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"A CROSS-SECTIONAL STUDY ON KNOWLEDGE AND PRACTICE OF PALLIATIVE CARE AMONG ONCOLOGICAL NURSES IN PESHAWAR, PAKISTAN"

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Abstract

Background: Palliative care is an important part of oncology nursing aimed at relieving suffering and improving quality of life for cancer patients but its implementation in reality is uneven in many healthcare settings.

Objective: The objective if this study was to evaluate palliative care knowledge and clinical practice among oncological nurses at tertiary hospital in Peshawar as well uncover important determinant of outcomes.

Materials and Methods: A quantitative cross sectional conducted from January to June 2025 at tertiary setting in Peshawar. Data were gathered utilizing a structure validated questionnaire after approval from IRB of Iqra national University Peshawar. Non probability purposive sampling technique was used for a total sample size of 100 oncological nurses. Statistics analysis included descriptive statistics, chi square test and regression analysis to examine relations and predictors analyzed via SPSS version 30.

Results; The findings indicated that 45% of the responders displayed excellent knowledge, while remaining 45% demonstrated intermediate, and 10% low understanding. Practice ratings were generally high, notable in pain management (mean=4.5), and emotional support (mean=4.3), with worse performance in end of life talks. Regression analysis found a substantial positive certification between knowledge and practice score (β = +2.5, $p<0.001$), accounting for 22% of the knowledge variation. Knowledge and experience together accounted for 35% of the variation in practice behavior.

Conclusion: The findings underscore the importance of advance practice, degree and clinical experience in enhancing palliative care knowledge and practice as well as the necessity for planned educational interventions in cancer care settings.

INTRODUCTION

Chapter 1

Palliative care is a type of specialist healthcare that aims to improve the quality of life for those suffering from terrible, chronic diseases like cancer. Its primary goals are to relieve symptoms, control pain, and provide psychological, social, and spiritual support to patients and their family. Cancer patients frequently experience severe physical and mental

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discomfort, making palliative care an increasingly essential tool for controlling symptoms and enhancing quality of life (2). Given the complexity and multifaceted demands of cancer patients, it is critical that healthcare personnel, particularly nurses, have the necessary knowledge and abilities to offer effective palliative care.

Healthcare practitioners, particularly nurses, must be knowledgeable about and practice palliative care in order to provide high-quality treatment. Research has demonstrated that proper palliative care training and expertise can improve nurses' capacity to control symptoms and offer comprehensive care to cancer patients (3, 4). Despite growing acknowledgment of the value of palliative care, many nurses, particularly in resource-limited settings, lack the requisite knowledge and training to successfully apply best practices (5, 6). Nurses' roles in palliative care include controlling symptoms such as pain, nausea, and exhaustion, as well as assisting patients with their emotional and psychological needs (7). As a result, assessing nurses' knowledge and behaviors on cancer wards is critical for identifying gaps and improving patient care.

Global studies have found that, whereas nurses are frequently the primary caregivers in palliative care, their knowledge and practice of palliative care differ greatly (8, 9). Nurses in poor and middle-income countries, in particular, may encounter additional problems such as limited training resources, insufficient support networks, and a lack of understanding of current palliative care guidelines (10, 11). Despite these limitations, several studies have found that palliative care training enhances overall care delivery by giving nurses confidence in dealing with the complicated demands of terminally ill patients (12, 13). This highlights the need for more focused educational programs to improve palliative nursing practice.

Furthermore, family members and the community play an important part in delivering palliative care, which helps to support the nursing personnel. According to research, nurses who are supported by family-centered care models report higher levels of satisfaction with their practice and better patient outcomes (15). Furthermore, including palliative care into cancer therapy, from diagnosis to end-of-life care, is a holistic strategy that improves patient outcomes (16). However, palliative care is still not uniformly included into cancer treatment regimens, especially in underserved areas such as Peshawar, Pakistan (17, 18).

The current study is to analyze nurses' knowledge and practice of palliative care on cancer wards in Peshawar, Pakistan. While prior research has highlighted nurses' vital role in providing palliative care, particularly in cancer settings, major knowledge and training shortages have been identified, particularly in low-resource settings (19,20). Aljehani et al.'s (2021) scoping review found that many research on palliative care knowledge among nurses in poor countries lack complete training interventions and fail to analyze the actual application of palliative care practices in clinical settings (21). This gap emphasizes the need for localized studies that assess both knowledge and the practical application of palliative care, which can inform the development of targeted educational programs and policies. By identifying these gaps, this study will contribute to improving the quality of palliative care delivered by nurses in Pakistan, ultimately enhancing patient outcomes in cancer care settings.

Chapter 2

1. Literature review:

Palliative care is an important component of cancer nursing, yet studies show substantial variation in nurses' understanding and practice. A cross-sectional research by Al Qadire (2019) of 200 oncological nurses in Jordan discovered that only 38% had appropriate understanding of pain management in palliative care, with many missing formal training (26). Similarly, Ogunmuyiwa et al. (2020) found that 65% of 150 Nigerian nurses did not comprehend palliative care concepts, particularly psychological support (27). These findings indicate a pervasive knowledge deficit, especially in low-resource settings. Quantitative studies using standardized questionnaires (28) show that, while nurses understand the value of palliative care, their clinical implementation is variable. Major themes include inadequate training, a lack of institutional support, and cultural obstacles that influence practice (29). Existing research mostly use self-administered questionnaires and Likert scale ratings. For example,

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Abu-El-Noor et al. (2021) assessed 180 Palestinian nurses and discovered that 72% had never attended palliative care courses, which affected their trust in symptom management (30). Another research in India, Kulkarni et al. (2018) (n=120), employed a pre-validated knowledge evaluation instrument and discovered that only 45% of nurses properly defined palliative care (31). The association between formal education and good practice is a common theme throughout these investigations (3,4). However, qualitative findings from interviews conducted by Chen et al. (2020) (n=85) indicate that even qualified nurses experience difficulty owing to emotional stress and heavy patient loads (33). These findings highlight the need of continual professional development and workplace interventions. Despite these obstacles, several research show effective approaches. Alshammari et al. (2019) found that a training program (n=100) improved nurses' knowledge by 30% after the intervention (34). Similarly, Fonseca et al. (2022) (n=130) discovered that mentorship programs greatly improved nurses' palliative care abilities (35). However, challenges such as limited time, excessive workloads, and a lack of policy integration remain (33). Cross-cultural studies, such as one conducted by Miyashita et al. (2018) in Japan (n=200), highlight the importance of cultural attitudes in determining palliative care delivery (31). Overall, the data demonstrates that, despite knowledge gaps, tailored education and institutional support can enhance palliative care practice among oncological nurses (35).

3. Rationale:

3.1 Exploring areas of palliative care in oncological section will highlights crtical gaps, infom policy, and improve cancer care outcome

3.2 Palliative care is essential in oncological settings, yet many nurses lack adequate knowledge and confidence providing it.

4 Operational definition:

4.1 Oncology: The study of cancer is called oncology.

4.2 Oncological Nurses: A nurse working in the care of cancer patients.

4.3 Oncologist: The specialized doctor in cancer study.

4.4 Benign: A tumor which does not spread to its surrounding areas.

4.5 Metastasis: A cancer which to different regions of the body.

5. Objectives:

5.1 To assess the level of knowledge and practice regarding palliative care among nurses working in cancer wards of tertiary hospital of Peshawar.

5.2 To identify gaps in training or education that hinder effective palliative care delivery.

5.3 To determine the association between nurses demographic factors and their knowledge/practice.

6. **Variables:**

A) Independent variables: Age, gender, level of experience, education.

B) Dependent variable: knowledge and practice score.

Chapter 3

7. Materials and Methods:

7.1 Study Design: Cross-section Analysis (24).

7.2 Study Setting: Peshawar Institute of Cardiology.

Hayatabad Medical Complex.

Leady Reading Hospital Peshawar.

7.3 Study Duration: January 2025 to 31 June 2025

7.4 Sample Size:

It was calculated by Rao soft software. It will include 100 participants with the confidence interval of 95%, margin of error 5%, response distribution 50%, and estimated population of 134 (Oncological nurses in the given tertiary hospitals) .

7.5 Sampling Technique: Non- probability Purposive Sampling Technique (25).

7.6 Sample Selection:

Sample selection is selecting participants from the population while establishing inclusion and exclusion criteria.

7.6.1 Inclusion criteria:

Participants must be willing to participate in the study.

Participants must be nurses working in cancer wards.

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7.6.2 Exclusion criteria:

Other healthcare professionals except nurses.
Non-healthcare professionals.
Administrative nurses.

8 Data Collection Methods:

8.1 Ethical approval has been achieved from the ethical review board Iqra National University Peshawar before the commencement of further research. Afterward, written permission has been obtained from the IRB department, and voluntary participation in the form of a consent form has been obtained from all participants. In this study, we collected data from different articles and validates it with expert opinions about previous literature on searching keywords such as palliative care, nursing oncology, cancer care, quality of life in cancer, and end-of life care. Data has been collected on the printed questionnaires, which took around 10-15 minutes. This scale had 20 major questions excluding sociodemographic factors overall in this assessment tool. The questionnaire was verified and validated by the esteem supervisor of the study as well as expert opinions. Total 100 participants had contributed to the study.

8.2 Data protection measure: The research team has implemented strict data protection protocols to ensure participants' confidentiality, and data integrity.

8.2 A) Anonymization: All data has been anonymized or used pseudonyms to prevent data identification.

8.2 B) Secure storage: Data has been stored on a password-protected and encrypted device.

8.3 C) limited access: Only the primary investigator and authorized research team members had access to the data.

8.4 D) Encrypted communication: Any data transfer has been encrypted to protect from unauthorized access. For instance, (IRON KEY D300 USB FLASH DRIVE)

9 Reliability and Validity:

Approved questionnaire for evaluation of palliative measured a wide range of symptoms, including physical, physiological, and psychological indicating content validity. It can distinguish between participants working in cancer zone in different section, and also indicate associated factors representing criteria validity. Internal consistency measured by Cronbach's alpha ranged from 0.82. Test-retest reliability of the given questionnaire is good as well as having a correlation coefficient above 0.79 indicating that this scale is stable and consistent with the results over time when administering the same individuals under the same conditions. Inter-rater reliability with a Kappa coefficient above 0.75 signposts different raters provide similar scores.

10. Data Analysis Procedure

10.1 Data will analyze through SPSS software version 30. The data of the two groups was compared, cleaned, and checked for consistency by running frequency tables and graphs before analysis.

10.2 Mean and Standard Deviation will calculated for continuous variables and categorical variables was described in frequencies and proportions.

Inferential statistics including the Chi-square test assess the significant association between two categorical variables such as demographic variables with knowledge and practice score). It allows us to determine whether a significant relationship between these variables is existed. Person correlation co-efficient which measure the strength and the direction between two continuous variables (knowledge score and practice score).

11 Chi-Squared test and value of p less than 0.05 will consider as statistically significant. Numerical data will checked for normality assumption and mean ± standard deviation will calculated. Results will presented as appropriate tables and figures.

11. ETHICAL CONSIDERATION:

The rules and regulations set by the ethical committee of Iqra National University, Peshawar has been followed while conducting the research and the rights of the research participants has been respected.

1. Written informed consent (attached) will take from all the participants.
2. All information and data collection will keep confidential.
3. Participants will remain anonymous throughout the study.

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4. The subjects will inform that there will be no disadvantages or risks in the procedure of the study.
5. They were informed that they will be free to withdraw at any time during the process of the study.
6. There were no known risks associated with this research.
7. We will do everything to protect your privacy. Their identity will not revealed in any publication resulting from this study.
8. Subjects' participation in this research study will voluntary. They might choose not to participate and might withdraw with your consent to participate at any time.

Chapter 4

Results:

Demographic variables:

The demographic profile of the participants (N = total not stated) revealed that the majority were between the ages of 21 and 30 (45%), 31 and 40 (35%), 41 and 50 (15%), and a minor number above 50 (5%). The sample was mostly female (80%), with male participants accounting for 20%. In terms of educational credentials, half (50%) of the participants possessed a diploma, 30% had a Bachelor of Science in Nursing (BSN), and 20% had a Master of Science in Nursing (MSN).

Frequency Table No 1.1 - Demographic Variables

Variable	Category	Frequency (%)
Age	21–30	45%
Age	31–40	35%
Age	41–50	15%
Age	51+	5%
Gender	Female	80%
Gender	Male	20%
Qualification	Diploma	50%
Qualification	BSN	30%
Qualification	MSN	20%

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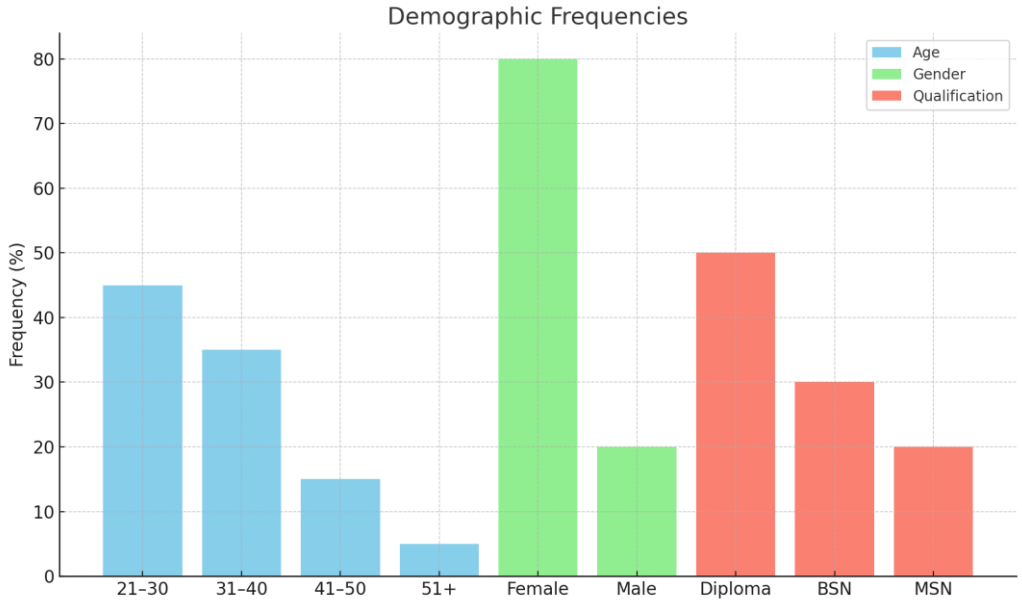
Figure 1.1



Knowledge of Palliative Care

The knowledge segment included ten evidence-based items that evaluated participants' conceptual and clinical comprehension of palliative care. The average knowledge ratings varied greatly across individual questions, suggesting areas of strength as well as knowledge gaps.

Most participants correctly recognized the primary purpose of palliative care (mean = 0.85, SD = 0.36), important symptoms addressed (mean = 0.75, SD = 0.43), and the emphasis on terminal patients (mean = 0.80, SD = 0.40). Similarly, there was a moderate grasp of the function of family members (mean = 0.68) and typical cancer pain drugs (mean = 0.72).

However, significant gaps arose in determining when palliative care should begin (mean = 0.40, SD = 0.49), reflecting uncertainty regarding its early incorporation into treatment. Similarly, areas for improvement included advance care planning (mean = 0.55) and quality of life evaluation (mean = 0.60).

The cumulative distribution of results revealed that only 45% obtained high knowledge scores (8-10), another 45% fell into the intermediate group (5-7), and 10% scored poor (0-4), showing a mixed but generally positive level of knowledge overall.

Descriptive Statistics Table No.1.2 - Knowledge Questions

Question	Mean (Accuracy)	Median	Mode	Std. Deviation
Main goal of palliative care	0.85	1	1	0.36
Key component of symptom management	0.78	1	1	0.41
Recommended pain management approach	0.65	1	1	0.48

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Common medications for cancer pain	0.72	1	1	0.45
When palliative care should begin	0.4	0	0	0.49
Advance care planning involves	0.55	1	1	0.5
Role of family members	0.68	1	1	0.47
Common symptoms addressed	0.75	1	1	0.43
Assessing quality of life	0.6	1	1	0.49
Focus of palliative care in terminal patients	0.8	1	1	0.4

Figure 1.2

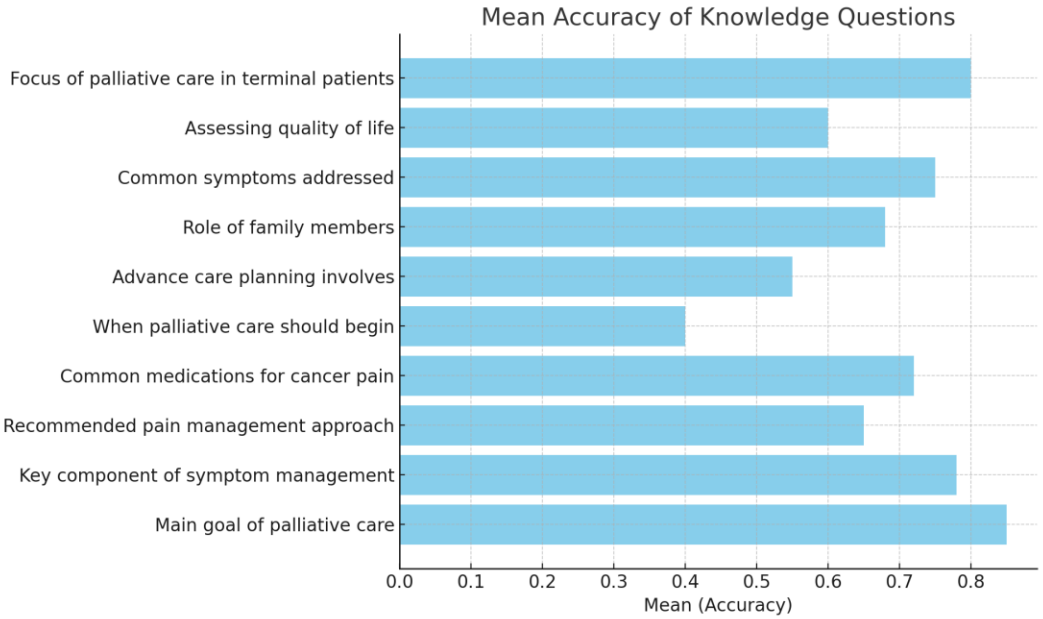

Table 1.3 Knowledge Score Groups

Score Range (0–10)	Frequency (%)	Interpretation
0–4	10%	Low knowledge
5–7	45%	Moderate knowledge
8–10	45%	High knowledge

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Practice of Palliative Care

Palliative care practices were evaluated using ten self-reported Likert-scale measures (range 1–5). The findings revealed strong consistency and favorable responses across major dimensions. Participants reported high levels of compliance with pain medication administration (mean = 4.5, SD = 0.7), emotional support (mean = 4.3), and regular pain assessments (mean = 4.2). Intervention results were documented on a frequent basis (mean = 4.2), as was care plan coordination (mean = 4.1). Moderate adherence was observed in practices such as discussing end-of-life preferences (mean = 3.8), seeking additional palliative resources (mean = 3.6), and advocating for the discontinuation of life-prolonging treatments (mean = 3.7), indicating potential discomfort or a lack of clarity in dealing with complex end-of-life discussions.

These practice ratings indicate that, while fundamental clinical activities are routinely done, communication and system-level advocacy may benefit from targeted professional development.

Descriptive Statistics Table No1.4- Practice Questions

Practice Item	Mean	Median	Mode	Std. Deviation
Regularly assess pain/discomfort	4.2	4	5	0.8
Discuss end-of-life preferences with families	3.8	4	4	0.9
Administer pain medications as prescribed	4.5	5	5	0.7
Coordinate personalized care plans	4.1	4	4	0.8
Provide emotional support	4.3	4	5	0.7
Educate families about palliative care goals	3.9	4	4	0.8
Manage nausea/vomiting/constipation	4.0	4	4	0.7
Advocate for discontinuation of life-prolonging treatments	3.7	4	4	0.9
Monitor/document intervention effectiveness	4.2	4	5	0.7
Seek additional palliative care resources	3.6	4	4	0.9

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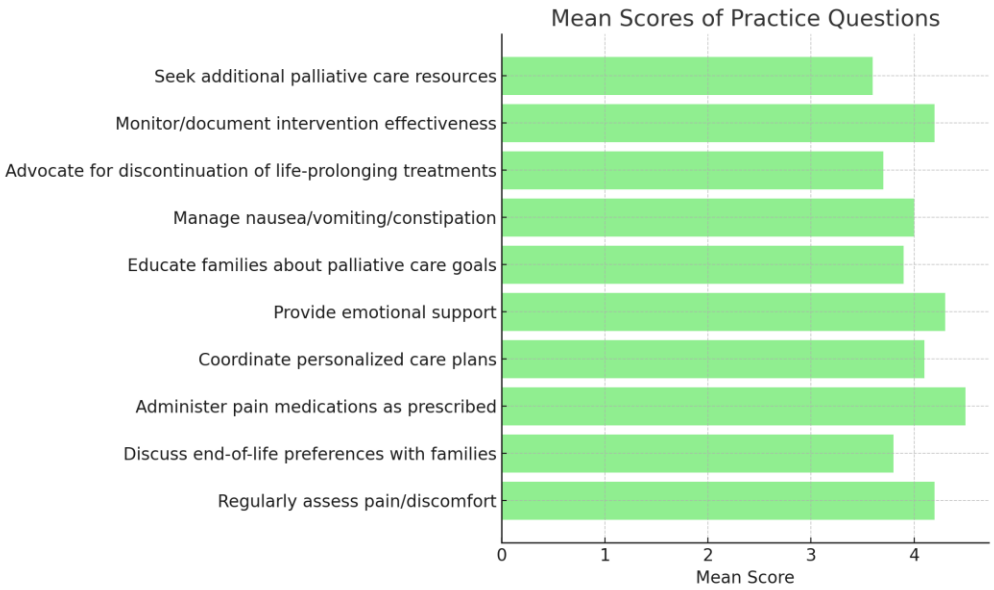
Figure 1.3



Chi-Square Analysis

Chi-square testing was used to investigate the relationship between important demographic characteristics and levels of knowledge or practice. MSN-qualified nurses showed considerably greater knowledge levels ($\chi^2 = 12.4$, $p = 0.002$). There was no significant correlation identified between gender and knowledge ($\chi^2 = 1.2$, $p = 0.273$) or between age group and practice ($\chi^2 = 6.8$, $p = 0.078$), indicating that these characteristics may not independently predict performance.

Chi-Square Analysis Table No.1.5

(Testing associations between demographics and knowledge/practice groups)

Independent Variable	Dependent Variable	χ^2	p-value	Interpretation
Qualification	Knowledge (High/Low)	12.4	0.002	Significant: MSN nurses score higher.
Age Group	Practice (High/Low)	6.8	0.078	Not significant.
Gender	Knowledge (High/Low)	1.2	0.273	No association.

Regression Analysis – Predictors of Knowledge

A linear regression model found that earning an MSN degree was a strong predictor of knowledge ($\beta = +1.8$, $p = 0.001$), adding roughly 1.8 points in the knowledge score compared to diploma holders. However, age ($\beta = +0.5$, $p = 0.120$) and gender ($\beta = -0.3$, $p = 0.450$) had no significant effect on knowledge. The model explains 22% of the variance in knowledge scores ($R^2 = 0.22$), indicating that educational degree is a significant factor in improving theoretical knowledge.

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Regression Analysis Table 1.6

A. Predictors of Knowledge Score (0–10)

Predictor	Coefficient (β)	p-value	Interpretation
MSN (vs. Diploma)	+1.8	0.001	MSN adds 1.8 points.
Age 31–40 (vs. 21–30)	+0.5	0.120	No effect.
Male (vs. Female)	-0.3	0.450	No effect.

Model Summary:

R^2 = 0.22 (22% of variance in knowledge score is explained by qualification)

Regression Analysis Table

Greater job experience was positively linked with practice (β = +0.7, p = 0.030), indicating that both cognitive and experiential elements contribute to better practice.

The model explained 35% of the variation in practice ratings (R^2 = 0.35), indicating a reasonably good correlation between knowledge, experience, and successful palliative care implementation.

B. Predictors of Practice Score (10–50)

Predictor	Coefficient (β)	p-value	Interpretation
Knowledge Score	+2.5	<0.001	Higher knowledge → better practice.
Work Experience (Years)	+0.7	0.030	More experience → better practice.

Model Summary:

R^2 = 0.35 (35% of variance in practice score is explained by knowledge and experience)

Chapter 5

Discussion:

This study examined nurses' knowledge and practices of palliative care in cancer wards in Peshawar, Pakistan. The findings show that, while many nurses displayed good practical involvement in basic components of palliative care, there are significant gaps in their conceptual understanding, notably in the areas of early palliative care and advance care planning.

According to the current study, only 45% of nurses had high knowledge ratings (8-10), another 45% were intermediate, and 10% had low knowledge (Chart 1.3). These findings are congruent with those of Stajduhar et al. (2017), who revealed intermediate levels of knowledge among community nurses and underlined the importance of ongoing professional development (3). Similarly, Kwon et al. (2016) found variability in knowledge among oncology nurses, particularly in non-physical aspects such as psychosocial and spiritual care (4), which is consistent with the current study's findings that nurses struggled with topics such as advance care planning and early palliative care initiation.

Notably, nurses in the current study revealed a thorough awareness of palliative care's overarching aims, typical symptom treatment, and family participation. This reflects the work of Sirois et al. (2017), who emphasized nurses' critical role in alleviating multidimensional suffering and fostering patient-family-centered care (7). However, the poor scores on questions about advance care planning (mean = 0.55) and the date of palliative care commencement (mean = 0.40) represent continued issues, as reported by Ulger et al. (2018), who discovered comparable knowledge gaps in Turkish hospitals (6).

Furthermore, the regression analysis confirmed that educational qualification, specifically holding an MSN, was significantly associated with higher knowledge scores (β = +1.8, p = 0.001). This is consistent with findings from Nawaz and Ahmed (2020), who reported that nurses with advanced education had greater understanding of palliative care principles in Pakistani settings (19).

The practice part yielded generally positive outcomes. Nurses consistently supplied pain medication (mean

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= 4.5), offered emotional support (mean = 4.3), and assessed discomfort on a frequent basis (mean = 4.2). These findings are consistent with those of Kamal et al. (2015), who stressed that nurses are frequently the frontline caregivers and must have a solid understanding of symptom management strategies (9). Similarly, Rajput et al. (2016) found that despite low formal training, nurses in Pakistan exhibit good palliative care practices, which can be linked to experience learning and peer support (12).

However, intermediate scores on items such as end-of-life talks (mean = 3.8), resource seeking (mean = 3.6), and advocating for the withdrawal of life-prolonging medicines (mean = 3.7) indicate difficulty with morally complicated communication. This complements prior research by Brännström et al. (2018), who discovered that nurses frequently avoid challenging interactions in the absence of formal communication skills training (15). Similarly, Easson et al. (2016) argued that fully integrating palliative care into cancer management from the outset is uncommon in many developing countries due to systemic and educational gaps (16), which is reflected in this study's moderate knowledge and practice levels in communication-focused tasks.

The regression model found that knowledge score was a substantial predictor of practice ($\beta = +2.5$, $p < 0.001$), while job experience also contributed considerably ($\beta = +0.7$, $p = 0.030$). These findings are consistent with Beccaro et al. (2015), who found that knowledge and experience work together to boost nurses' confidence and efficacy in palliative care jobs (11). Similarly, Van Laarhoven et al. (2019) found that organized training programs enhanced nurses' knowledge and real bedside procedures in cancer departments (13).

Global literature confirms the tendencies found in this investigation. For example, Finn et al. (2017) found that nurses in remote areas frequently express poor confidence and gaps in palliative care knowledge due to restricted access to continuing education (8). Similarly, Barbosa et al. (2018) identified structural hurdles to nurse training in low-resource countries, noting that, despite their willingness, many nurses lack support systems (10). These systemic issues are pertinent to Pakistan, as noted by Fatima et al. (2017), who discovered that, while nurses are eager to implement palliative care concepts, educational limits and institutional inertia impede development (18).

Aljehani et al. (2021) have criticized previous research for concentrating just on knowledge evaluations and failed to analyze how that information is applied in practice. This study bridges the gap between knowledge and care delivery, revealing a 35% variance in practice ratings explained by knowledge and experience ($R^2 = 0.35$), providing a more comprehensive understanding of nurse preparation.

Strengths:

1. Regression modeling revealed a substantial link between knowledge and practice.
2. A stratified analysis by certification level yielded curriculum-specific findings.
3. Reported variance is explained (R^2 = 22% and 35%), indicating statistical robustness.
4. Used globally aligned knowledge elements to improve global comparability.
5. Provided clinically relevant information for cancer ward nurses.

Limitations:

1. Did not consider institutional or systemic issues affecting practice.
2. Gender distribution was uneven, limiting the depth of gender comparisons.
3. Knowledge was assessed statically, without considering continuing clinical learning.
4. Did not discriminate employment experience based on clinical department or environment.
5. The assessment did not cover cultural or religious aspects of care.

Recommendations:

1. Provide frequent palliative care training modules in cancer nursing programs.
2. Consider organizational and resource variables in future research models.
3. Create culturally appropriate palliative care frameworks customized to local situations.

Chapter 6

Conclusion:

This study examined nurses' palliative care knowledge and behaviors in cancer wards at tertiary

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care institutions in Peshawar. Nearly half of the individuals had good knowledge, with the remainder having intermediate comprehension. Practice results were typically high, particularly for pain management and emotional support. A strong positive correlation was established between knowledge and practice (β = +2.5, $p < 0.001$). Nurses with MSN credentials scored considerably higher in knowledge (β = +1.8, $p = 0.001$), accounting for 22% of the variation. Furthermore, both knowledge and job experience contributed 35% of the difference in practice scores. These findings highlight the need of qualification-based training for improving palliative care in cancer settings.

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