nurses caring for non-cancer patients: A cross-sectional, descriptive study. *BMC Palliative Care*, *19* (1). https://doi.org/10.1186/s12904-020-00581-6.

[7] Kimbell, B., Murray, S. A., Byrne, H., Baird, A., Hayes, P. C., MacGilchrist, A., Finucane, A., Brookes Young, P., O'Carroll, R. E., Weir, C. J., Kendall, M., & Boyd, K. (2018). Palliative care for people with advanced liver disease: A feasibility trial of a supportive care liver nurse specialist. *Palliative Medicine*, *32* (5), 919–929. https://doi.org/10.1177/0269216318760441.

[8] Achora, S., & Labrague, L. J. (2019). An integrative review on knowledge and attitudes of nurses toward palliative care. *Journal of Hospice & Palliative Nursing*, *21* (1), 29–37. https://doi.org/10.1097/njh.0000000000000481.

[9] Xia, L., & Kongsuwan, W. (2020). Factors Relating to Nurses' End-of-Life Care. *Journal of Biosciences and Medicines*, *08* (06), 189–200. https://doi.org/10.4236/jbm.2020.86018.

[10] Etafa, W., Wakuma, B., Fetensa, G., Tsegaye, R., Abdisa, E., Oluma, A., Tolossa, T., Mulisa, D., & Takele, T. (2020). Nurses' knowledge about palliative care and attitude towards end-of-life care in public hospitals in Wollega zones: A multicenter cross-sectional study. *PLOS ONE*, *15* (10), e0238357. https://doi.org/10.1371/journal.pone.0238357

[11] Jung, M. Y., & Matthews, A. K. (2021). Understanding nurses' experiences and perceptions of end-of-life care for cancer patients in Korea: A scoping review. *Journal of Palliative Care*, *36* (4), 255–264. https://doi.org/10.1177/08258597211027021

[12] Reed, E., Todd, J., Lawton, S., Grant, R., Sadler, C., Berg, J., Lucas, C., & Watson, M. (2017). A multi-professional educational intervention to improve and sustain respondents' confidence to deliver palliative care: A mixed-methods study. *Palliative Medicine*, *32* (2), 571–580. https://doi.org/10.1177/0269216317709973.

[13] Wazqar, D., Kerr, M., Regan, S., & Carole Orchard, C. (2017). Overview of cancer care and oncology nursing in the Kingdom of Saudi Arabia. *American Journal of Nursing Science*, *6* (4), 324. https://doi.org/10.11648/j.ajns.20170604.17.

[14] Polit, D., & Beck, C. (2018). *Essentials of Nursing Research: Appraising Evidence for Nursing Practice* (9th ed.). Lippincott. W & W, New York.

[15] Al-Hibshi, A. (2021). *Strategic Hospital University Abdulaziz King of 2021-2025* (S. AlBasri, Ed.). Reterived from https://shifaa.kau.edu.sa/HospitalWeb/MAB/hospital/Files/sp-21-25.pdf.

[16] Phillips, J., Y. Salamonson, Y., & Davidson, P. M. (2011). An instrument to assess nurses' and care assistants' self-efficacy to provide a palliative approach to older people in residential aged care: A validation study. *International Journal of Nursing Studies*, *48* (9), 1096-1100.

[17] IBM Crop (25.0). (2017). IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY: IBM Corp.

[18] Wazqar, D. Y. (2019) Evaluating Saudi nursing students' knowledge and attitudes toward cancer pain management: Implications for nursing education. *JKAU Medical Sciences, 26* (2), 61-70. doi: 10.4197/Med.26-2.7.

[19] Kim, J. S., Kim, J., & Gelegjamts, D. (2020). Knowledge, attitude and self-efficacy towards palliative care among nurses in Mongolia: A cross-sectional descriptive study. *PLOS ONE, 15* (7), e0236390. https://doi.org/10.1371/journal.pone.0236390

[20] 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, 25* (4), 449–455. https://doi.org/10.1188/21.CJON.449-455

[21] Parajuli, J., & Hupcey, J. (2021). A Systematic review on oncology nurses' knowledge on palliative care. *Cancer nursing, 44* (5), E311–E322. https://doi.org/10.1097/NCC.0000000000000817.

[22] Rego, F., & Nunes, R. (2019). The interface between psychology and spirituality in palliative care. *Journal of health psychology, 24* (3), 279–287. https://doi.org/10.1177/1359105316664138.

[23] Testoni, I., Wieser, M. A., Kapelis, D., Pompele, S., Bonaventura, M., & Crupi, R. (2020). Lack of truth-telling in palliative care and its effects among nurses and nursing students. *Behavioral Sciences, 10 (*5), 88. https://doi.org/10.3390/bs10050088.

[24] Carole L. Kimberlin, Almut G. Winterstein, (2008) Validity and reliability of measurement instruments used in research, American Journal of Health-System Pharmacy, Pages 2276–2284, https://doi.org/10.2146/ajhp070364

[25] Pelz, P. B. (n.d.). Research methods for the Social Sciences. Chapter 7 Scale Reliability and Validity, *Research Methods for the Social Sciences.* https://courses.lumenlearning.com/suny-hccc-research-methods/chapter/chapter-7-scale-reliability-and-validity/

[26] Dehghani, F., Barkhordari-Sharifabad, M., Sedaghati-kasbakhi, M. et al. (2020) Effect of palliative care training on perceived self-efficacy of the nurses. *BMC Palliat Care* 19, 63. https://doi.org/10.1186/s12904-020-00567-4