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Master Program in Intensive Care Nursing

Assessment of Knowledge, Level of Practices and Attitudes among Critical Care Nurses Regarding End-Of-Life Care at Critical Care Units

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Declaration

I declare that, except where explicit reference is made to the contribution of others, this thesis is substantially my own work and has not been submitted for any other degree at the Arab American University or any other institution.

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Assessment of Knowledge, Level of Practices and Attitudes among Critical Care Nurses Regarding End-Of-Life Care at Critical Care Units

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Abstract

Background: Critical care is an integral part of hospital care, and the Intensive Care Unit (ICU) is the setting where patients are given the most technologically advanced life sustaining treatments. The ICU is, however, also a setting where death is common and End of Life Care (EOLC) is frequently provided. Since the focus in ICUs is on sustaining life, the delivery of high quality EOLC can be particularly challenging, and clinicians often find the dual responsibilities of saving lives and delivering EOLC difficult.
Purpose: To assess knowledge, level of practices and attitudes among critical care nurses regarding EOLC at critical care units in west bank.
Methods: This research utilized a descriptive - cross-sectional design to assess knowledge, attitude and practice among critical care nurses regarding EOLC at critical care units. A convenient sample of nurses (n=103), who are working in intensive care units in six governmental hospitals in west bank. By a self-administered questionnaire, data collection was started from (February 26th, 2025 to (March 15th, 2025).The questionnaire consisted of five parts: Demographic data, work related factors, nurses' knowledge scale, nurses' attitude scale and nurses' practice scale.
Results: Critical care nurses' average score on EOLC knowledge was 66.6%, an optimistic attitude (62.5%) and practice (86.6%). Female nurses performed better in practice, had more positive attitudes, and scored higher on knowledge tests. The knowledge, attitudes, and practices of married and single nurses did not differ statistically significantly. The nurses' age had no discernible effect on their EOLC practice, knowledge, or attitude. The knowledge, attitude, and practice of nurses in providing EOLC were not substantially impacted by their residence. Knowledge, attitude, and practice in EOLC were not substantially impacted by educational attainment. Hospital affiliation significantly influenced knowledge and practice ratings, while nursing experience had no discernible effect on knowledge, attitude, or practice. This shows that years of experience alone may not have as much of an impact on the abilities of healthcare personnel as institutional elements. There were moderate positive correlations among EOL knowledge, attitude, and practice. Higher EOL knowledge was linked to better practice ($r = 0.515$, $p < 0.001$) and more favorable attitudes ($r = 0.371$, $p < 0.001$). Attitude was also positively correlated with practice ($r = 0.396$, $p < 0.001$).
Conclusion: The results indicate that the majority of critical care nurses are knowledgeable about EOLC and have a good outlook on it. However, the fact that a small percentage of participants had knowledge gaps highlights the necessity of focused educational programs and ongoing professional development to improve competency and provide excellent PC in intensive care units. Critical care nurses' awareness may increase if EOLC is given more attention in the curriculum. The study's conclusions identified areas of EOLC practice and the involvement of critical care nurses in these practices.
Key Words: Knowledge, Attitudes, Practices, Critical Care Nurses, EOLC

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List of Definitions of Abbreviations

Abbreviations	Title
AAPM	American Association of Physicists in Medicine
CINAHL	Cumulative Index to Nursing and Allied Health Literature
CHIPPS	The Child and Infant's Postoperative Pain Scale
CVDs	Cardiovascular Diseases
df	Degrees of Freedom
ELEs	End-Of-Life Experiences
ELMC	End-Of-Life Medical Care
EOL	End-of-life
EOLC	End-of-life care
et al	And Others
FATCOD	The Frommelt Attitude toward Care of the Dying
ICUs	Intensive Care Units
(IRB-AAUP committee)	Institutional Review Board of Arab American University committee
KAP	Knowledge, Attitude, and Practice
LST	Life-sustaining treatment
M	Mean
MOH	Ministry of Health
N	Frequency
PA	Palestinian Authority
PC	Palliative Care
PHS	Palestinian Healthcare System
PQRST scale	Stands for provocation or palliation, quality, region or radiation, severity, and timing of a patient's pain

p-Value	Probability Value
QOL-BC	Quality of Life with Breast Cancer
R	Correlation
RDOS	Respiratory Distress Observational Scale
RNs	Registered Nurses
SD	Standard Deviation
Sig.	Significance
SPSS	Statistical Package for the Social Sciences
UK	United Kingdom
WHO	World Health Organization

Chapter One: Introduction

1.1 Introduction

End-of-life care (EOLC) serves as physical, psychological, social, and spiritual support for dying patients not receiving treatment to allow them to live and die with dignity (Wang et al., 2022). Definition of dying when a person is diagnosed as dying patient, they have serious conditions, which has no effective treatment to prolong their life (Mohammed et al., 2019). EOLC is the umbrella term used to encompass the totality of EOLC concerns related to dying, death and bereavement. EOLC aims to prevent or alleviate suffering through pain or other symptom management as well as social, psychological, and spiritual support (Abate et al., 2019).

The number of dying patients is overwhelming health care services (Haltia et al., 2018; Heath et al., 2021). Only 14% of the 56.8 million patients who the World Health Organization (WHO) estimates need EOLC annually have actually received it (WHO, 2021). Intensive Care Units (ICUs) treat a large number of those patients. The coexistence of palliative care and critical care is difficult because of the excellent life support equipment available in ICUs. Thus, palliation and critical curative circumstances should be matched in today's critical care (Mohammed et al., 2019).

Patients are given advanced life-preserving treatments in the ICU, making the really critical part of hospital care. These treatments serve to postpone the death of even patients having severe multi-organ dysfunction, but, by their nature, are costly and resource-demanding. Nevertheless, an ICU remains a highly relevant place for providing EOLC and witnessing death. Clinicians may find themselves torn between these two responsibilities, namely prolonging life and providing EOLC, due to the ICU being largely geared towards the prolonged life nature, making it quite challenging to extend high-quality EOLC (Tolba, 2024).

In critical care, tough decision-making arises with respect to life-sustaining treatments, weighing the probability of survival against the quality of life. Resource allocation becomes another ethical question. As most seriously ill patients are unable to make decisions, family members are asked to take part in discussions on care, which are intended to reflect the values of the patient. Levels of family involvement vary among cultures; however, competent clinician-family dialogue remains essential toward creating quality EOLC in the ICU (Tolba, 2024).

In EOLC, nurses and critical care nurses continue to play a vital role, assessing the needs of the patient and providing support for not only the hopelessly sick, but also for the family unit-and most importantly, this service is done very, very carefully and coordinately. There is a single opportunity after death to provide good care and this entails a considerable amount of coordination on the side of different service people. The guidance of best practices primarily aims to smooth this path of care so that individuals left grieving the loss of a significant member of their family will have a fairly enjoyable experience (Mohammed et al., 2019).

Quality EOLC requires nurses to have strong knowledge and a compassionate attitude toward palliative care (PC). PC was previously concentrated on terminal patients. Today, it has expanded to those with chronic diseases. It takes a holistic approach: improving the way of living of both patient and family members. It addresses physical, psychosocial, and spiritual sufferings by means of early assessment, documentation, and pain management (Kanyamuhunga et al., 2021).

Despite nurses having a central role in EOLC, a systematic review conducted in Cameroon revealed many felt unprepared for this subsidiary role, referring to insufficient education and lack of confidence (Abate et al., 2019).

Patients in the UK, who are considered for EOLC, would also typically have either a prognosis of death within 12 months or a progressive, incurable illness. In developed countries, healthcare is easily available, allowing timely consultations and advanced measures that make death something to be postponed. Meanwhile, in low-income countries, some barriers-the cultural, economic, and political-mean EOLC is mostly dependent on available healthcare workers and familiar practices (Kanyamuhunga et al., 2021).

In recent literature, much is said concerning high-quality EOLC that is also indispensable in enabling a good death. For critical care nurses, it would mean having strong knowledge, proper management of symptoms, and holistic support for both patients and families. Thereafter, the guidelines have to be based on evidence so that effective EOLC can be performed in the environment of curative care (Mohammed et al., 2019).

The Frommelt Attitude toward Care of the Dying (FATCOD) scale is used in many other studies to measure nurses' attitudes toward PC. In a different research, the average overall FATCOD score was 74.98 (SD, 8.18); of the nurses, 85.3% had positive attitudes about PC, while only 14.7% had negative attitude. The degree of teaching or education

of the nurse was substantially correlated with their attitudes about PC (Farmani et al., 2018).

A study discovered that 259 nurses, or 76% of the total, had a positive outlook on PC. The kind of hospital and the educational attainment of the nurses were strongly correlated with the attitudes of the nurses (Kassa et al., 2014). On the other hand, 79.58 (SD, 6.33) was the mean total FATCOD score reported in another Ethiopian research. Furthermore, 43.7% of nurses in another research with opinions regarding years of experience were shown to have negative attitudes toward PC (Zeru , 2020).

According to a survey was done in Nepal, the majority of nurses (71.3%) had negative opinions of PC. FATCOD score average was 107.36 (SD, 9.17) (Nepal , 2021).

According to a literature review, it has been reported that nurses across different clinical settings show insufficient knowledge and training toward quality PC. This leads to certain barriers-like limited EOLC practice, scarce participation in care planning, and poor knowledge (Subih et al., 2022).

The periodic re-evaluation of the affected attitudes of critical care nurses toward different aspects of care is paramount for quality care delivery, as they influence the nurses' competency through education. Training programs should help develop specific competencies so that these patients can receive continuous, holistic care throughout the course of their illness, enhancing their quality of life in their last days (Mohammed et al., 2019).

Nurses' attitudes to EOLC greatly influence dying patients and their families. In fact, according to a more recent systematic review, registered nurses (RNs) with such positive attitudes contribute greatly to patients' outcomes-for example in pain control, open visiting, patient advocacy, and the provision of care per patient wish (Alshammari et al., 2022).

Several factors contribute to the presence of positive attitudes in nurses towards EOLC which are their experience, education, work context, and environment. All of these factors which cannot stand alone may help those who do end stage care with sympathy and efficiency (Hussin et al., 2018).

The environment has an impact on caregiving practices through cultivating professional values and enhancing communication skills, along with some other indirect interventions aiming to improve the attitudes of nurses towards EOLC (Stacy et al., 2019).

On the other side, nurses with negative attitudes toward EOLC manage to minimize their patients' distress into very leaning actions that come into play when they avoid

giving to poor communication, tardiness in finding the truth, or talking explicitly about the stages of the disease and death to the patients (Almalki, 2024).

Therefore, it is important that all nurses benefit from ongoing in-service training in PC to promote the quality of life and to reduce suffering among patients and families alike. Critical care nurses must also be involved in ridding the barriers of PC so that they can tamp down their effectiveness. However, inadequate information about PC constitutes a great barrier to progress and practice in PC (Subih et al., 2022).

Additionally, the study examined Jordanian ICU nurses' attitudes and PC knowledge regarding EOLC. ICU staff discovered incorrect attitudes and a lack of knowledge regarding PC. Appropriate attitudes about communicating with dying patients were especially weak, as was knowledge of the psychological and spiritual components of PC. This issue could be resolved in hospitals and nursing schools by raising awareness about and attitudes toward PC. According to earlier studies, nurses' perceptions of EOLC have ranged from unfavorable to favorable (Hamdan et al., 2023). This implies that research on attitudes and other influencing factors in the northern west bank is necessary.

Little research has been conducted in Palestine on PC and EOLC for hospital doctors and nurses. With the dire shortage of PC nurses and the importance of PC, Palestinian healthcare professionals need proper education and training to enhance nursing practice and patient care. Although some PC courses have been offered to nursing students, these courses have not been uniform in content and scope. Understanding the preferences and wishes of patients must be accompanied by adequate EOLC discussions with patients and families, to preserve them from unnecessary hospitalization and futile treatments. If nurses lack proper PC knowledge, they won't be in a position to adequately diagnose the needs of patients or be sent to PC units. Hence, the study aimed to assess critical care nurses' knowledge, practices, and attitudes about EOLC in critical care units in the West Bank.

Due to the intricacies surrounding the planning and delivery of EOLC, it is ideal to begin such planning once terminal diagnosis is made. Regular discourse between the clinician and patients is crucial to guarantee honoring the patient's preferences. The discussions must start early on to promote effective planning for such things as end-of-life care and advance directives, according to the Institute of Medicine. That way, it assures an alignment of care with the values and preferences of the patients, which in essence enhances their quality of life. EOLC should improve quality of life rather than quantity (Huffman & Harmer, 2019).

Various tools aid healthcare professionals in evaluating and improving the quality of life of patients at the end times. Some instruments, like the Cardiac Health Profile for coronary illness or the QOL-BC scale for breast cancer, are disease-specific, while others-such as the WHOQOL-BREF-are often more general in use. The WHOQOL-BREF measures quality of life in four broad areas: from social interaction to environmental resources, psychological health, and physical health. The 26 questions of the WHOQOL-BREF rate financial resources, social support, self-esteem, and activities of daily living. The responses guide the care plan professionally tailored to fit the needs and desires of the patients (Huffman, 2023).

The quality of life for the patient needs consideration when preparing for a care plan. Studies show that the most successful end-of-life care models are those that connect services across a continuum of care based on the patient needs. Some of these are; palliative care, social work, physical therapy, mental health assistance, spiritual care, and respiratory therapy. Consideration is, however, given to the fact that when care is tailored to meet the specific needs of the patient, there is a marked improvement in the quality of life for the patient (Huffman, 2023).

PC is severely hampered for Palestinians in the West Bank and Gaza by a lack of health policy, a lack of information of PC, and a lack of resources, especially opioids for pain relief. Healthcare delivery is made more difficult by the political climate under Israeli rule. Notwithstanding these obstacles, the Palestinian Authority (PA) treats war injuries and cancer; in 2016, just 8.5% of its roughly $4 billion budget went on healthcare. Due to a lack of modern therapies, referrals account for a significant amount of the healthcare budget. In addition to attempts to establish PC training and a national palliative care strategy that ensures access to opioids, as advised by the WHO, more financing is required to enhance the Palestinian healthcare system. (Abu Seir, 2017).

Past research doesn't adequately address the knowledge, practices and attitudes among critical care nurses regarding EOLC at critical care units in northern west bank. Therefore, this study will assess knowledge, level of practices and attitudes among critical care nurses regarding EOLC at critical care units.

1.2 Problem Statement

Nurses are of the most valuable PC team providers who address the multiple symptoms of their patients, especially for those at terminal or serious disease situations. One of the important factors influencing a successful delivery of EOLC is the Knowledge,

Attitude and Practice (KAP). Lack of KAP about EOLC is an obstacle to nurses and physicians as they aim to deliver EOLC, the thing that is not well studied in Palestine. In Palestine in general, and in the West Bank specifically, there is an increase number of ICU departments and ICU nurses in hospitals attributable to the increase number of dying patients. There are approximately 260 ICU nurses in west bank hospitals and nurses in Palestine (Palestinian Ministry of Health). Giving EOLC to patients is emotionally taxing and challenging, and many patients don't feel competent enough to receive it. Nurses' ability to provide EOLC depends on their relationships with each patient, which are influenced by their interest in and willingness to care for those nearing the end of their lives.

Concerns regarding the quality of the dying process have grown in tandem with increases in life expectancy and death from non-communicable diseases. In this regard, end-of-life experiences (ELEs) seem to significantly affect how well everyone participating in the dying process feels (Silva, 2023).

There is little research on healthcare workers' experiences in providing EOLC, highlighting programs in nursing preparatory levels. EOLC education, besides the advances in nursing education, is of utmost importance; more so with the advent of COVID-19. Inadequate training leads to anxiety, poor coping mechanisms, and burnout for nurses. Those nurses without any formal EOLC training may also experience compassion fatigue. It'd allow for self-care through acquired mechanism of coping and resilience to learn how to deal with the heavy emotional load of taking care of dying people (Magee, 2023).

Nurses perceive that doctors often avoid discussing death with patients and feel excluded from decision-making despite their involvement (Hernández-Zambrano et al., 2020). Poor service coordination, communication barriers, and difficulty identifying end-of-life stages hinder EOLC. Institutional culture, limited resources, strict policies, and inadequate training further exacerbate these challenges (Garbi, 2021).

1.3 Significance of the Study

Despite EOLC being a crucial aspect of nursing in acute care, many generalist nurses may lack adequate preparation, impacting care quality. As more patients receive EOLC in general settings, nurse readiness is essential. High-quality EOLC can reduce unplanned care, prevent unnecessary treatments, and improve patient quality of life. The

WHO recognizes EOLC as a global necessity, emphasizing its integration into healthcare policies (Magee, 2023).

Programs that improve nurses' skills in PC boost communication and family support. However, many nurses lack sufficient training, which varies by clinical setting. Health officials can use this study to shape evidence-based policies focused on staff education and resource allocation. Clinically, initiatives should strengthen nurses' ability to provide effective EOLC, with hospitals prioritizing ongoing PC training. Further research with larger critical care nurse samples is needed to confirm these findings (Subih et al., 2022).

Understanding nurses' attitudes and the factors influencing EOLC delivery can help overcome challenges in hospital settings. Assessing their expertise aids in closing critical care gaps, improving symptom management, and enhancing patient dignity. Continuous palliative care training strengthens nurse competencies, improves quality of life, and reduces suffering. Critical care nurses should actively address PC challenges to optimize outcomes (Almalki, 2024).

Granting nurses more decision-making authority and the ability to initiate EOLC discussions could improve care. Enhancing nurse-doctor communication with families and providing support through social networks, education, and grief resources are essential. Further research is needed to better equip nurses for EOLC in critical care (Ong, 2018).

Enhanced EOLC education boosts nurses' competence, performance, attitudes, and knowledge, leading to better care and less suffering. Training in EOLC and communication strengthens PC services and professional growth (Ghaemizade et al., 2022). Community engagement in health and social care, with a focus on EOLC, promotes long-term health and well-being (Sallnow et al., 2016).

This study highlights the need for educating nurses to support senior staff and collaborate with families while managing emotional challenges. Barriers such as family decision-making difficulties and emotional strain necessitate protocols for communication, decision-making, and psychological support. Enhancing nurses' competencies in PC and EOLC is vital, emphasizing the need for further research and improved training for better patient care.

1.4 Study Objectives

1.4.1 Main Objective

To assess knowledge, level of practices and attitudes among critical care nurses regarding EOLC at critical care units in west bank.

1.4.2 Specific Objectives

1. To assess the relationship between critical care nurses' knowledge, level of practices and attitudes regarding EOLC at critical care units and their demographic characteristics.
2. To determine the relationship between critical care nurses' knowledge, level of practices and attitudes regarding EOLC at critical care units and their work related factors.
3. To identify the relationship among knowledge, attitude, and practice regarding EOLC.

1.4.3 Research Questions

1. Is there a relationship between critical care nurses' knowledge, practices, and attitudes regarding EOLC at critical care units and their demographic characteristics?
2. Is there a relationship between critical care nurses' knowledge, practices, and attitudes regarding EOLC at critical care units and their work-related factors?
3. Is there a relationship between knowledge, attitude, and practice regarding EOLC?

1.4.4 Study Hypotheses

1. H0: There is no significant relationship between critical care nurses' knowledge, practices and attitudes regarding EOLC at critical care units and their demographic characteristics at a p value <0.05.
2. H0: There is no significant relationship between critical care nurses' knowledge, practices and attitudes regarding EOLC at critical care units and their work related factors at a p value <0.05.
3. H0: There is no significant correlation between knowledge, attitude, and practice regarding EOLC**.**

1.5 Conceptual Framework of the Study

Figure (1.1) shows the relationship between dependent and independent variables; dependent variables are knowledge, attitude and practice; Independent variable are demographic characteristics (age, gender, education level, residency place, marital status), Work related factors (nursing experience, ICU experience years and hospital agency).

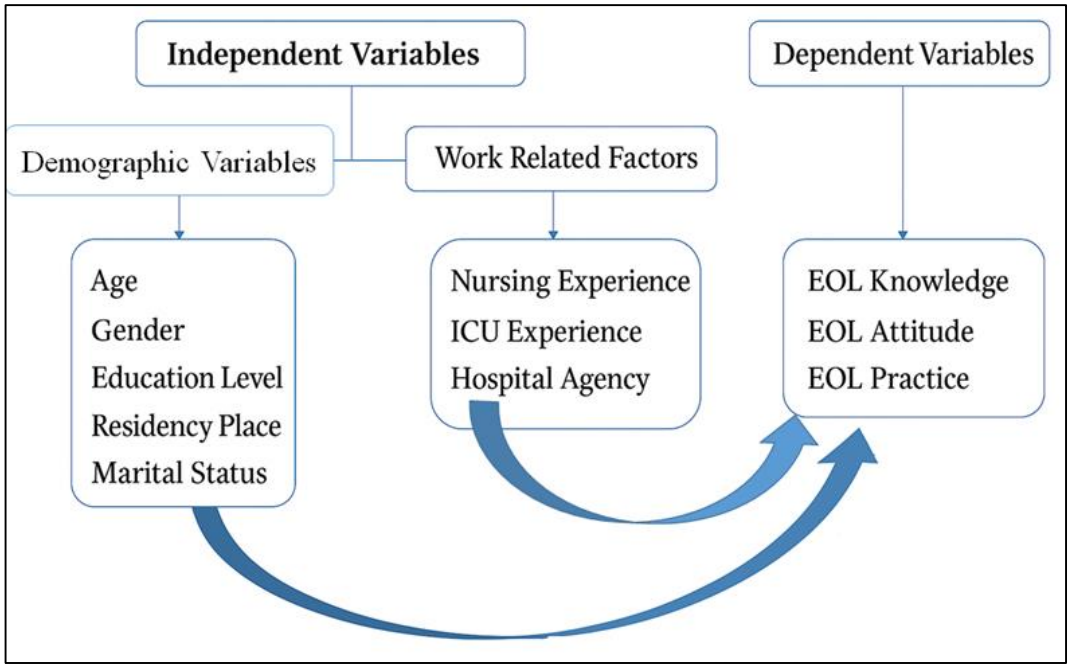

Figure 1.1. The Conceptual Framework of the Study

1.6 Conceptual and Operational Definitions

1.6.1 The Conceptual Definition of Knowledge

It describes the comprehension or knowledge of ideas, theories, models, classifications, and so forth. Reading, watching, listening, experiencing, or engaging in deliberate, introspective mental work are all ways that we pick up conceptual knowledge. Another name for this is Declarative Knowledge (Schei, Fuks et al., 2019).

1.6.2 The Operational Definition of Knowledge

The operational definition of knowledge in this study will use Nurses' knowledge questionnaire from the researcher (Mohammed et al., 2020) regarding KAP toward EOLC at critical units.

1.6.3 The Conceptual Definition of Attitude

The way a person perceives and assesses something or someone, as well as their inclination to react either favorably or unfavorably to a certain notion, item, person, or circumstance, is known as their attitude. Traditionally, it is organized along three dimensions: behavioral (actions or expressed intents toward the object based upon the "cognitive" and "affective" reactions), affective (likes and dislikes, feelings, or triggered emotions), and cognitive (perceptions and beliefs) (Al-Mubireek, 2020).

1.6.4 The Operational Definition of Attitude

The operational definition of attitude in this study will use FATCOD scale taken from (Mohammed et al., 2020) regarding KAP toward EOLC at critical units.

1.6.5 The Conceptual Definition of Practice

To perform or work at repeatedly so as to become proficient. (McCutcheon,1992), do or perform (something) repeatedly in order to acquire or polish a skill, Practice means doing something regularly in order to be able to do it better (Le Floch, Bastiaens et al., 2019).

1.6.6 The Operational Definition of Practice

Practice operational definition will be measured using a performance checklist taken from (Mohammed et al, 2020) regarding KAP toward EOLC at critical units.

1.6.7 End of Life Care

EOLC ―Refers generally to the processes of addressing the medical, social, emotional and spiritual needs of people who are nearing the EOL (Laabar et al., 2023).

1.6.8 Critical Care

Medical care for patients with life-ending diseases or injuries is called critical care, normally given in intensive care units. This is round-the-clock care given to patients by a number of highly trained medical professionals. This consists of constant electronic monitoring of vital signs. Usually, it also means administering specific medications to you.

Chapter Two: Literature Review

2.1 Introduction

This chapter introduces literature review related to assessment of knowledge, level of practices and attitudes among critical care nurses regarding EOLC at critical care units and their relationship with independent variable (demographic characteristics, work related factor, and hospital agency). Pub- Med, Google Scholar and CINAHL databases were used in the search process. To locate relevant English literature (qualitative, quantitative, mixed-methods, and systematic reviews) published between 2014 and 2024, use the following keywords and Boolean operators:

(“Critical care nurses" AND "ICU nurses" AND "intensive care nurses”) AND ("end-of-life care" AND "palliative care" AND "terminal care") AND ("knowledge" AND "awareness" AND "understanding") ("Critical care nurses" AND "ICU nurses") AND ("attitudes" AND "perception") AND ("end-of-life care" AND "palliative care") AND ("nursing practices" AND "clinical decision-making") AND ("critical care units" AND "intensive care units"

2.2 Knowledge, Practices and Nurses Attitudes about EOLC

Assuit University Hospital conducted a cross-sectional study to evaluate ICU nurses' knowledge of EOLC. Data was gathered from 65 intensive care unit nurses using the FATCOD scale, a performance checklist, and an interview questionnaire. The results revealed that 72.3% had unfavorable attitudes, 58.6% had low practice levels, and 61.5% lacked sufficient understanding. Higher education levels were associated with a better grasp of EOLC, and attitudes were influenced by experience with dying patients. The study underlined that in order to increase ICU nurses' proficiency in EOLC, clear policies and training are required (Mohammed et al., 2019).

In Amhara Referral Hospitals in Ethiopia, 355 nurses participated in a cross-sectional study that evaluated their knowledge, attitudes, and influencing variables on EOLC. The EOL Knowledge Assessment and the FATCOD attitude scale were used to gather data. The results showed that just 39.0% had good knowledge, but 70.7% had a positive attitude (mean: 92.98 ± 17.21 SD). Higher education, in-service training, and experience providing emergency care were associated with improved knowledge and attitudes among nurses. Positive attitudes were more prevalent among those with 6–10

years of experience than those with ≤5 years. The study emphasizes the necessity of improving EOLC education and training (Abate et al., 2019).

To assess the knowledge, skill, and attitude of nurses at a general hospital on palliative care and investigate the connections between the nurses' knowledge, competence, prior experiences, and demographics, a correlational, cross-sectional survey design was used to gather information about nurses' knowledge, attitude, and competence regarding palliative and EOLC. In order to locate 682 qualified nurses, it was implemented. The surveys contained demographic information as well as knowledge, attitude, and competency scores pertaining to EOLC and palliative care. Data was collected via a structured questionnaire survey at a general hospital in southern Taiwan. Overall, 76% of the questions assessing knowledge about hospice and PC were correctly answered thanks to the use of path analysis in structural equation modeling statistical analysis (Lin, 2021).

Palliative attitudes among nurses were classified as "positive perception" or "negative perception." "Negative perception" had no significant correlation with competence ($r = -0.07$, $p = 0.25$), whereas "positive perception" had a strong correlation with competence ($r = 0.48$, $p < 0.001$). Palliative knowledge was unrelated to "positive perception" ($\beta = -0.01$, $p = 0.84$) and competence ($\beta = 0.02$, $p = 0.80$). Conversely, palliative knowledge and "negative perception" had a negative correlation ($\beta = -0.20$, $p < 0.01$). According to this study, nurses' "negative perception" of providing patients and families with information to improve palliative and end-of-life care can be reduced by ongoing education. this study supported a previous study (Wilson, Avalos & Dowling, 2016) by demonstrating that nurses with experience providing palliative and end-of-life care had better attitudes regarding the provision of this type of care than did nurses without such experience. However, the route model shows no positive correlation between an EOL patient's prior experience and either competency or pleasant perception. The literature indicates that professional experience is associated with both talent and knowledge. For example, a previous study discovered that the opinions of healthcare professionals about NFRs can differ based on their age and degree of work experience (Su et al., 2008). Similarly, According to Coffey et al. (2016), senior nurses who have worked for longer periods of experience seem to have greater confidence when it comes to treating patients' symptoms and giving end-of-life care. In order to assist terminally ill patients and their families in making the right decisions, skilled, highly capable, and experienced nurses can offer the necessary knowledge.

In a cross-sectional study conducted in Jordan, 182 participants' attitudes and knowledge regarding palliative care (PC) were evaluated by intensive care unit nurses. Self-administered questionnaires that assessed attitudes (FATCOD scale) and knowledge (Palliative Care Quiz) were examined using the Kruskal-Wallis H test and ANOVA. With mean scores of 103.14 ± 12.31 for attitude and 8.88 ± 2.52 for knowledge, the results indicated that 53.3% of respondents held negative attitudes. The lowest degree of understanding was seen in psychosocial and spiritual care (0.51 ± 0.70). Knowledge and attitude differed according to education, experience, and type of hospital. The most knowledgeable nurses were those with PhDs, two to five years of intensive care unit experience, or teaching hospital experience; the most upbeat nurses were those with private hospital and PhD degrees. The report emphasizes the necessity of education-driven advancements in computer science (Hamdan et al., 2023).

To find out how critical care nurses felt about promoting advance directives and EOLC, a cross-sectional study was conducted in a large metropolitan medical center in northern Taiwan. The study discovered that out of the 250 invited nurses, the legal aspects of EOLC were the least understood, and that nurses felt unconfident about providing EOLC to patients. Better perspectives on promoting advance directives were linked to perceived knowledge (β=0.134; p=0.045) and positive attitudes (β=0.423; p<0.001) (Ho et al., 2022).

According to a Taiwanese cross-sectional survey, ICU nurses were unconfident in EOLC, with legal considerations being the least comprehended. Perceived knowledge (β=0.134; p=0.045) and positive attitudes (β=0.423; p<0.001) enhanced opinions on advance directives. A study conducted at Kigali University Teaching Hospital in Rwanda revealed that while 56% of 160 nurses had inadequate PC knowledge, 53.7% of them had positive views (mean: 5.76 ± 2.08). While education level had no effect on knowledge (p=0.7), experience with critically ill patients enhanced attitudes (p=0.002). Both studies highlight the importance of experience in forming attitudes and highlight knowledge gaps (Kanyamuhunga et al., 2021).

A descriptive cross-sectional study was carried out to evaluate the attitudes and knowledge of 259 intensive care physicians and nurses about end-of-life decisions. According to the study, participants' understanding of end-of-life decision concepts was inadequate, and their methods varied depending on their experiences. The results emphasize the necessity of standardization and education in the process of making end-of-life decisions (Kuşcu & Özcengiz , 2023).

Through a cross-sectional study, 175 critical care nurses in Jordan were asked about their knowledge of EOLC and related topics. Nurses ranked highest on the cultural and ethical values subscale and lowest on the effective care delivery subscale, indicating a limited level of knowledge, according to the study. Age, work experience, and previous palliative care or EOLC training all positively correlated with EOLC knowledge. The study highlights the importance of palliative care training, with a focus on improving clinical competence for effective care delivery (Subih et al., 2022).

The findings of a qualitative study concerning critical care nurses' experiences in providing EOLC in two public hospitals of the Central Java province, Indonesia, showed five main themes. The themes resemble such aspects as communication difficulties with the family, support provided to patients and their families, discussion and decision-making, and the emotional state of nurses (Utami et al., 2020).

Hafifah et al. (2022) examined factors related to 40 Indonesian intensive care unit (ICU) nurses' understanding of EOLC through a cross-sectional study. According to the study, no responders had any prior training, and 67.5% of respondents lacked sufficient expertise. The majority of nurses (52.5%) had a diploma, and 12.5% had worked for at least 72 months. Knowledge and job experience ($p = 0.801$) and education level ($p = 0.269$) did not significantly correlate. The results show that in order to increase ICU nurses' understanding of EOLC, systematic training programs are necessary.

In order to investigate influential barriers and facilitators and to investigate RNs attitudes regarding EOLC, a sequential explanatory mixed methods study was carried out. 16 nurses were interviewed after an online poll of 431 nurses in five Saudi hospitals revealed generally positive responses. However, nurses experienced emotional control issues, difficulties in patient-family connections, and discomfort when talking about death. Poor communication skills and cultural and religious resistance were obstacles, but family and coworker support were enablers. The study emphasizes the necessity of better EOLC support networks and communication training (Alshammari et al., 2022).

In a tertiary care facility in India, a cross-sectional study was conducted among 386 critical care nurses to assess their knowledge, attitudes, practices, and perceived barriers regarding palliative and EOLC. The study found that the average scores for practice, attitude, and knowledge were 17.61 ± 4.36, 104.91 ± 13.04, and 9.83 ± 2.50, respectively. Being called away for new patient admissions was one of the main obstacles. Postgraduate nurses scored higher in practice ($P = 0.02$) and attitude ($P = 0.002$), while nurses with additional palliative care training had significantly higher knowledge ($P =$

0.001) and attitude ratings (P = 0.02). Positive views were higher among younger nurses (P = 0.04). Knowledge (P = 0.01) and practice (P = 0.001) were positively connected with attitude. Despite optimistic sentiments, the results show a knowledge and practice gap, underscoring the necessity of more robust preserve and in-service nursing education (Walia et al., 2020).

Research suggests that the medical profession lacks the knowledge, functionality, and insight to give EOLC. There is a gap in changed views relating to nurses and death with that of expectations and attitudes from the users' point of view. The opinions of most nurses regarding EOLC have been largely negative, and they have encountered feelings of anger, doubt, dread, or concern, or even just plain uneasiness at the thought of death and dying. A person's own attitudes toward death will probably affect one's attitudes toward providing care for those terminally ill (Shi, 2019).

According to a UK study on healthcare professionals' experiences with EOLC, RNs and nursing students frequently expressed a lack of understanding of PC's all-encompassing philosophy and the ability to provide patients and their families with emotional support. On the other hand, doctors noted a lack of understanding regarding the dying process and how to recognize when a patient was actively dying (Magee, 2023).

In particular, the establishment of PC and EOLC in the Middle East has progressed rather slowly, although nursing in crucial care Increased exponentially since its more mild success since the 1990s. Although there is some PC available in the region. Its access has remained very limited, and services have not scaled well against the dramatic burden of serious illness." There may generally be laid strong conceptual foundations for Palliative care and end-of-life care in Saudi Arabia, (but) other curative therapies may steal the limelight due to limited expertise while general public remains largely ignorant." The integration of PC and EOLC in the Middle East, especially the decisions surrounding "Do Not Resuscitate," greaterly conflicts with the values rooted in religious and cultural contexts." A survey conducted on 15 countries in the Middle East identified some challenges that limited the footprint of palliative care." Very few PC beds, poor training, little community awareness, and nonexistent hospice services made it into that list (Almalki, 2024).

2.3 Fundamental of EOL, Managing of Pain and Symptom according Moral and Legal Manifestation

In everyday clinical practice, however, end-of-life medical care ELMC components are crucial. DNR decision-making and plans for ELMC are different from the other areas of medical decision-making; their implementation depends on the ethical and cultural backgrounds of the respective decision-makers and also the specific circumstances of each clinical episode-that may have strongly guided the practice of the physician in charge. Other considerations in addition to quality of life were the place of care, existing DNR and ELMC policies, economic considerations, and also religious and legal concerns along with the availability of health care resources in the community and leading-edge technology (Alwazzeh, 2023).

Pain is one of the most common signs of terminal illness, experienced by 60% of patients suffering from severe cardiovascular diseases, and 80% of cancer patients worldwide. Multidimensional tools can be considered the most thorough and thus, regular evaluation and reevaluation with the use of validated instruments are essential to ensure optimal pain management. A full evaluation takes into consideration pain characteristics, including intensity, localization, timing, impact on daily tasks, and so forth. In developing regions, including the Middle East, insufficient use of palliative pharmacotherapies is caused by a number of problems, including strict narcotic laws, high prices, lack of resources, and an absence of knowledge among healthcare professionals (Abu Seir, 2017).

LST decision-making for terminally ill patients is often an arduous task for family members, especially when the patient has not drawn up any advance directives or has not indicated anything regarding EOL wishes. Other factors influencing these decisions include age, religious beliefs, severity of illness, and family economic status. In a country like South Korea, there may be family obligations that accompany the decision to initiate LST; thus, collective decision-making will often be preferred based on the collective family orientation. In the world, opinions and regulations concerning LST diverge; still, in due course of decisions concerning EOL issues, culture emphasizes common ideals: to alleviate suffering and to die dignifiedly (Kim et al., 2021).

Giving EOLC is crucial and represents individual, cultural, and religious values. ICU nurses have difficulties because of their inexperience, ambiguous policies, and moral conundrums like poor communication and diminished autonomy. They require in-depth

understanding and a caring attitude. Doctors have to evaluate the ability to make decisions, which can be hampered by pain and iatrogenic conditions. The AAPM states that comprehension, insight, reasoning, choice articulation, and voluntariness are necessary for informed consent. Use of a surrogate is necessary if a patient is incapable of doing so. Physicians should speak with an ethics committee before pursuing legal action if a surrogate's choices appear to be damaging (Jukić, 2018).

2.4 Pain and Symptom Management

In order to mitigate the EOL, euthanasia-related sufferings, healthcare professionals should provide an authentic evaluation and treatment of a patient's need. Examples of physical symptoms include pain, respiratory distress, gastrointestinal problems, and limited movement, while worry and depression are examples of psychological symptoms. Proper evaluation and treatment by healthcare professionals for these systems are of prime concern. Pain management is the core concern, requiring constant evaluation and depending on the capacity of the patient, the right tools to do so. The PQRST scale is used for verbal adults, while the CHIPPS is designed for newborns and infants. The nonverbal patients should be aligned with other scales. Dyspnea treatment for the patient on his deathbed-that would be, probably, 70% of all dying patients-incorporates repositioning, bronchodilators, opioids, RDOS, and oxygen. Anorexia could use olanzapine, corticosteroids, and high-calorie diets, while constipation could be handled with motility stimulators, fiber, and water. Fatigue will be measured by the FACIT fatigue scale, and treatment will consist of exercise, stimulants, hydration, and anemia treatment. Continuous assessment provides appropriate care (Huffman, 2023).

2.5 Summary

Literature review related to assessment of knowledge, level of practices and attitudes among critical care nurses regarding end-of-life care at critical care units and their relationship with independent variable (demographic characteristics, work related factor, and type of hospital) is not consistent with each other, so the study of knowledge, practices and attitudes among critical care nurses regarding end-of-life care at critical care units is important in northern west bank.

Chapter Three: Methodology

3.1 Introduction

This chapter detailed the study's methodology, including the study design, demographic, site and setting, sample size and sampling technique, eligibility requirements, data collection process, instruments, validity and reliability, ethical issues, and data analysis.

3.2 Study Design

This research utilized a descriptive - cross-sectional design to assess knowledge, attitude and practice among critical care nurses regarding EOLC at critical care units.

3.3 Population Setting and Sampling

3.3.1 Study Population

The study population included all nurses working in ICU governmental hospital in northern and Middle West bank – Palestine, Population size 140 critical nurses related to (Palestinian Ministry of Health, 2022**)**. Table (3.1) present the distribution of population across all study hospitals.

3.3.2 Study Setting

The six governmental hospitals at Palestine's northern west bank. Governmental hospitals include (Jenin governmental hospital, Rafeidia and Al-Wattani hospitals in Nablus city, Thabet Thabet hospital in Tulkarm city, Darwish Nazzal hospital in Qalqilyah, and Turkish Hospital in tubas) and one governmental hospital in middle west bank (Palestine medical complex in Ramallah).

Table 3.1. Distribution of Population across all Study Hospitals

Region	City	Population Size
North West Bank	Jenin	32
	Nablus	35
	Tulkarm	20
	Tubas	11
	Qalqilya	10
Middle West Bank	Ramallah	32
Total		**140**

Review about Settings (https://www.wikidata.org/wiki/Q54870519).

Rafeidia Governmental Hospital

This medical facility is situated in Nablus. This establishment, which was built in 1976, has 200 beds. Within this hospital, there are 628 employees. There are sixteen departments in this hospital: general surgery, specialized orthopedic surgery, vascular, pediatric, burns, emergency, neurosurgery, day care, outpatient clinics, intensive care unit, ophthalmic, and plastic surgery.

Jenin Governmental Hospital

In Jenin, it is the sole government hospital. Serving a sizable portion of the northern West Bank, especially the Tubas and Jenin regions, the hospital has 123 beds. Pediatric, neonatal, maternity, intensive care unit, internal, surgical, kidney dialysis, emergency room, thalassemia, and chemotherapy units are among them.

Al Wattani Hospital

During the Ottoman era, the National Hospital in Nablus was founded in 1888. Its Ottoman-inspired building represents Nablus' unwavering dedication to healthcare. The hospital initially operated with 60 beds, then gradually expanded its services and facilities to meet the growing health care needs of the population. Over the years, expansions have been built to accommodate more patients and feature diverse medical departments such as emergency, surgery, obstetrics and gynecology, pediatrics, orthopedics, cardiology, and neurology. By 1948, the hospital had increased to around 144 beds.

Thabet Thabet Hospital

Serving hundreds of thousands of people in the north-west West Bank, it is one of the primary hubs. PCRF is assisting the emergency room and constructing a new operating room. Services will be increased, and the growth of health services there will be further supported. To help residents receive better access to healthcare, PCRF has been constructing pediatric cancer, cardiology, emergency, and PICU departments on the West Bank for more than 30 years.

Darwish Nazzal Governmental Hospital

It is a government hospital in Palestine. It can accommodate roughly 68 beds. It bears Darwish Nazzal's name, who passed away on February 28, 2000, due to a serious illness. Early in 2009, it opened. It covers around 6,000 square meters and serves as a

medical facility for the Qalqilya Governorate and its environs. With its many departments—including emergency, operations, general surgery, intensive care, artificial kidney, internal medicine, cardiology, orthopedics, urology, obstetrics and gynecology, pediatrics, nursery, and ENT department—as well as outpatient clinics, laboratory and blood bank, pharmacy, radiology, sterilization, and physiotherapy, the hospital's occupancy rate in 2016 was close to 100%.

Turkish Hospital

It is the sole government hospital in the Tubas Governorate and one of the few on the West Bank. It has ties to the Ministry of Health in Palestine. It has 169 staff members and can accommodate 70 beds. Early in 2014, the hospital opened to serve the Jordan Valley and the Tubas Governorate. With services offered through its several departments—emergency, obstetrics and gynecology, nursery, nephrology, surgeries, intensive care, and outpatient clinics—the hospital's occupancy rate in 2016 was close to 60%.

Palestine Medical Complex

It is the largest Palestinian government hospital operating in the West Bank, with a bed capacity of 312 beds and 774 employees. The hospital was built in 1963 to provide medical services to the region's residents due to population growth and the need for modern medical services. It was originally called "Ramallah Governmental Hospital," but was later renamed "Palestine Medical Complex" in 2010 by presidential decree, operating as a central government specialized hospital complex. The Palestine Medical Complex consists of several buildings, each of which is considered a specialized hospital equipped with the latest devices and equipment. These are the Ramallah Children’s Wing (formerly Ramallah Hospital), the Children’s Wing (Bahraini Hospital), the Cardiology and Specialized Surgery Wing (Kuwaiti Hospital), the Emergency Wing (Sheikh Zayed Hospital), the Kidney Dialysis Wing, the Laboratory Wing, and the Blood Bank. These wings contain many departments, namely: Emergency, Children's Emergency, Outpatient Clinics, Artificial Kidney, General Surgery, Internal Medicine, Cardiology, Orthopedics, Specialized Cardiac Surgeries, Catheterization, Kidney, Children's Heart, Intensive Care, Critical Care, Obstetrics and Gynecology, Physical Therapy, Radiology, Pharmacy.

3.3.3 Sampling

A convenient sample of nurses, who are working in ICU in six governmental hospitals at Palestine's northern west bank and one governmental hospital in middle west bank (Palestine medical complex in Ramallah).

Using the Raosoft online site, margin error of 5% was chosen (5% is a common choice, and confidence level needed was 95% (typical choices are 90%, 95%, or 99%), population size is 140 (nurses at ICU in governmental hospital in the north and middle of west bank), with response distribution 50%, which will result in 103 participants. The number will be increased by 10% (attrition rate) to 110 participants in advance of a member's withdrawal.

3.3.4 Inclusion and Exclusion Criteria

Table (3.2) presents the Inclusion and Exclusion Criteria.

Table 3.2. Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
All nurses currently working in intensive care unit who have a Palestinian counsel license	Students who train in intensive care
Nurse has diploma level as minimum education level	Any acute or chronic condition that would limit the ability of the nurse to participate in the study for example dementia.
Nurses both genders and all ages	Associate Nurses
Nurses has practice experience at least 3 month in ICU (to be able to assess attitude and barriers about early mobilization without bias.	Volunteer Nurses

3.4 Data Collection

By a self-administered questionnaire, data collection was started from (February 26th, 2025 to (March 15th, 2025). The questionnaire consisted of five parts: Demographic data, work related factors, nurses' knowledge scale, nurses' attitude scale and nurses' practice scale (Appendix 3). Through a secure closed network, the questionnaire was methodically sent to the chiefs of several hospital departments, guaranteeing secrecy. It was also given directly to intensive care nurses in order to get their opinions and ideas on the topic.

3.4.1 Nurses' Knowledge Questionnaire

It utilized to evaluate nurses' understanding of the theoretical underpinnings of optimal EOL nursing care for patients, particularly those who are elderly. It has twenty-six brief (closed-ended) questions.

The knowledge questionnaire uses the following scoring system: correct, not correct. Every right response received a score of 1, while every incorrect response received a score of 0. The questionnaire received a total score of (26). When the overall score was equal to or greater than 65%, it was deemed "satisfactory," and when it was less than 65%, it was deemed "unsatisfactory." Excerpted from the study on nurses' attitudes, behaviors, and knowledge on EOLC at critical units by Mohammed et al. (2020).

3.4.2 Assessment of Nurses' Attitudes toward EOL

EOL care using second tool (FATCOD scale). The Folmmelt Attitudes toward Care of the Dying Scale (FATCOD scale) study served as the model for this instrument.

It comprises thirty items on a five-point Likert's scale. The following numbers (1, 2, 4, 10, 12, 16, 18, 20, 21, 22, 23, 24, 25, 27, and 30) represent the 15 positive phrases on the FATCOD scale, whereas the following numbers (3, 5, 6, 7, 8, 9, 11, 13, 14, 15, 17, 19, 26, 28, and 29) represent the 15 negative sentences.

The FATCOD scale uses the following scoring system: Agree (A), Strongly Agree (SA), Disagree (D), Uncertain (U), and Strongly Disagree (SD). Positive sentences are rated on a scale of 1 to 5. Five indicates Strongly Agree, while one indicates Strongly Disagree. For the negative items, the previously stated values are inverted (5 indicates Strongly Disagree and 1 means Strongly Agree). The overall scores fall between 30 and 150. An optimistic attitude receives a score of at least fifty on the [FATCOD] Scale. 50% or less have a negative attitude. Excerpted from a study by Mohammed et al. (2020) about nurses' attitudes, practices, and knowledge on EOLC in critical care units.

3.4.3 Nurses' Degree of Practice with EOL Care

It is evaluated using third tool (performance checklist). The instrument created following a review of relevant literature was utilized to assess the performance level of nurses in providing EOL care for elderly patients who are dying as follows: A: Comfort measures comprised seven stages B; four steps dealt with communication; and eight steps dealt with

hygienic care. The checklist uses the following scoring system: done, not done. System of scoring: each properly completed step received a score of 1, whereas not done or skipped steps received a score of 0. The performance's overall score was 19. With a 75% overall score, the result was categorized as "poor". The practice questionnaire was taken from the researcher (Mohammed et al, 2020) about Knowledge, practices, and nurses' attitudes toward EOLC at critical units.

3.5 Pilot Study

Pilot study was conducted with a small group of participants to refine questions and ensure clarity. 10% of study sample (n=103) was selected (n=11).

3.5.1 Reliability Statistics of Scales

As shown in (Table 3.3), all instruments were reliable evidenced by Cronbach's Alpha were more than 0.7 in both pilot and main study.

Table 3.3. Reliability Statistics

Scale	Cronbach's Alpha		N of Items
	Pilot Study	Main Study	
Knowledge	0.763	0.775	15
Attitude	0.992	0.952	30
Practice	0.811	0.802	19

3.5.2 Content Validation

By involving a panel of experts (n=5) to review the instruments for relevance and accuracy. The questionnaire was presented to five experts to assess each item for relevance, clarity, and necessity. Content Validity **Index (CVI)** was used as an alternative to Content Validity Ratio (CVR). CVR uses a binary scale asking, “Is this item essential for the study?” (Yes = 1, No = 0). While CVI uses a 4-point scale for relevance: Not relevant (1), somewhat relevant (2), quite relevant (3) and highly relevant (4). The minimum acceptable CVR depends on the total number of experts. For 5 experts, the critical value is 0.99 (based on Lawshe’s table for content validity). Unlike CVR, CVI does not rely on strict critical values tied to the number of experts, making it more adaptable for smaller panels (e.g., 5 experts). CVI is calculated as a simple proportion without complex thresholds. Experts can rate items on a scale (e.g., 1–4), which provides richer feedback compared to binary "essential/not essential" responses in CVR.

To calculate **item CVI** (I-CVI), counting the number of experts who rated the item as valid (3 or 4). Dividing by the total number of experts. To calculate **scale CVI** (S-CVI), taking the average of all I-CVI values across items. CVI Interpretation: I-CVI ≥ 0.78 is typically considered acceptable for most items. S-CVI ≥ 0.80 or 0.90 is often used as a threshold for overall scale validity.

3.5.2.1 Content Validity Evaluation for Knowledge Scale of EOL

Appendix (4) shows the content validity of knowledge scale according to experts' evaluation. Scale CVI after removing items that were not valid for end of life and was high acceptable (S-CVI= 0.920). Appendix (5) summarizes the final items that were valid for knowledge scale of EOL.

3.5.2.2 Content Validity Evaluation for Attitude Scale toward EOL

Appendix (6) shows the content validity of attitude scale according to experts' evaluation. Scale CVI was high acceptable (S-CVI= 0.940). Appendix (7) summarizes the final items that were valid for attitude scale of EOL.

3.5.2.3 Content Validity Evaluation for Practice Scale

Appendix (8) shows the content validity of practice scale according to experts' evaluation. Scale CVI was acceptable (S-CVI= 0.842). Appendix (9) summarizes the final items that were valid for practice scale of EOL.

3.5.2.4 Summary of Scoring Process

Table (3.4) summarizes scoring process for knowledge attitude and practice of EOL

Table 3.4. Summary of Scoring Process

	Items (n)	**Satisfactory ≥65%**	**Unsatisfactory <65%**		
Knowledge	15	≥ 9.75	< 9.75		
Attitude	30			**Positive >50%**	**Negative ≤50%**

			>75	≤75	
Practice	19			**Good >75%**	**Poor ≤75%**
				>14.25	≤14.25

3.6 Data Analysis

SPSS version 21 was used for the statistical analysis. The purpose of the data analysis was to evaluate critical care nurses' attitudes, practices, and understanding about end-of-life care in critical care units. Frequencies, percentages, averages, and standard deviations were among the descriptive statistics utilized to compile the clinical and demographic information. Reliability was evaluated using Cronbach's alpha. Differences in nurses' knowledge, practice, and attitude were evaluated using inferential statistics based on the demographics of the participants. The significance level $p < 0.05$ is regarded as statistically significant, and all statistical tests were two-sided.

All p-values for the Shapiro-Wilk and Kolmogorov-Smirnov tests were below the significance threshold ($p < 0.05$), as shown in Table (3.5) and Figure (3.1). This suggests that each research variable's data does not follow a normal distribution. This finding may suggest that non-parametric tests have to be considered for additional data processing.

Table 3.5. Tests of Data Normality

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Knowledge	0.103	103	0.009	0.943	103	0.000
Attitude	0.120	103	0.001	0.957	103	0.002
Practice	0.202	103	0.000	0.805	103	0.000

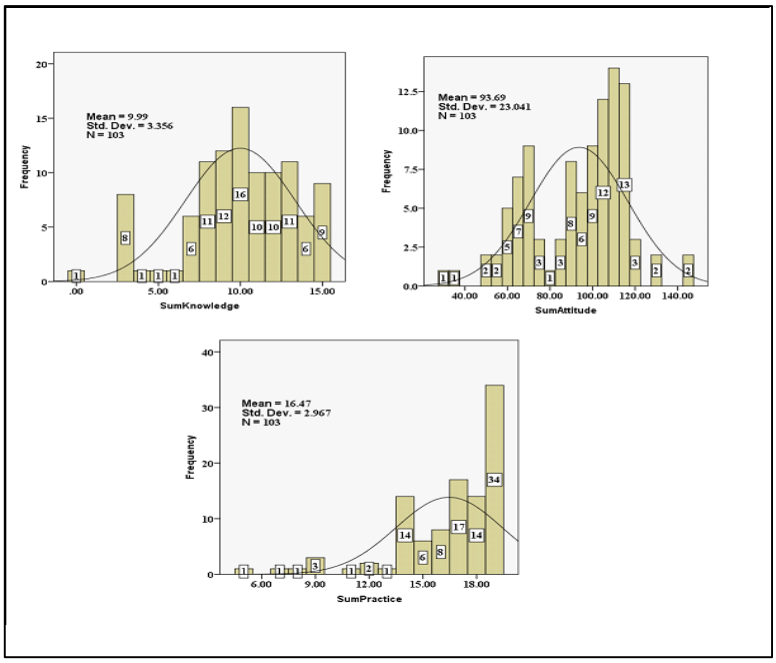

Figure 3.1. Tests for Data Normal distribution

3.7 Ethical Consideration

The ethical approval was obtained from the Institutional Review Board of Arab American university committee (IRB- AAUP committee) and was approved by the research ethics committee of the Palestinian Ministry of Health (MOH) (Appendix B; Appendix C). After verbal and written explanation about the need, aim, method and value of the study to participant, the consent forms was obtained. Confidentiality and anonymous were provided. Participants were informed of their freedom to withdraw without any negative consequences. They were assured that participation or information provided will not be used against them and only the research team and main author will see it, then it will be placed in a special place in the university until the end of the research purpose, then it destroyed.

3.8 Summary

The methodology chapter outlines the research approach, study design, and data collection methods for assessment of knowledge, level of practices and attitudes among critical care nurses regarding EOLC at critical care units. The study design was a cross sectional study conducted in selected hospitals in Jenin, Nablus, Tulkarm, Tubas aiming to assess knowledge, level of practices and attitudes among critical care nurses regarding EOLC at critical care units The study sample was selected using convenience sampling,

with inclusion criteria including all nurses currently working in intensive care unit who had a Palestinian counsel license, Nurses had diploma level as minimum education level, and other, sample size calculation was performed to ensure adequate statistical power.

Data collection involved selecting appropriate instruments, training data collectors, and ensuring accurate and reliable data collection. Data analysis included cleaning and preparation, descriptive statistics, inferential statistics, and data visualization.

Ethical considerations, such as obtaining informed consent, maintaining confidentiality, protecting data, obtaining research ethics approval, minimizing risks, promoting beneficence and justice, collaborating with healthcare professionals, and complying with legal and regulatory requirements upheld throughout the study. By following this methodology, the study aims to gather reliable and valid data to contribute to evaluating knowledge, level of practices and attitudes among critical care nurses regarding EOLC at critical care units.

Chapter Four: Results

4.1 Introduction

This chapter presents the findings of a study that evaluated critical care nurses' attitudes, practice levels, and knowledge on EOLC in critical care units. The results are systematically organized to satisfy the study's objectives. The chapter is organized as follows: initially, the participants' demographic details are provided. A thorough analysis of attitudes, self-reported practice, and knowledge levels on EOLC follows. The results concludes with statistical analysis examining the connections between these factors. The findings offer insightful information about what has to be improved and possible approaches to improving EOLC in critical care environments.

4.2 Descriptive Statistics

4.2.1 Demographic Characteristics of Participants

The study included (50.5%) male and (49.5%) female critical care nurses. 38.8% of participants were between the ages of 21 and 25, with 30.1% being between the ages of 26 and 30. Just 4.9% of them were older than 41. The majority of participants (53.4%) were from villages, 30.1% were from cities, and 16.5% were from camps for refugees. Nurses who were married (49.5%) and those who were single (50.5%). The majority (62.1%) holding a bachelor's degree, while 28.2% had higher education qualifications, and 9.7% held a diploma (Table 4.1).

4.2.2 Work Related Factors

While 20.4% of the nurses had 6–10 years of experience, more than half (56.3%) had 1–5 years of hospital experience. 3.9% had more than 21 years of experience in a hospital setting, a smaller percentage with more extensive experience. In terms of ICU experience, only 1.9% of nurses had more than 21 years, whereas the majority (74.8%) had 1–5 years. The majority of critical care nurses in the study had comparatively early to mid-career experience in intensive care units, according to this distribution. The participants worked in a variety of hospitals in varied geographical areas. The largest percentage (25.2%) was employed in Jenin Governmental Hospital, with Palestine Medical Complex coming in second at 22.3%. The least represented hospital was Darwish

Nazzal Hospital (3.9%), followed by Al-Wattani (14.6%) and Thabet Thabet (14.6%) (Table 4.2).

Table 4.1. Demographic Characteristics of Participants (n=103)

Variables		F	%
Gender	Male	52	50.5
	Female	51	49.5
Age	21-25	40	38.8
	26-30	31	30.1
	31-35	14	13.6
	36-40	13	12.6
	>41	5	4.9
Residency Place	City	31	30.1
	Village	55	53.4
	Camp	17	16.5
Marital Status	Single	52	50.5
	Married	51	49.5
Level of Education	Diploma	10	9.7
	Bachelor	64	62.1
	High Education	29	28.2
Data were based on Frequencies (F) and Percentages (%)			

Table 4.2. Work Related Factors (n=103)

Variables		F	%
Nursing experience in hospital	1-5	58	56.3
	6-10	21	20.4
	11-15	16	15.5
	16-20	4	3.9
	>21	4	3.9
Nursing experience in ICU experience	1-5	77	74.8
	6-10	13	12.6
	11-15	8	7.8
	16-20	3	2.9
	>21	2	1.9
Name of hospital	Jenin governmental hospital	26	25.2
	Rafeidia hospital	10	9.7
	Al-Wattani hospital	15	14.6
	Thabet Thabet hospital	15	14.6
	Darwish Nazzal hospital	4	3.9
	Tubas Turkish Hospital	10	9.7
	Palestine medical complex	23	22.3
Data were based on Frequencies (F) and Percentages (%)			

4.2.3 Level of Knowledge among Critical Care Nurses Regarding EOLC

The knowledge assessment of critical care nurses about EOLC is shown in (Figure 4.1; Table 4.3). The average knowledge score for all participants was 66.6%, which

indicates a generally satisfactory level of knowledge based on the classification criteria (≥65% as satisfactory knowledge and <65% as unsatisfactory knowledge).

Among the 15 knowledge items assessed, nine demonstrated a satisfactory level of understanding, with at least 65% of participants answering them correctly. The highest levels of correct responses were observed in topics related to hospice care, with 84.5% of nurses recognizing its association with holistic and humanistic nursing, followed by 82.5% correctly identifying that drug addiction is not a major concern with long-term morphine use. Additionally, 81.6% of participants demonstrated an understanding of the differences between chronic and acute pain manifestations.

In contrast, six items had correct response rates below 65%, indicating areas where knowledge was insufficient. Notably, only 53.4% of nurses acknowledged the importance of a bowel regimen for patients on opioids, while 55.3% correctly identified the appropriateness of using drugs that may cause respiratory depression in cases of severe dyspnea. Furthermore, 56.3% understood that fatigue and anxiety could lower the pain threshold, suggesting a need for further education on pain management principles.

Misconceptions were also evident in areas related to family presence at the bedside until death (47.6%) and the inefficacy of Pethidine in chronic pain management (47.6%). These gaps highlight critical areas requiring targeted educational interventions to enhance nurses' knowledge and competency in providing optimal EOLC.

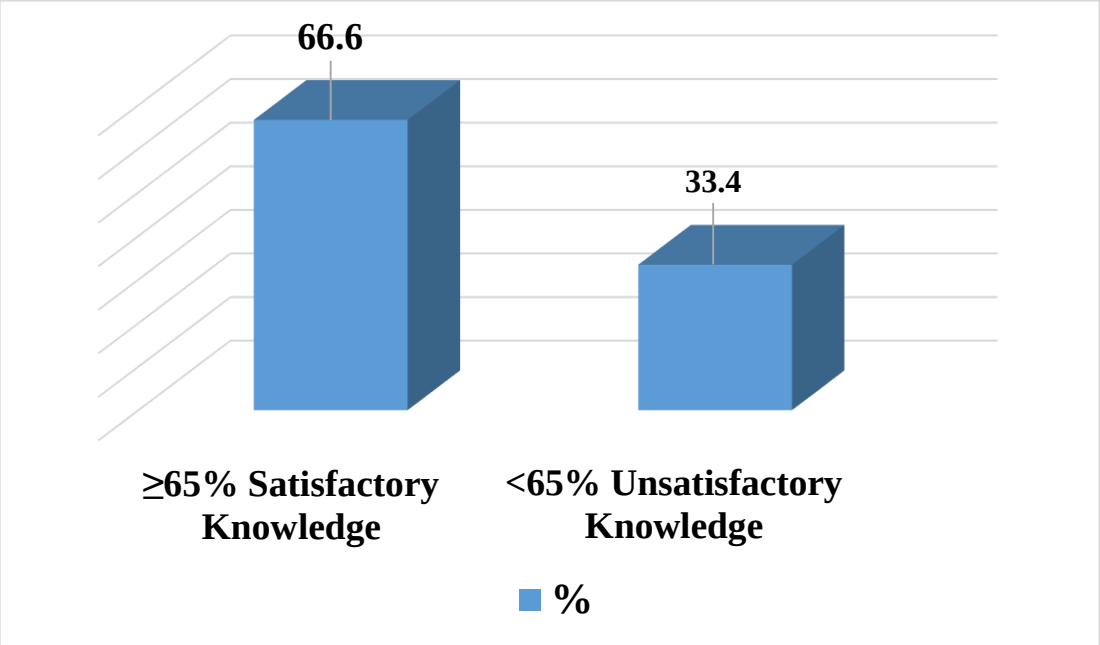

Figure 4.1. Knowledge among Critical Care Nurses Regarding EOLC (n=103)

Table 4.3. Level of Knowledge among Critical Care Nurses Regarding EOLC (n=103)

Item	Correct		Incorrect	
	F	%	F	%
It is crucial for family members to remain at the bedside until death occurs.	49	47.6	54	52.4
During the last days of life, drowsiness associated with electrolyte imbalance may decrease the need for sedation.	67	65.0	36	35.0
Drug addiction is a major problem when morphine is used on a long-term basis for the management of pain.	85	82.5	18	17.5
Individuals who are taking opioids should also follow a bowel regime (laxative treatment).	55	53.4	48	46.6
During the terminal stages of an illness, drugs that can cause respiratory depression are appropriate for the treatment of severe dyspnea.	57	55.3	46	44.7
Men generally reconcile their grief more quickly than women.	64	62.1	39	37.9
The use of placebos is appropriate in the treatment of some types of pain.	83	80.6	20	19.4
In high doses, codeine causes more nausea and vomiting than morphine.	74	71.8	29	28.2
Hospice care is related to holistic nursing and humanistic care.	87	84.5	16	15.5
Pethidine is not an effective analgesic for the control of chronic pain.	49	47.6	54	52.4
Manifestations of chronic pain are different from those of acute pain.	84	81.6	19	18.4
The loss of a distant relationship is easier to resolve than the loss of one that is close or intimate.	69	67.0	34	33.0
Pain threshold is lowered by fatigue or anxiety.	58	56.3	45	43.7
In the deathbed stage, patients have the right to decide on their own schedule, such as meeting with friends, fulfilling wishes, and treatment.	86	83.5	17	16.5
If patients request to give up treatment and go home before death, it should be supported.	62	60.2	41	39.8
Average (<65% Unsatisfactory Knowledge) (≥65% Satisfactory Knowledge)		**66.6%**		**33.4%**

4.2.4 Level of Attitude among Critical Care Nurses toward EOLC

The opinions of critical care nurses about EOLC are shown in (Table 4.4; Figure 4.2). With an average positive response rate of 62.5% and a negative response rate of 37.5%, the results show that participants generally had a good attitude.

4.2.4.1 Positive Attitudes toward EOLC

Regarding important facets of EOLC, most nurses expressed supportive attitudes. Interestingly, 70% of respondents recognized the value of offering emotional support to families coping with behavioral changes in dying patients, and 71% agreed that it is helpful for dying patients to express their emotions. In a similar vein, 70% of respondents thought that families ought to assist their dying loved ones in living as fully as possible and in a normal setting. Additionally, 70% agreed that dying patients should be given candid information about their condition. Additionally, nurses acknowledged the value of flexible visiting schedules for patients nearing the end of their lives (65.2%), family

involvement in caregiving (66.2%), and the role of nursing care in supporting bereavement and grief (60.4%).

4.2.4.2 Negative Attitudes and Areas of Concern

Despite the overall positive attitude, several items reflected notable concerns and discomfort among nurses regarding EOLC. For instance, 46.6% of nurses reported that they would prefer not to be assigned to care for a dying person, and 47.2% admitted that they would feel like running away when a patient actually died. Additionally, 46.2% believed that death is the worst possible outcome for a person, and 45.2% felt that nurses should withdraw from involvement as a patient nears death. Moreover, discomfort in addressing death was evident, as 41% of nurses expressed a preference for their patients to die when they were not present, and 40.4% admitted being afraid to form friendships with dying patients. These findings suggest emotional and psychological barriers that may impact the quality of care provided to terminally ill patients.

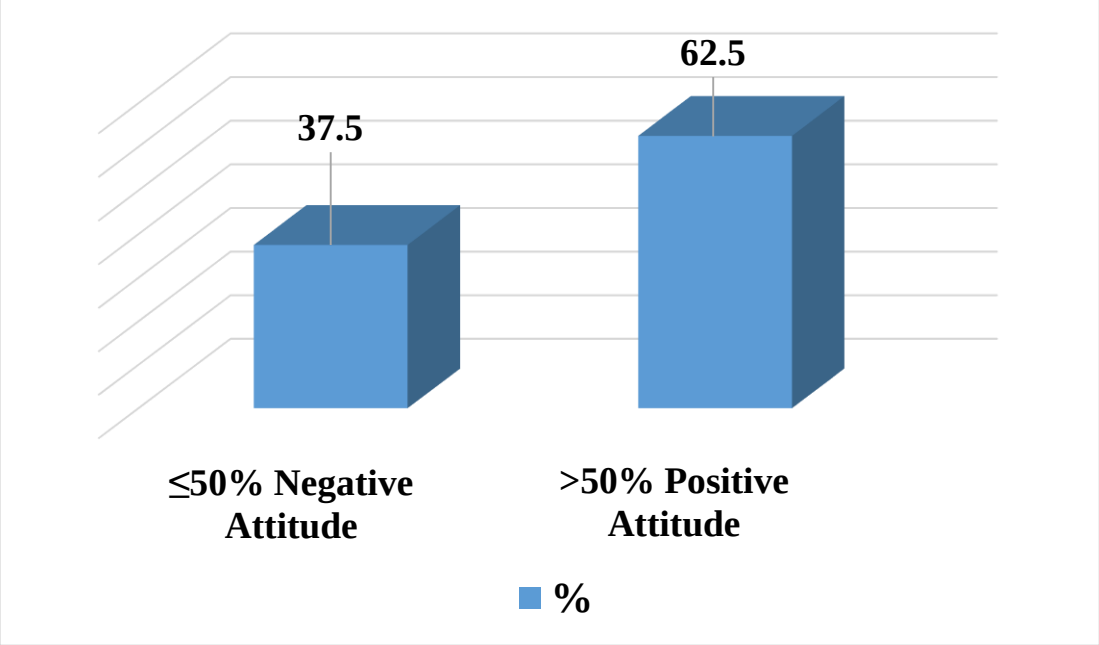

Figure 4.2. Level of Attitude among Critical Care Nurses toward EOLC (n=103)

Table 4.4. Level of Attitude among Critical Care Nurses toward EOLC (n=103)

Item	Positive (%)	Negative (%)
Giving nursing care to the dying person is a worthwhile learning experience	63.6	34.4
Death is not the worst thing that can happen to a person	53.8	46.2
I would be uncomfortable talking about impending death with the dying person.	62.0	38.0
Nursing care for the patient's family should continue throughout the period of grief and bereavement	60.4	39.6
I would not want to be assigned to care for a dying person	53.4	46.6
The nurse should not be the one to talk about death with the dying person	61	39
The length of time required to give nursing care to a dying person would frustrate me.	57.4	42.6
I would be upset when the dying person I was caring for gave up hope of getting better	64.6	35.4
It is difficult to form a close relationship with the family of the dying person	55.4	44.6
There are times when death is welcomed by the dying person.	65.4	34.6
When a patient asks, "Nurse am I dying?" I think it is best to change the subject to something cheerful.	64.4	35.6
The family should be involved in the physical care of the dying person	66.2	33.8
I would hope the person I'm caring for dies when I am not present	59.0	41.0
I am afraid to become friends with a dying person.	59.6	40.4
I would feel like running away when the person actually died.	52.8	47.2
Families need emotional support to accept the behavior changes of the dying person.	70.0	30
As a patient nears death, the nurse should withdraw from his/her involvement with the patient	54.8	45.2
Families should be concerned about helping their dying member make the best of his/her remaining life	70.0	30
The dying person should not be allowed to make decisions about his/her physical care.	53.8	46.2
Families should maintain as normal an environment as possible for their dying member	70.0	30
It is beneficial for the dying person to verbalize his/her feelings	71	29
Nursing Care should extend to the family of the dying person.	63.8	36.2
Nurses should permit dying persons to have flexible visiting schedules.	65.2	34.8
The dying person and his/her family should be the in-charge decision makers.	63.6	36.4
Addiction to pain relieving medication should not be a concern when dealing with a dying person	63.4	36.6
I would be uncomfortable if I entered the room of a terminally ill person and found him/her crying	66.2	33.8
Dying persons should be given honest answers about their condition	70.0	30
Educating families about death and dying is not a nursing responsibility	63.6	36.4
Family members who stay close to a dying person often interfere with the professionals' job with the patient.	66.8	33.2
It is possible for nurses to help patients prepare for death.	62.4	37.6
Average ≤50% Negative Attitude >50% Positive Attitude	**62.5**	**37.5**

4.2.5 Level of Practice among Critical Care Nurses Regarding EOLC

The results shown in Table 4.5 and Figure 4.3 demonstrate the proficiency of critical care nurses in delivering EOLC. With an average performance rate of 86.6%, the results showed a high standard of practice and suggested that the majority of nurses successfully carry out crucial EOLC procedures.

4.2.5.1 Comfort Measures in EOLC

With 86.4% of nurses engaging in quiet listening to patients who need to express their thoughts and feelings and 93.2% of nurses sitting quietly to offer a calming presence, nurses showed a significant commitment to comfort measures. In a similar vein, 83.5% reduced distractions like TV and too many visitors to lessen disorientation, while 84.5% gently reoriented patients to reality as needed. Some areas, like avoiding arguments when

a patient's reality differs (78.6%) and using touch and soft music to connect with unresponsive patients (79.6%), demonstrated lower adherence, indicating that some nurses might need more training on how to deal with cognitive changes in patients who are near death.

4.2.5.2 Communication Practices in EOLC

Effective communication is essential to providing high-quality EOLC, and the findings show that nurses have good communication practices. Most maintained good communication overall (93.2%), communicated directly with patients (93.2%), and updated them on ongoing operations (88.3%). Nonverbal communication was used far less frequently (69.9%), though, indicating that this is an area that might need more attention and training.

4.2.5.3 Hygienic Care Practices in EOLC

With 97.1% of nurses performing comprehensive patient assessments and putting pressure ulcer avoidance strategies into place, hygienic care was another area where good behavior was observed. Furthermore, 88.3% regularly cleansed and washed their skin, and 95.1% made sure that their body temperature was maintained. However, there may be room for improvement as several components of hygiene care, such the use of artificial tears and ointments (72.8%), were less commonly practiced.

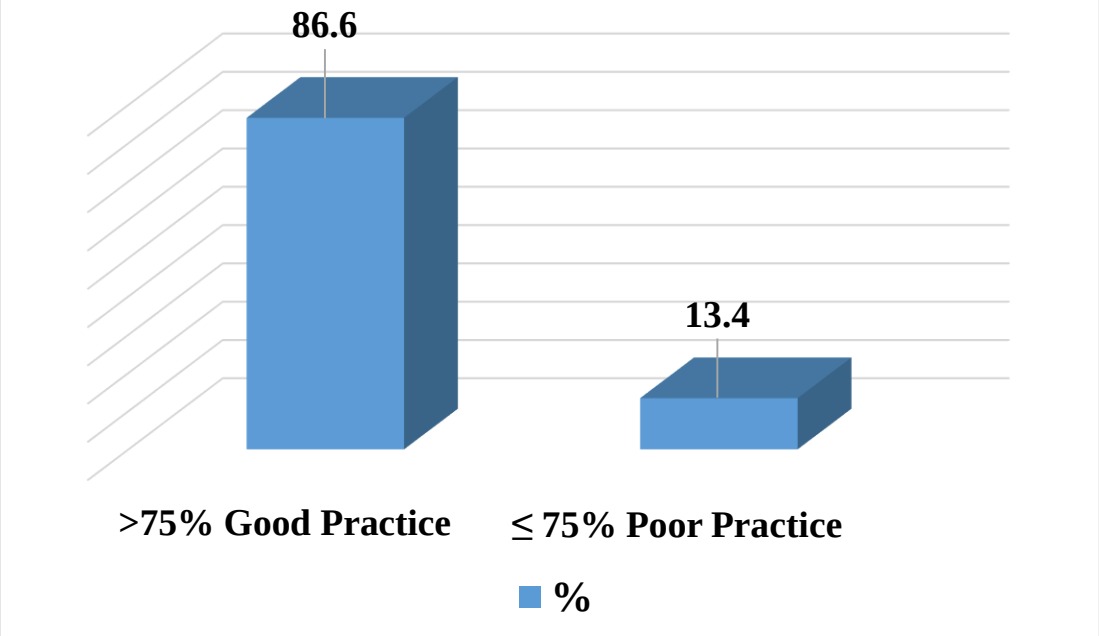

Figure 4.3. Level of Practice among Critical Care Nurses Regarding EOLC (n=103)

Table 4.5. Level of Practice among Critical Care Nurses Regarding EOLC (n=103)

Item	Done		Not done	
A- Comfort Measures performance chick list	**F**	**%**	**F**	**%**
Sit quietly to provide a comforting presence	96	93.2	7	6.8
Reduce confusion by limiting distractions such as TV, radio or too many visitors.	86	83.5	17	16.5
Gently bring the person to reality with reminders about where they are, who you are and what time is it, etc.	87	84.5	16	15.5
Do not argue if the person's reality is different. Sometimes going along with someone who seems mildly confused allows the situation to pass without upset	81	78.6	22	21.4
Quietly listen to the person, who may need to express some thoughts, worries or feelings. Get close and talk gently.	89	86.4	14	13.6
Use touch to connect with someone who is unable to respond. Soft music may be relaxing. Assume the person can hear everything you say on some level.	82	79.6	21	20.4
Talk to someone about relaxation techniques for the person, yourself, and family members	85	82.5	18	17.5
Commonly use medication in practice for severe pain? Paracetamol/Ibuprofen Codeine, Morphine	92	89.3	11	10.7
B- Nurses' practice regards communication in EOLC				
Talking with the patient	96	93.2	7	6.8
Informing about what activities are being performed	91	88.3	12	11.7
Use the nonverbal communication	72	69.9	31	30.1
Good communication	96	93.2	7	6.8
C-Nurses' practice regards hygienic care.				
Patient assessment	100	97.1	3	2.9
Skin washing & cleansing	91	88.3	12	11.7
Using of lotions & ointment	87	84.5	16	15.5
Using of artificial tears & ointments	75	72.8	28	27.2
Maintenance of a body temperature	98	95.1	5	4.9
Prevention of the pressure ulcers	100	97.1	3	2.9
Hair care	92	89.3	11	10.7
>75% Good Practice; ≤ 75% Poor Practice	**Average**	**86.6%**		**13.4%**

4.2.6 Mean Statistics of Knowledge, Attitude and Practice

According to Table (4.6), the participants' general level of knowledge was satisfactory, with a mean knowledge score of 9.99 (SD = 3.36) and a corresponding proportion of 66.6%. A largely positive attitude toward EOLC was classified by the mean attitude score of 93.69 (SD = 23.04), or 62.5%. With a mean practice score of 16.47 (SD = 2.97), or 86.6%, critical care nurses demonstrated a high degree of good practice. This indicates a high level of commitment to crucial EOLC interventions, such as sanitary care procedures, communication techniques, and comfort measures.

Table 4.6. Mean Statistics of Knowledge, Attitude and Practice

Variables	Mean	SD	%
Knowledge	9.9903	3.356	66.60%
Attitude	93.6893	23.041	62.50%
Practice	16.4660	2.9670	86.6%
Knowledge: (0 thru 9.74) Unsatisfactory; (9.75 thru 15) Satisfactory (≥65%) Attitude: (1 thru 75) Negative; (75.1 thru 150) Positive (>50%) Practice: (0 thru 14.25) Poor; (14.26 thru 19) Positive (>75%)			

4.3 Knowledge, Attitude and Practice across Demographic Data

The knowledge, attitude, and practice levels across various demographic variables are shown in Table (4.7) using the non-parametric Mann-Whitney U and Kruskal-Wallis tests. The knowledge, attitude, and practices scores of male and female nurses differed significantly, as indicated by p values that were all less than 0.05. Female nurses scored higher on knowledge exams, demonstrated more positive attitudes, and did better in practice. The knowledge, attitude, and practice of married and single nurses did not differ statistically significantly ($p > 0.05$). The nurses' age had no noticeable impact on their EOL care practice, knowledge, or attitude. Although scores were marginally higher for some age groups, these differences were not statistically significant. The knowledge, attitude, and practice of nurses in providing EOLC were not substantially impacted by their residence in a city, village, or refugee camp. Knowledge, attitudes, and practices in EOL care were not substantially impacted by educational level (diploma, bachelors, or higher education).

Table 4.7. Knowledge, Attitude and Practice across Demographic Data (n=103)

Variables			M (SD)	Mean Rank	(Z) / (χ^2)	P
Gender	Knowledge	Male	8.846 (3.550)	41.76	-3.532	0.000
		Female	11.157 (2.716)	62.44		
	Attitude	Male	86.039 (23.43)	42.08	-3.405	0.001
		Female	101.49 (20.01)	62.12		
	Practice	Male	15.827(3.167)	45.13	-2.414	0.016
		Female	17.118 (2.621)	59.01		
Marital Status	Knowledge	Single	10.423 (3.158)	55.00	-1.035	0.301
		Married	9.549 (3.523)	48.94		
	Attitude	Single	94.904 (20.42)	53.94	-0.667	0.505
		Married	92.451(25.58)	50.02		
	Practice	Single	16.654 (2.779)	53.38	-0.486	0.627
		Married	16.275 (3.163)	50.59		
	Knowledge	21-25	10.650 (2.966)	57.03	5.760	0.218
		26-30	9.161 (3.725)	45.06		

Age		31-35	9.714 (3.989)	50.50		
		36-40	10.846 (2.882)	61.23		
		>41	8.400 (2.302)	35.00		
	Attitude	21-25	100.200 (22.63)	58.98	7.131	0.129
		26-30	89.484 (19.76)	45.82		
		31-35	94.857 (27.21)	58.68		
		36-40	82.539 (22.82)	37.85		
		>41	93.400 (25.99)	52.60		
	Practice	21-25	16.850 (2.769)	56.84	2.327	0.676
		26-30	16.065 (3.336)	49.10		
		31-35	16.143 (3.592)	48.18		
		36-40	16.231 (2.420)	46.15		
		>41	17.400 (1.517)	57.20		
Residency place	Knowledge	City	10.065 (2.695)	52.56	1.686	0.430
		Village	10.418 (3.149)	54.27		
		Camp	8.471 (4.652)	43.62		
	Attitude	City	95.936 (19.42)	54.95	2.184	0.336
		Village	94.655 (25.02)	53.32		
		Camp	86.471 (22.27)	42.35		
	Practice	City	16.677 (3.341)	57.29	1.601	0.449
		Village	16.327 (3.019)	50.45		
		Camp	16.529 (2.065)	47.38		
Level of Education	Knowledge	Diploma	10.800 (2.150)	58.00	3.823	0.148
		Bachelor	9.531 (3.366)	47.55		
		High Education	10.724 (3.575)	59.76		
	Attitude	Diploma	97.100 (19.60)	58.45	2.380	0.304
		Bachelor	91.484 (20.29)	48.46		
		High Education	97.379 (29.25)	57.59		
	Practice	Diploma	15.800 (4.315)	50.35	1.279	0.528
		Bachelor	16.406 (2.747)	49.91		
		High Education	16.828 (2.965)	57.19		
P values based on Mann-Whitney U and Kruskal Wallis Tests						

4.4 Knowledge, Attitude and Practice across Work Related Factors

Table 4.8 shows how critical care nurses' knowledge, attitudes, and practices about EOLC in critical care units vary depending on their years of hospital experience, intensive care unit experience, and workplace hospitals.

There was no significant difference in the knowledge, attitudes, and practices based on the number of years of hospital experience. In contrast to nurses with 6–10 years of experience, who scored 10.91 (SD = 3.21) (p = 0.369), nurses with over 21 years of experience scored 8.00 (SD = 2.45). Attitude scores varied, with the largest mean score (96.48, SD = 22.35) for the 6–10 year group and the lowest (72.50, SD = 20.62) for the 16–20 year group (p = 0.264). While nurses with 16–20 years of experience had the lowest practice score (15.25; SD = 2.50; p = 0.468), those with over 21 years of experience had the highest score (18.00; SD = 0.82).

Based on the number of years of intensive care unit experience, there was no significant difference in knowledge, attitudes, or practices. In nurses with 16–20 years of intensive care unit experience, knowledge scores were 8.33 (SD = 5.03), but in nurses with 6–10 years of experience, they were 10.77 (SD = 3.68; p = 0.663). The age groups of 11–15 years old had the highest attitude scores (97.00, SD = 24.69) and 16–20 years old had the lowest (62.33, SD = 4.16; p = 0.160). The range of practice scores was 15.67 (SD = 2.88) for nurses with 16–20 years of intensive care unit experience and 17.62 (SD = 2.84) for nurses with 6–10 years (p = 0.172).

The hospital where nurses work had a significant effect on knowledge (p = 0.008) and practice (p = 0.014), while its effect on attitude was not statistically significant (p = 0.466). Knowledge scores were highest at Rafeidia Hospital (12.60, SD = 2.55) and Darwish Nazzal Hospital (12.25, SD = 0.96), whereas the lowest scores were observed at Thabet Thabet Hospital (8.07, SD = 3.65). Attitude scores did not differ significantly across hospitals (p = 0.466), although the highest mean score was at Rafeidia Hospital (107.8, SD = 24.17), while the lowest was at Darwish Nazzal Hospital (84.50, SD = 22.58). Practice scores were highest at Darwish Nazzal Hospital (18.75, SD = 0.50) and Rafeidia Hospital (18.20, SD = 1.62), while the lowest score was at Thabet Thabet Hospital (14.80, SD = 3.21), showing a statistically significant difference (p = 0.014).

Table 4.8. Knowledge, Attitude and Practice across Work Related Factors (n=103)

Variables			**M**	**SD**	**Mean Rank**	**(χ^2)**	**P**
Nursing experience in hospital	Knowledge	1-5	9.897	3.422	50.87	4.286	0.369
		6-10	10.910	3.208	60.10		
		11-15	10.00	3.307	53.66		
		16-20	8.500	4.123	39.88		
		>21	8.000	2.450	31.38		
	Attitude	1-5	95.35	23.10	52.98	5.231	0.264
		6-10	96.48	22.35	57.79		
		11-15	88.86	22.17	46.59		
		16-20	72.50	20.62	23.25		
		>21	95.50	29.51	57.75		
	Practice	1-5	16.38	3.088	52.04	3.565	0.468
		6-10	17.10	2.406	57.40		
		11-15	15.88	3.538	45.91		
		16-20	15.25	2.500	34.75		
		>21	18.00	0.817	64.63		
Nursing experience in ICU	Knowledge	1-5	10.05	3.280	52.23	2.400	0.663
		6-10	10.77	3.678	59.62		
		11-15	9.125	3.523	46.31		
		16-20	8.333	5.033	41.33		
		>21	8.500	2.121	32.50		
	Attitude	1-5	94.57	22.32	52.42	6.572	
		6-10	95.39	24.14	56.27		
		11-15	97.00	24.69	58.88		

		16-20	62.33	4.163	11.00		0.160
		>21	82.50	40.31	42.25		
	Practice	1-5	16.33	3.097	50.77	6.381	0.172
		6-10	17.62	2.844	68.96		
		11-15	16.00	2.070	39.94		
		16-20	15.67	2.887	40.50		
		>21	17.50	0.707	54.75		
Hospital	Knowledge	Jenin	10.12	2.998	52.63	17.526	0.008
		Rafeidia	12.60	2.547	75.30		
		Al-Wattani	9.400	4.867	51.13		
		Thabet Thabet	8.067	3.654	35.73		
		Darwish Nazzal	12.25	0.957	75.25		
		Tubas Turkish	11.50	2.014	65.40		
		PMC	9.304	2.382	42.46		
	Attitude	Jenin	94.00	21.06	53.98	5.629	0.466
		Rafeidia	107.8	24.17	64.25		
		Al-Wattani	92.27	32.92	56.10		
		Thabet Thabet	88.53	18.94	43.00		
		Darwish Nazzal	84.50	22.58	39.38		
		Tubas Turkish	88.60	18.24	41.20		
		PMC	95.30	21.31	54.52		
	Practice	Jenin	16.23	3.050	48.19	15.991	0.014
		Rafeidia	18.20	1.619	73.25		
		Al-Wattani	16.73	3.011	56.27		
		Thabet Thabet	14.80	3.212	33.40		
		Darwish Nazzal	18.75	0.500	80.50		
		Tubas Turkish	16.80	2.348	52.35		
		PMC	16.35	3.185	51.30		
P values based on Kruskal Wallis Tests							

4.5 Correlation between Knowledge, Attitude, and Practice Regarding EOLC

There was a moderate positive correlation between EOL knowledge and EOL practice ($r = 0.515$, $p < 0.001$), suggesting that as knowledge about EOLC increases, reported practice improves. A moderate positive correlation was also found between EOL knowledge and attitude ($r = 0.371$, $p < 0.001$), and between EOL attitude and practice ($r = 0.396$, $p < 0.001$), indicating that more favorable attitudes are associated with better practices.

Table 4.9. Correlation between Knowledge, Attitude, and Practice Regarding EOLC (N=103)

		EOL Attitude	**EOL Practice**
EOL Knowledge	r	0.371	0.515
	P	<0.001	<0.001
EOL Attitude	r		0.396
	P		<0.001

P values based on Spearman's Correlation

4.6 Summary

Critical care nurses' average score on EOLC knowledge was 66.6%, which was satisfactory for all participants. Overall, participants had an optimistic attitude, as seen by the average positive response rate of 62.5% and the average negative response rate of 37.5%. The findings indicated that most nurses successfully complete essential EOLC operations, with an average performance rate of 86.6%, demonstrating a high level of practice. Female nurses performed better in practice, had more positive attitudes, and scored higher on knowledge tests. The knowledge, attitudes, and practices of married and single nurses did not differ statistically significantly. The nurses' age had no discernible effect on their EOLC practice, knowledge, or attitude. The knowledge, attitude, and practice of nurses in providing EOLC were not substantially impacted by their residence. Knowledge, attitude, and practice in EOLC were not substantially impacted by educational attainment. Hospital affiliation significantly influenced knowledge and practice ratings, while nursing experience had no discernible effect on knowledge, attitude, or practice. This shows that years of experience alone may not have as much of an impact on the abilities of healthcare personnel as institutional elements.

There were moderate positive correlations among EOL knowledge, attitude, and practice. Higher EOL knowledge was linked to better practice and more favorable attitudes. Attitude was also positively correlated with practice.

Chapter Five: Discussion

5.1. Introduction

The study's results are discussed in this chapter, along with how they compare to earlier studies and potential causes. Knowledge, attitudes, and practices related to EOLC are among the primary subjects.

5.2 Knowledge, Practices and Nurses Attitudes about EOLC

Average scoring of 86.6% showed an impressive experience that helped most nurses accomplish crucial EOLC tasks. All participants considered an average score of 66.6% by critical care nurses in the EOLC knowledge test to be satisfactory. The mean proportion of positive reactions was 62.5% and negative reactions were 37.5%, so the respondents pretty much had a good opinion. These findings were not consistent with a previous study that revealed that ICU nurses needed a clear policy to modify their mindset about adopting EOLC because they lacked sufficient knowledge and practice in this area. Of the nurses, 72.3% exhibited unfavorable attitudes and 58.6% had low practice levels (Mohammed et al., 2019). As well as in Taiwan, according to a study, nurses felt insecure about giving patients EOLC, and of the 250 invited nurses, the legal aspects of this type of care were the least understood (Ho et al., 2022). These differences imply that even though the nurses in this study showed a fair level of competency, there might be undiscovered areas that need more research, especially in the ethical and legal areas.

In a study, 56% of respondents had inadequate general understanding about PC, although 53.7% had a positive attitude about PC and EOLC (Kanyamuhunga et al., 2021). Another study found that participants' strategies differed based on their experiences and that their comprehension of EOL decision ideas was insufficient. The findings highlight the importance of education and uniformity in the EOL decision-making process (Kuşcu & Özcengiz , 2023). Despite optimistic sentiments, the results of a previous study showed a knowledge and practice gap, underscoring the necessity of more robust preserve and in-service nursing education (Walia et al., 2020). Nurses' attitudes toward dying have not kept pace with consumer attitudes and expectations. To remedy these gaps, the results highlight the critical need for standardized instruction, strengthened policies, and focused in-service training. The need for ongoing professional development in EOLC is further highlighted by the changing expectations of patients and

their families, which suggest that nurses' attitudes regarding dying may not be keeping up with societal changes.

In the current study exhibited a positive attitude toward EOLC but it was notable that a majority of nurses in another study hold negative attitudes toward EOLC, struggled with a negative emotion of anger, doubt, fear, or anxiety, and uncomfortable in the face of death and dying. Personal attitudes toward death may influence attitudes toward caring for the dying patients (Shi, 2019).

The participants of this study were knowledgeable of EOLC in comparison with a British study that reported a lack of knowledge in the encompassing philosophy of PC and the skills to emotionally support both patients and their families. However, physicians in contrast reported poor knowledge in identifying when a patient was actively dying and knowledge of the dying process (Magee, 2023).

The healthcare systems in the Middle East, notably those in critical care, have developed quickly. But the development of PC and EOLC has been considerably slower. There is a continuous focus on curative therapies, little public education, and limited availability of specialist services, even in Saudi Arabia, where there has been notable progress in integrating PC and EOLC into the healthcare system. There isn't much agreement on how to treat dying patients in Middle Eastern nations because of cultural and religious beliefs that make it harder to provide end-of-life care, particularly when it involves making a "Do not resuscitate" (DNR) choice (Almalki, 2024). The results show that in order to improve PC and EOLC delivery while upholding regional values, more education, policy formulation, and culturally sensitive methods are required.

In a different research, the average overall FATCOD score was 74.98 (SD, 8.18); of the nurses, 85.3% had positive attitudes about PC, while only 14.7% had negative attitude. The degree of teaching or education of the nurse was substantially correlated with their attitudes about PC (Farmani et al., 2018).

According to a survey was done in Nepal, the majority of nurses (71.3%) had negative opinions of PC. (Nepal , 2021). A literature review validated that there was a lack of knowledge among most nurses in providing quality PC in diverse clinical practice settings, also PC training among nurses was inadequate and inconsistent. This can lead to challenges, such as a lack of practice in EOLC, a lack of participation in the patient’s care plan, and poor knowledge (Subih et al., 2022).

In a general hospital in southern Taiwan, the outcome of this investigation revealed that 76% of the questions measuring knowledge on hospice and PC were answered

accurately (Lin, 2021). Based on the nurses' EOL knowledge assessment, the results were in line with previous study's finding that responders had a positive attitude toward EOLC and were knowledgeable (Abate et al., 2019). The Frommelt Attitude toward Care of the Dying (FATCOD) scale is used in many other studies to measure nurses' attitudes toward PC. In a different research, the average overall FATCOD score was 74.98 (SD, 8.18); of the nurses, 85.3% had positive attitudes about PC, while only 14.7% had negative attitude (Farmani et al., 2018). These results imply that even if knowledge levels are usually sufficient, ongoing training is still required to fill in the gaps and guarantee uniformity in the delivery of PC and EOLC.

5.3 Correlation of EOLC with Demographic Data

In addition to performing better in practice, female nurses in the current study showed more positive attitudes and higher scores on knowledge tests. In terms of KAP, there was no statistically significant difference between married and single nurses. The age of the nurses had no impact on their EOLC practices, knowledge, or attitudes. Nurses' residence had no discernible impact on their EOLC practices, attitudes, or knowledge. In comparison with a previous study, there were positive views among younger nurses (P = 0.04). Knowledge (P = 0.01) and practice (P = 0.001) were positively connected with attitude (Walia et al., 2020). According to Coffey et al. (2016), senior nurses who have worked for longer periods of experience seem to have greater confidence when it comes to treating patients' symptoms and giving EOLC. The demographic data revealed a diverse nursing workforce, with variations in age, experience, and education level, which may influence knowledge and attitudes toward PC and EOLC.

The extent to which the family is directly involved in such decisions varies according to the countries and cultures; however, good communication between the clinician and family is essential for quality EOLC in the ICU, irrespective of the location (Tolba, 2024).

Prior training in PC or EOLC, age, and job experience all showed positive correlations with EOLC knowledge. The study emphasizes the necessity of training in PC, with an emphasis on enhancing clinical competencies for efficient care delivery (Subih et al., 2022).

Individual considerations like age, religious views, the severity of the illness, and financial standing can influence decisions about life-sustaining care (LST). According to

earlier research, legislative and cultural variables also affect LST judgments. The great degree of patient involvement in the course of their disease and treatment choices is indicative of South Korea's family-oriented society. Decisions on life-sustaining care are viewed as family matters rather than the patient's personal choices. Additionally, opinions about LST and its laws differ throughout the world, but it is generally accepted that minimizing suffering and dying with dignity are important (Kim et al., 2021).

5.4 Correlation of EOLC with Work Related Factors

There was no clear relationship between educational attainment and EOLC knowledge, attitude, or practice. Nursing experience did not significantly affect knowledge, attitude, or practice, whereas hospital affiliation had a significant impact on knowledge and practice ratings. This suggests that institutional factors may have a greater influence on healthcare personnel's abilities than years of experience alone.

Claiming that nurses' experiences caring for patients who are dying have an impact on their views. The results of this study also suggest a connection between attitudes toward caring for terminally ill patients and academic level (Mohammed et al., 2019).

In a previous study, nurses with a Bachelor of Science degree and above demonstrated a higher level of expertise and a more positive attitude than those with a diploma holders. Similarly, compared to nurses who did not receive in-service training, nurses who completed EOLC training exhibited more knowledge and a more positive attitude. However, compared to nurses with ≤5 years of work experience, those with 6–10 years of experience showed a more positive attitude (Abate et al., 2019).

In a correlational, cross-sectional survey design by Lin (2021) about Nurses' knowledge, attitude, and competence regarding PC and EOLC to evaluate the knowledge, skill, and attitude of nurses at a general hospital on PC and look into the relationships between the nurses' knowledge, competence, prior experiences, and demographics. (Lin, 2021).

According to a study, nurses' "negative perception" of providing patients and families with information to improve PC and EOLC can be reduced by ongoing education. this study supported a previous study (Wilson, Avalos & Dowling, 2016) by demonstrating that nurses with experience providing PC and EOLC had better attitudes regarding the provision of this type of care than did nurses without such experience. But according to the route model, neither competence nor pleasant perception are positively correlated with an EOL patient's prior experience. Professional experience is linked to

skill and knowledge, according to the literature. For instance, a prior study found that health care practitioners' views toward NFRs may vary depending on their age and level of professional experience (Su et al., 2008).

Similarly, According to Coffey et al. (2016), senior nurses who have worked for longer periods of experience seem to have greater confidence when it comes to treating patients' symptoms and giving EOLC. In order to assist terminally ill patients and their families in making the right decisions, skilled, highly capable, and experienced nurses can offer the necessary knowledge.

A cross-sectional design by Hamdan et al (2023) about PC knowledge and attitudes toward EOLC among intensive care unit nurses in Jordan. Significant variations in knowledge and attitude level were noted based on hospital type, experience level, and educational attainment. The study's conclusions include that ICU nurses' attitudes about PC are improper and their expertise is inadequate. Particularly missing were knowledge on the psychological and spiritual aspects of PC as well as suitable attitude toward communication styles with patients who were dying. These findings emphasize the necessity of targeted educational programs to improve nurses' competency and attitudes in EOLC.

The groups of nurses with the greatest levels of EOL palliative care knowledge were those who hold a PhD, have worked in an intensive care unit for two to five years, or are employed in instructional hospitals. Previous research revealed that the highest levels of knowledge were exhibited by nurses with master's degrees and those with over ten years of experience. Higher level of education should lead to increased knowledge, according to this study's expectations. In contrast to earlier studies, the experience-based knowledge differences were not constant. Researchers found that nurses employed in private hospitals and with PhD degrees had far more positive attitude toward EOLC. Nurses with PhDs had superior attitudes, which may be explained by the strong correlation between knowledge and attitudes (Hamdan et al., 2023).

The Frommelt's Attitude Towards Care of the Dying (FATCOD) Scale and Palliative Care Quiz for Nursing (PCQN) were used to assess the knowledge and attitude toward PC and EOLC among nurses working at Kigali University Teaching Hospital in Rwanda. A descriptive, cross-sectional quantitative study was conducted by Kanyamuhunga et al. (2021) with 160 nurses. The mean score was 5.76 (SD± 2.08), with 53.7% of respondents having a positive attitude toward PC and EOLC and 56% having low overall understanding on PC. A statistically significant correlation was found

between nurses' attitudes toward EOLC and their work experience caring for terminally ill patients (p-value 0.002), while there was no statistically significant difference between the mean scores of nurses' knowledge about PC and their educational attainment (p-value 0.7).

According to a study, participants' understanding of EOL decision concepts was inadequate, and their methods varied depending on their experiences. The results emphasize the necessity of standardization and education in the process of making EOL decisions (Kuşcu & Özcengiz , 2023).

Critical care nurses in Jordan's understanding of EOLC and its associated aspects by a cross-sectional survey. The study discovered that nurses had a modest level of expertise, ranking lowest on the effective care delivery subscale and highest on the cultural and ethical values subscale. Prior training in PC or EOLC, age, and job experience all showed positive correlations with EOLC knowledge (Subih et al., 2022).

Hafifah et al. (2022) examined factors related to 40 Indonesian intensive care unit (ICU) nurses' understanding of EOLC through a cross-sectional study. According to the study, no responders had any prior training, and 67.5% of respondents lacked sufficient expertise. The majority of nurses (52.5%) had a diploma, and 12.5% had worked for at least 72 months. Knowledge and job experience ($p = 0.801$) and education level ($p = 0.269$) did not significantly correlate. The results show that in order to increase ICU nurses' understanding of EOLC, systematic training programs are necessary.

The study about Healthcare Professionals' Experiences of EOLC in UK found RNs and nursing students commonly reported a lack of knowledge in the encompassing philosophy of PC and the skills to emotionally support both patients and their families (Magee, 2023).

5.5 Conclusion

This study concluded that critical care nurses' average score on EOLC knowledge was 66.6%, optimistic attitude (62.5%) and good practices with an average performance rate of 86.6%, demonstrating a high level of practice. Married and single nurses did not differ statistically substantially in their knowledge, attitudes, and practices, while female nurses scored higher on knowledge exams, performed better in practice, and had more positive attitudes. There was no noticeable impact of the nurses' age on their knowledge, attitude, or practice of EOL care. Their domicile had no discernible effect on the nurses' end-of-life care practices, attitudes, or knowledge. Education level did not significantly

affect EOL care knowledge, attitude, or practice. Nursing experience had no appreciable impact on knowledge, attitude, or practice, while hospital affiliation had a significant impact on ratings of knowledge and practice. This demonstrates that institutional factors may have a greater influence on healthcare workers' talents than years of experience.

5.6 Strengths and Limitations of the Study

This study is considered as one of the few studies in Palestine in studying the EOLC knowledge, attitude and practices in intensive care units. The study highlighted the importance of years of experience and level of education. The results may not be universally applicable to other settings or geographic areas since the sample size may not be sufficient to accurately reflect all patients utilizing hospitals in Palestine. Response bias may have resulted from participants giving socially acceptable answers instead of expressing their true feelings about their knowledge, attitude and practices.

5.7 Recommendations

The results indicate that the majority of critical care nurses are knowledgeable about end-of-life care and have a good outlook on it. However, the fact that a small percentage of participants had knowledge gaps highlights the necessity of focused educational programs and ongoing professional development to improve competency and provide excellent palliative treatment in intensive care units. Critical care nurses' awareness may increase if EOLC is given more attention in the curriculum. The study's conclusions identified areas of EOLC practice and the involvement of critical care nurses in these practices. The results point to the necessity for experiential learning that focuses on the practice area of emotional support as well as future training and practice development possibilities. In order to inform and improve practice in this area, more research is required to increase knowledge of symptom management techniques used when providing EOLC.

5.7.1 Implication for Research

It is recommended to conduct a longitudinal and qualitative studies that may evaluate the long-term of knowledge, attitudes and practices among critical care nurses.

5.7.2 Implication for Practice

Using the findings of this study could help nurses become more aware of evidence-based practice in critical care units and improve their ability to increase and improve their knowledge, attitudes and practices regarding to the end of life care.

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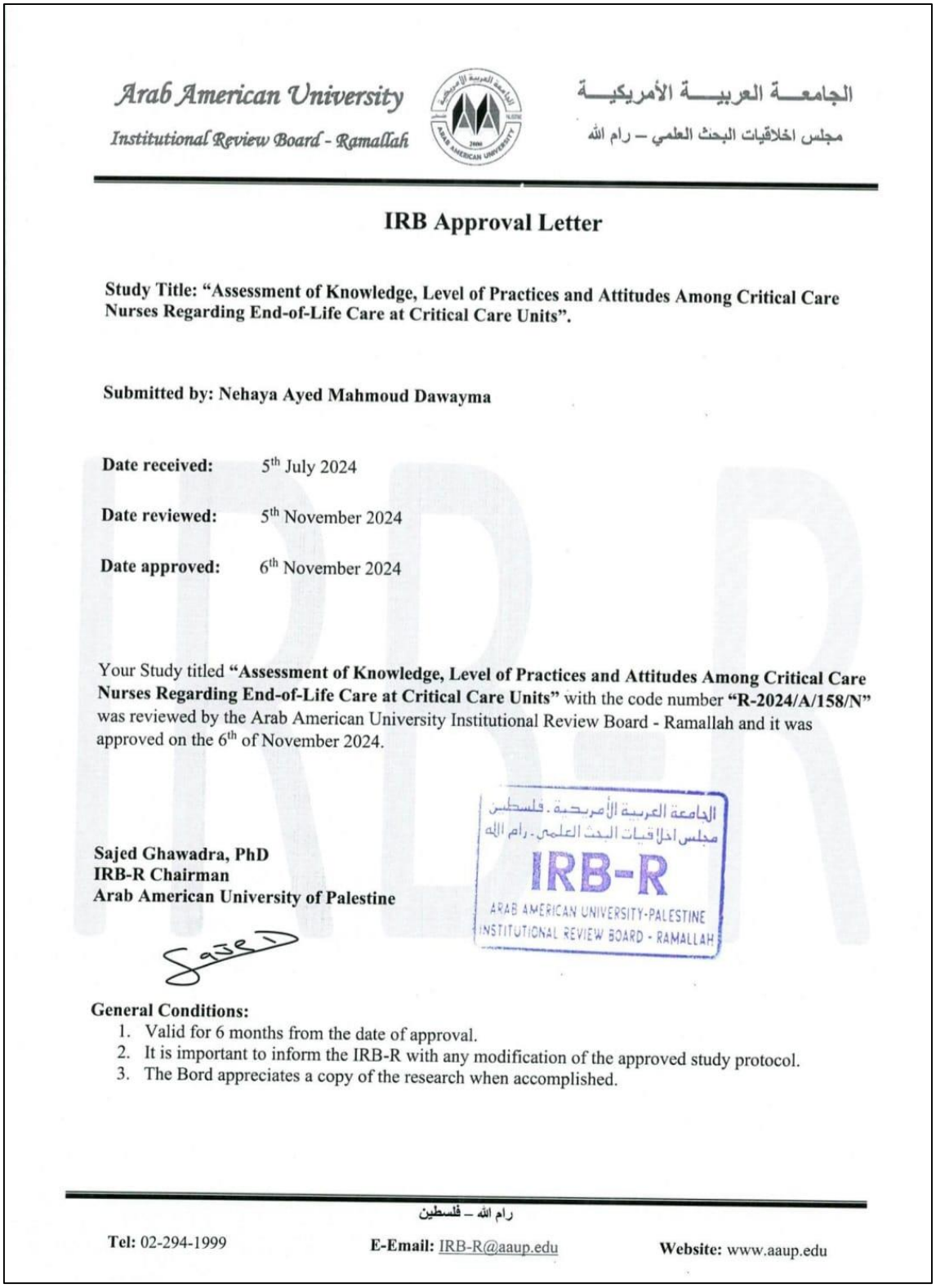
Appendices

Appendix 1. IRB Approval Letter



Arab American University
Institutional Review Board - Ramallah

الجامعة العربية الأمريكية
مجلس اخلاقيات البحث العلمي – رام الله

IRB Approval Letter

Study Title: "Assessment of Knowledge, Level of Practices and Attitudes Among Critical Care Nurses Regarding End-of-Life Care at Critical Care Units".

Submitted by: Nehaya Ayed Mahmoud Dawayma

Date received: 5th July 2024

Date reviewed: 5th November 2024

Date approved: 6th November 2024

Your Study titled **"Assessment of Knowledge, Level of Practices and Attitudes Among Critical Care Nurses Regarding End-of-Life Care at Critical Care Units"** with the code number **"R-2024/A/158/N"** was reviewed by the Arab American University Institutional Review Board - Ramallah and it was approved on the 6th of November 2024.

الجامعة العربية الأمريكية - فلسطين
مجلس اخلاقيات البحث العلمي - رام الله
IRB-R
ARAB AMERICAN UNIVERSITY-PALESTINE
INSTITUTIONAL REVIEW BOARD - RAMALLAH

Sajed Ghawadra, PhD
IRB-R Chairman
Arab American University of Palestine

General Conditions:

1. Valid for 6 months from the date of approval.
2. It is important to inform the IRB-R with any modification of the approved study protocol.
3. The Bord appreciates a copy of the research when accomplished.

رام الله – فلسطين

Tel: 02-294-1999 **E-Email:** IRB-R@aaup.edu **Website:** www.aaup.edu

Appendix 2. Facilitation Letter (MOH)

State of Palestine
Ministry of Health
Education in Health and Scientific Research Unit

دولة فلسطين
وزارة الصحة
وحدة التعليم الصحي
والبحث العلمي

Ref.: ………………
Date:………………

الرقـــم: ٢٢٢/٤٦٤/ ٢٠٢٥
التـاريخ: ٢٢/٢/٢٠٢٥

الأخ مدير عام الادارة العامة للمستشفيات المحترم،،،

تحية واحترام...

الموضـــوع: تسهيل مهمة بحث

يرجى تسهيل مهمة الطالبة: **نهاية عائد محمود دوايمة – ماجستير تمريض العناية المكثفة–** الجامعة العربية الامريكية، لعمل بحث بعنوان:

تقييم المعرفة ومستوى الممارسات والمواقف بين ممرضات الرعياة الحرجة فيما يتعلق برعاية نهاية الحياة في وحدات الرعاية الحرجة

حيث سيقوم الطالب بجمع معلومات من خلال تعبئة استبانة من الممرضين بعد اخذ موافقتهم، وذلك في:

- **جميع المستشفيات الحكومية في الضفة الغربية**

مع العلم ان مشرفة البحث: د. ربحي بشارات.
على ان يتم الالتزام بالمحافظة على اخلاقيات البحث العلمي وسرية المعلومات، وعدم التعرض للمعلومات التعريفية للمشاركين.
على ان يتم تزويد الوزارة بنسخة PDF من نتائج البحث، التعهد بعدم النشر لحين الحصول على موافقة وزارة الصحة.

مع الاحترام...

د. عبد الله القواسمي
رئيس وحدة التعليم الصحي والبحث العلمي

نسخة: عميد كلية الدراسات العليا المحترم/ الجامعة العربية الامريكية

Telfax.:09-2333901 scientificresearch.dep@gmail.com تلفاكس: 09-2333901

Appendix 3. Questionnaire

Questionnaire Part One: Demographic Data	
1. Gender	Male Female
2. Age	21-25 26-30 31-35 36-40 >41
3. Residency Place	City Village Camp
4. Marital Status	Single Married
5. Level of Education	Diploma Bachelor High Education
Part Two: Work Related Factors	
1. Nursing experience in hospital	1-5 6-10 11-15 16-20 >21
2. Nursing experience in ICU experience	1-5 6-10 11-15 16-20 >21
3. Name of hospital	Jenin governmental hospital Rafeidia hospital Al-Wattani hospital Thabet Thabet hospital Darwish Nazzal hospital Tubas Turkish Hospital Palestine medical complex

Questionnaire Part three: Knowledge Scale of Critical Care Nurses Regarding End of Life Care	
Item	1= Correct 0 = Incorrect
1. It is crucial for family members to remain at the bedside until death occurs.	
2. During the last days of life, drowsiness associated with electrolyte imbalance may decrease the need for sedation.	
3. Drug addiction is a major problem when morphine is used on a long-term basis for the management of pain.	
4. Individuals who are taking opioids should also follow a bowel regime (laxative treatment).	
5. During the terminal stages of an illness, drugs that can cause respiratory depression are appropriate for the treatment of severe dyspnea.	
6. Men generally reconcile their grief more quickly than women.	
7. The use of placebos is appropriate in the treatment of some types of pain.	
8. In high doses, codeine causes more nausea and vomiting than morphine. 9. Hospice care is related to holistic nursing and humanistic care.	
10. Pethidine is not an effective analgesic for the control of chronic pain.	
11. Manifestations of chronic pain are different from those of acute pain.	
12. The loss of a distant relationship is easier to resolve than the loss of one that is close or intimate.	
13. Pain threshold is lowered by fatigue or anxiety.	
14. In the deathbed stage, patients have the right to decide on their own schedule, such as meeting with friends, fulfilling wishes, and treatment.	
15. If patients request to give up treatment and go home before death, it should be supported.	

Item #	Questionnaire Part Four: Attitude Scale of EOL Positive= Strongly Disagree (1), Strongly Agree (5) Negative= Strongly agree (1), 5Strongly Disagree (5)	Response 1-5
1	Giving nursing care to the dying person is a worthwhile learning experience	Positive
2	Death is not the worst thing that can happen to a person	Positive
3	I would be uncomfortable talking about impending death with the dying person.	Negative
4	Nursing care for the patient's family should continue throughout the period of grief and bereavement	Positive
5	I would not want to be assigned to care for a dying person	Negative
6	The nurse should not be the one to talk about death with the dying person	Negative
7	The length of time required to give nursing care to a dying person would frustrate me.	Negative
8	I would be upset when the dying person I was caring for gave up hope of getting better	Negative
9	It is difficult to form a close relationship with the family of the dying person	Negative
10	There are times when death is welcomed by the dying person.	Positive
11	When a patient asks, "Nurse am I dying?" I think it is best to change the subject to something cheerful.	Negative
12	The family should be involved in the physical care of the dying person	Positive
13	I would hope the person I'm caring for dies when I am not present	Negative
14	I am afraid to become friends with a dying person.	Negative
15	I would feel like running away when the person actually died.	Negative
16	Families need emotional support to accept the behavior changes of the dying person.	Positive
17	As a patient nears death, the nurse should withdraw from his/her involvement with the patient	Negative
18	Families should be concerned about helping their dying member make the best of his/her remaining life	Positive
19	The dying person should not be allowed to make decisions about his/her physical care.	Negative
20	Families should maintain as normal an environment as possible for their dying member	Positive
21	It is beneficial for the dying person to verbalize his/her feelings	Positive
22	Nursing Care should extend to the family of the dying person.	Positive
23	Nurses should permit dying persons to have flexible visiting schedules.	Positive
24	The dying person and his/her family should be the in-charge decision makers.	Positive
25	Addiction to pain relieving medication should not be a concern when dealing with a dying person	Positive
26	I would be uncomfortable if I entered the room of a terminally ill person and found him/her crying	Negative
27	Dying persons should be given honest answers about their condition	Positive
28	Educating families about death and dying is not a nursing responsibility	Negative
29	Family members who stay close to a dying person often interfere with the professionals' job with the patient.	Negative
30	It is possible for nurses to help patients prepare for death.	Positive

Questionnaire Part Five: Practice Scale of EOL	Response Done (1)/ not done (0)
A- Comfort Measures performance chick list Sit quietly to provide a comforting presence	
Reduce confusion by limiting distractions such as TV, radio or too many visitors.	
Gently bring the person to reality with reminders about where they are, who you are and what time is it, etc. Do not argue if the person's reality is different. Sometimes going along with someone who seems mildly confused allows the situation to pass without upset	
Quietly listen to the person, who may need to express some thoughts, worries or feelings. Get close and talk gently.	
Use touch to connect with someone who is unable to respond. Soft music may be relaxing. Assume the person can hear everything you say on some level. Talk to someone about relaxation techniques for the person, yourself, and family members	
Commonly use medication in practice for severe pain? Paracetamol/Ibuprofen Codeine, Morphine	
B- Nurses' practice regards communication in EOL care **EOL**	
Talking with the patient Informing about what activities are being performed	
Use the nonverbal communication Good communication	
C-Nurses' practice regards hygienic care. Patient assessment	
Skin washing & cleansing Using of lotions & ointment	
Using of artificial tears & ointments	
Maintenance of a body temperature Prevention of the pressure ulcers	
Hair care	

Appendix 4. Content Validity Evaluation for Knowledge Scale of EOL

Please rate each item according to 4-point scale for relevance: Not relevant (1), somewhat relevant (2), quite relevant (3) and highly relevant (4).

#	Item	E1	E2	E3	E4	E5	I-CVI	Response
1	Palliative care is only appropriate in situations where there is evidence of a downward irreversible deterioration. Valid for palliative care not EOL	2	1	1	2	3	0.2	Not Valid
2	Morphine is the standard used to compare the analgesic effect of other opioids. Valid for palliative care not EOL	3	3	2	1	2	0.4	Not Valid
3	The extent of the disease determines the method of pain treatment. Valid for palliative care not EOL	2	2	2	2	3	0.2	Not Valid
4	Adjuvant therapies are important in managing pain. Valid for palliative care not EOL	1	1	1	1	1	0.0	Not Valid
5	It is crucial for family members to remain at the bedside until death occurs.	3	3	3	3	3	1.0	**Valid**
6	During the last days of life, drowsiness associated with electrolyte imbalance may decrease the need for sedation.	4	4	4	4	4	1.0	**Valid**
7	Drug addiction is a major problem when morphine is used on a long-term basis for the management of pain.	3	3	3	2	3	0.8	**Valid**
8	Individuals who are taking opioids should also follow a bowel regime (laxative treatment)	4	4	4	4	4	1.0	**Valid**
9	The provision of palliative care requires emotional detachment. Valid for palliative care not EOL	2	2	2	2	2	0.0	Not Valid
10	During the terminal stages of an illness, drugs that can cause respiratory depression are appropriate for the treatment of severe dyspnea	4	4	3	4	4	1.0	**Valid**
11	Men generally reconcile their grief more quickly than women.	3	3	2	3	3	0.8	**Valid**

12	The philosophy of palliative care is compatible with that of aggressive treatment. Valid for palliative care not EOL	1	3	1	1	1	0.2	Not Valid
13	The use of placebos is appropriate in the treatment of some types of pain.	3	3	3	3	3	1.0	**Valid**
14	In high doses, codeine causes more nausea and vomiting than morphine.	3	4	3	4	4	1.0	**Valid**
15	Hospice Care is related to holistic Nursing and Humanistic Care	4	4	4	4	4	1.0	**Valid**
16	Pethidine is not an effective analgesic for the control of chronic pain.	4	2	3	4	4	0.8	**Valid**
17	The accumulation of losses makes burnout inevitable for those who work in palliative care. Valid for palliative care not EOL	1	2	3	2	2	0.2	Not Valid
18	Manifestations of chronic pain are different from those of acute pain.	4	4	2	4	3	0.8	**Valid**
19	The loss of a distant relationship is easier to resolve than the loss of one that is close or intimate	3	3	3	3	2	0.8	**Valid**
20	Pain threshold is lowered by fatigue or anxiety	4	4	4	4	4	1.0	**Valid**
21	Palliative care is a measure to provide conservative and supportive measures for dying patients and their families. Valid for palliative care not EOL	1	1	1	1	1	0.0	Not Valid
22	Palliative care services include both terminal patients and family members Valid for palliative care not EOL	1	1	1	1	1	0.0	Not Valid
23	Nurses need to understand patients' views of life and death when providing palliative care Valid for palliative care not EOL	1	1	1	1	1	0.0	Not Valid
24	The main purpose of palliative care is to manage symptoms, reduce burden of pain, and improve quality of life. Valid for palliative care not EOL	2	2	2	2	4	0.2	Not Valid
25	In deathbed stage, patients have the right to decide on his or her own schedule, such as meeting with friends, fulfill the wish, treatment	4	4	1	4	3	0.8	**Valid**
26	If patients request to give up treatment and go home before death, it should be supported.	4	4	4	4	4	1.0	**Valid**
						Scale CVI		
						Before removing not valid items	0.585	**Not acceptable**
						After removing not valid items	0.920	**High CV**

Appendix 5. Items of Knowledge Scale of EOL

Item	Correct(1), Incorrect (0)
It is crucial for family members to remain at the bedside until death occurs.	EOL
During the last days of life, drowsiness associated with electrolyte imbalance may decrease the need for sedation.	EOL
Drug addiction is a major problem when morphine is used on a long-term basis for the management of pain.	EOL
Individuals who are taking opioids should also follow a bowel regime (laxative treatment).	EOL
During the terminal stages of an illness, drugs that can cause respiratory depression are appropriate for the treatment of severe dyspnea.	EOL
Men generally reconcile their grief more quickly than women.	EOL
The use of placebos is appropriate in the treatment of some types of pain.	EOL
In high doses, codeine causes more nausea and vomiting than morphine.	EOL
Hospice care is related to holistic nursing and humanistic care.	EOL
Pethidine is not an effective analgesic for the control of chronic pain.	EOL
Manifestations of chronic pain are different from those of acute pain.	EOL
The loss of a distant relationship is easier to resolve than the loss of one that is close or intimate.	EOL
Pain threshold is lowered by fatigue or anxiety.	EOL
In the deathbed stage, patients have the right to decide on their own schedule, such as meeting with friends, fulfilling wishes, and treatment.	EOL
If patients request to give up treatment and go home before death, it should be supported.	EOL

Appendix 6. Content Validity Evaluation for Attitude Scale of EOL

Please rate each item according to 4-point scale for relevance: Not relevant (1), somewhat relevant (2), quite relevant (3) and highly relevant (4).									
#	**Item**	**E1**	**E2**	**E3**	**E4**	**E5**	**I-CVI**	**Response**
1	Giving nursing care to the dying person is a worthwhile learning experience	3	3	3	3	3	1.0	Valid
2	Death is not the worst thing that can happen to a person	4	4	4	4	4	1.0	Valid
3	I would be uncomfortable talking about impending death with the dying person.	3	3	3	2	3	0.8	Valid
4	Nursing care for the patient's family should continue throughout the period of grief and bereavement	4	4	4	4	4	1.0	Valid
5	I would not want to be assigned to care for a dying person	3	3	3	3	3	1.0	Valid
6	The nurse should not be the one to talk about death with the dying person	4	4	4	4	4	1.0	Valid
7	The length of time required to give nursing care to a dying person would frustrate me.	3	3	3	2	3	0.8	Valid
8	I would be upset when the dying person I was caring for gave up hope of getting better	4	4	4	4	4	1.0	Valid
9	It is difficult to form a close relationship with the family of the dying person	4	2	3	4	4	0.8	Valid
10	There are times when death is welcomed by the dying person.	4	4	3	4	4	1.0	Valid
11	When a patient asks, "Nurse am I dying?" I think it is best to change the subject to something cheerful.	3	3	2	3	3	0.8	Valid
12	The family should be involved in the physical care of the dying person	4	2	3	4	4	0.8	Valid
13	I would hope the person I'm caring for dies when I am not present	3	3	3	3	3	1.0	Valid
14	I am afraid to become friends with a dying person.	3	4	3	4	4	1.0	Valid
15	I would feel like running away when the person actually died.	4	4	4	4	4	1.0	Valid
16	Families need emotional support to accept the behavior changes of the dying person.	4	2	3	4	4	0.8	Valid
17	As a patient nears death, the nurse should withdraw from his/her involvement with the patient	3	3	3	3	3	1.0	Valid
18	Families should be concerned about helping their dying member make the best of his/her remaining life	3	4	3	4	4	1.0	Valid
19	The dying person should not be allowed to make decisions about his/her physical care.	3	3	3	3	3	1.0	Valid
20	Families should maintain as normal an environment as possible for their dying member	3	4	3	4	4	1.0	Valid
21	It is beneficial for the dying person to verbalize his/her feelings	4	4	4	4	4	1.0	Valid
22	Nursing Care should extend to the family of the dying person.	4	2	3	4	4	0.8	Valid
23	Nurses should permit dying persons to have flexible visiting schedules.	3	3	3	3	3	1.0	Valid
24	The dying person and his/her family should be the in-charge decision makers.	3	4	3	4	4	1.0	Valid
25	Addiction to pain relieving medication should not be a concern when dealing with a dying person	4	4	4	4	4	1.0	Valid
26	I would be uncomfortable if I entered the room of a terminally ill person and found him/her crying	4	4	4	4	4	1.0	Valid
27	Dying persons should be given honest answers about their condition	4	2	3	4	4	0.8	Valid
28	Educating families about death and dying is not a nursing responsibility	3	3	3	3	3	1.0	Valid
29	Family members who stay close to a dying person often interfere with the professionals' job with the patient.	3	4	3	4	4	1.0	Valid
30	It is possible for nurses to help patients prepare for death.	4	2	3	4	4	0.8	Valid
					Scale CVI		0.940	High content validity

Appendix 7. Items of Attitude Scale of EOL

Item	Response 1-5
Giving nursing care to the dying person is a worthwhile learning experience	Positive
Death is not the worst thing that can happen to a person	Positive
I would be uncomfortable talking about impending death with the dying person.	Negative
Nursing care for the patient's family should continue throughout the period of grief and bereavement	Positive
I would not want to be assigned to care for a dying person	Negative
The nurse should not be the one to talk about death with the dying person	Negative
The length of time required to give nursing care to a dying person would frustrate me.	Negative
I would be upset when the dying person I was caring for gave up hope of getting better	Negative
It is difficult to form a close relationship with the family of the dying person	Negative
There are times when death is welcomed by the dying person.	Positive
When a patient asks, "Nurse am I dying?" I think it is best to change the subject to something cheerful.	Negative
The family should be involved in the physical care of the dying person	Positive
I would hope the person I'm caring for dies when I am not present	Negative
I am afraid to become friends with a dying person.	Negative
I would feel like running away when the person actually died.	Negative
Families need emotional support to accept the behavior changes of the dying person.	Positive
As a patient nears death, the nurse should withdraw from his/her involvement with the patient	Negative
Families should be concerned about helping their dying member make the best of his/her remaining life	Positive
The dying person should not be allowed to make decisions about his/her physical care.	Negative
Families should maintain as normal an environment as possible for their dying member	Positive
It is beneficial for the dying person to verbalize his/her feelings	Positive
Nursing Care should extend to the family of the dying person.	Positive
Nurses should permit dying persons to have flexible visiting schedules.	Positive
The dying person and his/her family should be the in-charge decision makers.	Positive
Addiction to pain relieving medication should not be a concern when dealing with a dying person	Positive
I would be uncomfortable if I entered the room of a terminally ill person and found him/her crying	Negative
Dying persons should be given honest answers about their condition	Positive
Educating families about death and dying is not a nursing responsibility	Negative

Appendix 8. Content Validity Evaluation for Practice Scale of EOL

Please rate each item according to 4-point scale for relevance: Not relevant (1), somewhat relevant (2), quite relevant (3) and highly relevant (4).									
#	**Item**	**E1**	**E2**	**E3**	**E4**	**E5**	**I-CVI**	**Response**
	A- Comfort Measures performance chick list							
1	Sit quietly to provide a comforting presence	3	3	3	3	3	1.0	Valid
2	Reduce confusion by limiting distractions such as TV, radio or too many visitors.	4	2	4	4	4	0.8	Valid
3	Gently bring the person to reality with reminders about where they are, who you are and what time is it, etc.	3	3	3	2	3	0.8	Valid
4	Do not argue if the person's reality is different. Sometimes going along with someone who seems mildly confused allows the situation to pass without upset	4	3	3	4	2	0.8	Valid
5	Quietly listen to the person, who may need to express some thoughts, worries or feelings. Get close and talk gently.	3	2	3	3	3	0.8	Valid
6	Use touch to connect with someone who is unable to respond. Soft music may be relaxing. Assume the person can hear everything you say on some level.	3	3	3	2	3	0.8	Valid
7	Talk to someone about relaxation techniques for the person, yourself, and family members	4	3	3	4	2	0.8	Valid
8	Commonly use medication in practice for severe pain? Paracetamol/Ibuprofen Codeine, Morphine	3	2	3	3	3	0.8	Valid
	B- Nurses' practice regards communication in EOL care							
9	Talking with the patient	3	3	3	2	3	0.8	Valid
10	Informing about what activities are being performed	4	3	3	4	2	0.8	Valid
11	Use the nonverbal communication	3	2	3	3	3	0.8	Valid
12	Good communication	3	3	3	2	3	0.8	Valid
	C-Nurses' practice regards hygienic care.							
13	Patient assessment	3	3	3	3	3	1.0	Valid
14	Skin washing & cleansing	3	4	3	4	4	1.0	Valid
15	Using of lotions & ointment	3	3	3	3	3	1.0	Valid
16	Using of artificial tears & ointments	4	2	3	4	4	0.8	Valid
17	Maintenance of a body temperature	3	3	3	2	3	0.8	Valid
18	Prevention of the pressure ulcers	4	3	3	4	2	0.8	Valid
19	Hair care	3	2	3	3	3	0.8	Valid
					Scale CVI		0.842	High content validity

Appendix 9. Items of Practice Scale of EOL

Item	Response Done (1)/ not done (0)
A- Comfort Measures performance chick list	
Sit quietly to provide a comforting presence	
Reduce confusion by limiting distractions such as TV, radio or too many visitors.	
Gently bring the person to reality with reminders about where they are, who you are and what time is it, etc. Do not argue if the person's reality is different. Sometimes going along with someone who seems mildly confused allows the situation to pass without upset	
Quietly listen to the person, who may need to express some thoughts, worries or feelings. Get close and talk gently. Use touch to connect with someone who is unable to respond. Soft music may be relaxing. Assume the person can hear everything you say on some level.	
Talk to someone about relaxation techniques for the person, yourself, and family members	
Commonly use medication in practice for severe pain? Paracetamol/Ibuprofen Codeine, Morphine	
B- Nurses' practice regards communication in EOL care Talking with the patient Informing about what activities are being performed	
Use the nonverbal communication Good communication	
C-Nurses' practice regards hygienic care.	
Patient assessment	
Skin washing & cleansing	
Using of lotions & ointment	
Using of artificial tears & ointments	
Maintenance of a body temperature Prevention of the pressure ulcers Hair care	

Appendix 10. Names of Expert

Expert's Name	Specialization	Place of job
Dr. Hamdallah Khaled	Ph.D. in Nursing	Nablus University
Dr. Mustafa Shuli	Ph.D. in Nursing	Modern University College
Dr. Abdallah Al wawi	Ph.D. in Nursing	Al-Quds University
Dr. Adam Marawaa	Ph.D. in Nursing	Modern University College
Dr. Rebhi Bsharat	Ph.D. in Nursing	Modern University College

تقييم المعرفة ومستوى الممارسة والمواقف بين تمريض الرعاية الحرجة فيما يتعلق برعاية نهاية الحياة في وحدات الرعاية الحرجة

نهاية عايد محمود دوايمة

د. ربحي بشارات

د. ساجد غوادره

د. عبد الله الواوي

ملخص

الخلفية النظرية: إن الرعاية الحرجة تشكل جزءًا لا يتجزأ من الرعاية في المستشفيات، ووحدة العناية المركزة هي المكان الذي يتلقى فيه المرضى أحدث العلاجات التكنولوجية التي تساعد على إبقاء حياتهم. ومع ذلك، فإن وحدة العناية المركزة هي أيضًا مكان حيث تكون الوفاة شائعة ويتم توفير رعاية نهاية الحياة في كثير من الأحيان. ونظرًا لأن التركيز في وحدات العناية المركزة ينصب على إبقاء الحياة، فإن تقديم هذا النوع من الرعاية عالية الجودة يمكن أن يكون تحديًا خاصًا.

هدف الدراسة: لتقييم المعرفة ومستوى الممارسات والمواقف بين تمريض الرعاية الحرجة فيما يتعلق بالرعاية المبكرة والرعاية الحرجة في وحدات الرعاية الحرجة في الضفة الغربية.

منهجية الدراسة: استخدم هذا البحث تصميمًا وصفيًا مقطعيًا لتقييم المعرفة والموقف والممارسة بين تمريض الرعاية الحرجة فيما يتعلق بالرعاية النهارية المبكرة في وحدات الرعاية الحرجة. عينة ملائمة من التمريض (ن = 103)، الذين يعملون في وحدات العناية المركزة في ستة مستشفيات حكومية في شمال الضفة الغربية ومستشفى حكومي واحد في وسط الضفة الغربية. من خلال استبيان ذاتي الإدارة، بدأ جمع البيانات من (10 يناير 2025 إلى (12 فبراير 2025). يتكون الاستبيان من خمسة أجزاء: البيانات الديموغرافية، والعوامل المتعلقة بالعمل، ومقياس المعرفة ، ومقياس الموقف ومقياس الممارسة.

النتائج: كان متوسط الدرجات التي حصلت عليها التمريض في الرعاية الحرجة فيما يتعلق بمعرفة نهاية الحياة 66.6%، وهو موقف متفائل (62.5%) وممارسة (86.6%). وكان أداء أفضل في الممارسة، وكان لديهم مواقف أكثر إيجابية، وسجلت درجات أعلى في اختبارات المعرفة. ولم تختلف معرفة ومواقف وممارسات الممرضات والممرضون المتزوجات والمتزوجون والعازبات والعازبون بشكل

كبير إحصائيًا. ولم يكن للعمر أي تأثير ملحوظ على الممارسة أو المعرفة أو المواقف فيما يتعلق برعاية نهاية الحياة. ولم تتأثر معرفة ومواقف وممارسات المشتركون في تقديم رعاية نهاية الحياة بشكل كبير بمكان الاقامة. ولم تتأثر معرفة ومواقف وممارسات رعاية نهاية الحياة بشكل كبير بالمستوى التعليمي. كما أثر الانتماء إلى المستشفى بشكل كبير على تصنيفات المعرفة والممارسة، في حين لم يكن لتجربة التمريض أي تأثير ملحوظ على المعرفة أو الموقف أو الممارسة. وهذا يوضح أن سنوات الخبرة وحدها قد لا يكون لها تأثير كبير على قدرات العاملين في مجال الرعاية الصحية مثل العناصر المؤسسية. وُجدت علاقات ارتباط إيجابية متوسطة بين المعرفة، والموقف، والممارسة تجاه رعاية نهاية الحياة. فقد ارتبطت زيادة المعرفة بتحسن الممارسة ($r = 0.515, p < 0.001$) وبتبني مواقف أكثر إيجابية ($r = 0.371, p < 0.001$). كما وُجد ارتباط إيجابي بين الموقف والممارسة ($r = 0.396, p < 0.001$).

الخلاصة: تشير النتائج إلى أن غالبية تمريض الرعاية الحرجة على دراية ب (EOLC). ولديهن نظرة جيدة تجاهها. ومع ذلك، فإن حقيقة أن نسبة صغيرة من المشاركين لديهم فجوات معرفية تسلط الضوء على ضرورة البرامج التعليمية المركزة والتطوير المهني المستمر لتحسين الكفاءة وتوفير رعاية شخصية ممتازة في وحدات العناية المركزة. قد يزداد وعي تمريض الرعاية الحرجة إذا تم إعطاء EOLCالمزيد من الاهتمام في المناهج الدراسية. حددت استنتاجات الدراسة مجالات ممارسة EOLCومشاركة تمريض الرعاية الحرجة في هذه الممارسات.

الكلمات المفتاحية: المعرفة، المواقف، الممارسات، تمريض الرعاية الحرجة، EOLC