REVIEW

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Palliative care outcomes in adult intensive care units: A scoping review of potential quality indicators

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ABSTRACT

Background: While critical care focuses on survival, it may unintentionally overlook aspects of comfort, dignity, and communication that are essential to quality end-of-life care. This scoping review aimed to identify existing outcome indicators, highlight gaps, and propose potential quality indicators for palliative care in ICU settings.
Methods: Fifty-seven databases were searched for relevant publications published between January 2000 and December 31, 2024. The inclusion criteria were full-text, peer-reviewed journal articles in English, consisting of final versions of original or review studies conducted in adult ICUs. Case studies, perspectives, editorials, and reports were excluded. This study used the preferred reporting items for systematic reviews and meta-analyses extension for scoping reviews (PRISMA-ScR) approach. We reviewed the literature across multiple databases, including PubMed, ProQuest, EBSCOhost, Scopus, ScienceDirect, and BASE. We carried out the ScR according to the structure suggested by Arksey and O'Malley.
Results: This review included 57 studies, with a total of 158 codes representing 122 unique codes, which were grouped into 29 sub-themes (categories of palliative care outcomes) within five main themes: communication and palliative care consultation, end-of-life care decisions, symptom management and comfort, psychosocial well-being of patients and families, and ethics and the role of clinicians in palliative care. Additionally, unique categories were identified to reflect each of these themes.
Conclusion: Outcomes have been highlighted as unique and significant palliative care outcomes for adult patients in ICU critical care settings, potentially becoming candidate quality indicators. The candidate outcome indicators for palliative care in the ICU in the future will contribute to more measurable and standardized outcome assessments.

Keywords: critical illness, intensive care units, outcome assessment, palliative care, quality indicators.
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INTRODUCTION

The intensive care unit (ICU) is critical in providing life-sustaining treatment for critically ill patients.[1-3] However, as patients approach the end of life, there is a growing need to ensure that care also addresses comfort, dignity, communication, and symptom relief.[4–7] Despite increasing integration of palliative care in ICU settings, outcome indicators specific to palliative care remain poorly defined and inconsistently applied.[8–10] The absence of standardized, measurable outcome indicators hampers the ability to evaluate care quality, implement evidence-based improvements, and compare results across ICUs.[11,12] This scoping review addresses this gap by systematically mapping the current landscape of palliative care outcomes in adult ICUs to identify candidate indicators to support future quality assessment and clinical decision-making.

The literature review by Pasman et al. (2009) states that quality indicators for palliative care in ICU (P-ICU) are available. However, it still overlaps with the indicators discussed and lacks detailed explanations, requiring further clarification.[13] On the other hand, the literature review by Tanaka et al. (2023) highlighted that although process indicators are more common and easier to measure, they do not fully capture patient and family outcomes such as symptom relief or satisfaction with care. Outcome indicators remain limited due to measurement challenges, the complexity of ICU cases, and the lack of standardized tools, making it difficult to assess the actual impact of palliative care in the ICU.[14]

Palliative care outcomes aim to improve the evaluation and assistance provided to patients in ICU environments.[15–18] Palliative care outcomes in the ICU are still heterogeneous, with varying methods, results, and disparities in the outcomes achieved.[19] Different outcomes may arise from the diverse palliative care models used in ICUs for patients with severe conditions, like consultative or integrative models.[20] Currently, there is no standardized framework for P-ICU outcomes, leading to variations in the components and measures of these outcomes. Without a standardized outcome framework, healthcare providers struggle to assess the effectiveness of palliative care, leading to inconsistent care, unmet patient needs and missed opportunities for data-driven quality improvement.

The lack of clarity in outcome components makes it challenging for ICUs to ascertain the most efficient forms of medical assistance in producing tangible patient benefits.[21] Unclear outcomes can negatively impact the patients' and their families' mental, cognitive, and physical health during the palliative stage.[22] Earlier research suggests that although Palliative care is more than just introduced in ICU settings, the methods and types of outcomes used to measure its effectiveness remain diverse. This variability raises a crucial question: "What are the outcomes of P-ICU, which can be a candidate for P-ICU outcome quality indicators?" It is necessary to clarify the critical components of outcomes of P-ICU through targeted interventions specific to this setting, with the hope that these outcomes can be recommended as candidate quality indicators.

METHODS

This scoping review was registered with the PROSPERO database (Registration ID: CRD42024513075). The scoping review (ScR) aimed to map the available evidence and pinpoint the opportunities, constraints, and gaps for assessing P-ICU outcomes. The ScR was carefully conducted in adherence to the PRISMA-ScR guidelines, which provided a strong framework for systematically synthesizing the pertinent literature.[23] In alignment with the framework developed by O'Malley and Arksey, we implemented a systematic approach comprising seven structured steps to conduct the ScR.[24]

We followed the Arksey and O'Malley framework, which includes seven methodological steps: (1) Identifying the research question, where the core aim was to determine which outcomes in ICU-based palliative care could serve as candidate quality indicators; (2) Identifying relevant studies through a systematic search of electronic databases and grey literature sources; (3) Selecting studies by applying predefined inclusion and exclusion criteria to titles, abstracts, and full-text articles; (4) Charting the data, which involved extracting and organizing key study characteristics and outcome themes using the PCC framework; (5) Collating, summarizing, and reporting the results through thematic synthesis and categorization into sub-themes and overarching domains; (6) Optional consultation with experts, where ICU clinicians and palliative care professionals reviewed and validated preliminary findings; and (7) Identifying implications for policy and future research, focusing on the potential of these outcomes to serve as measurable quality indicators for ICU palliative care. These steps are visually summarized in Figure 1 and were implemented iteratively and reflexively throughout the review process.

Identifying the Research Questions

A well-defined research question and scope help researchers conduct reviews more effectively and efficiently.[25] The primary research question: "What P-ICU results could be used as potential P-ICU outcome quality indicators?"

Identifying the Relevant Study

Information Sources

We conducted a comprehensive literature search for articles through the PubMed, ProQuest, EBSCOhost, Scopus, and Science Direct databases. We also searched for grey literature, including published dissertations, theses, and conference papers. Our inquiry ventured into peer-reviewed and grey literature, casting a wide net for articles published from January 2000 until December 2024.

Search Strategy

We used a search strategy for outcome articles with the following search terms: PubMed: ((((Critical Illness[MeSH Terms]) OR (Palliative care[MeSH Terms]))) AND (Outcome Assessment, Health Care[MeSH Terms])) AND (Intensive Care Units[MeSH Terms]). EBSCOhost: AB outcomes AND AB palliative care AND AB (ICU or intensive care unit or critical care). Scopus: (TITLE-ABS-KEY (outcome) AND TITLE-ABS-KEY (palliative AND care) AND TITLE-ABS-KEY (icu)). Science Direct: outcome AND "palliative care" AND ICU [ta].

Study Selection

Eligibility Criteria

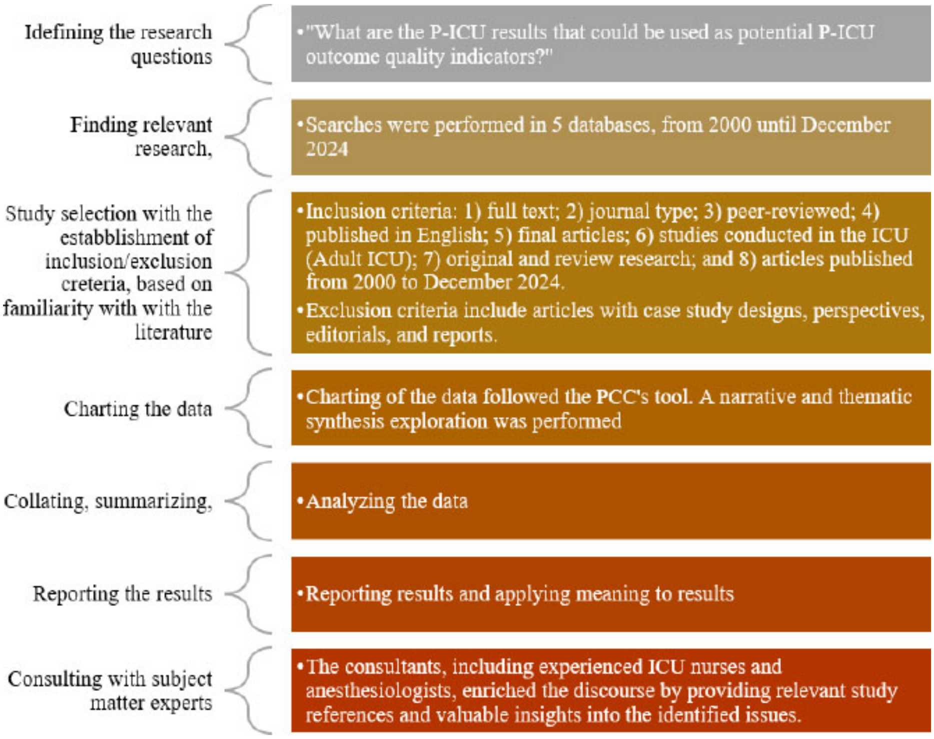
We meticulously sifted through the literature, handpicking relevant studies based on our carefully crafted criteria for inclusion and exclusion. The following were the study's inclusion criteria: 1) full text; 2) journal type; 3) peer-reviewed; 4) published in English; 5) final articles; 6) studies conducted in the ICU (adult ICU); 7) original and review research; and 8) articles published from January 2000 to December 2024. The exclusion criteria included articles with case study designs, perspectives, editorials, and reports. Case study designs were excluded due to their limited generalizability and lack of methodological rigour for developing outcome-based quality indicators. Including only broader empirical studies ensures that the findings are more transferable and relevant across diverse ICU settings. Furthermore, only studies published in English were included due to resource limitations and the predominance of indexed literature in English.

Selection of Sources of Evidence

Three assessors independently examined the titles and abstracts of the selected papers. The stages involved in the article selection process encompassed: 1) selecting articles based on inclusion and exclusion criteria; 2) conducting selection based on duplicate articles, suitability of titles, abstracts, and language; 3) selecting irrelevant articles; and 4) selecting full-text articles to assess their quality using the critical appraisal tool (CAT). We used the CAT adapted from the joanna briggs institute (JBI).[26]

Charting the data

The subsequent step involved mapping the data through a structured extraction process guided by the PCC framework (population, concept, context).[27] Key information extracted from each study included: (1) author and publication year, (2) study objectives, (3) population characteristics (e.g., patients, families, or healthcare professionals), (4) concept referring to outcome categories or themes relevant to palliative care in ICU, and (5) contexts, such as country and ICU type. Additional elements included study design, sample size, and main findings. If the information on indicator characteristics was missing, it was classified as "unknown." Table 1 presents the inclusion and exclusion criteria based on the PCC framework used during the screening and


Idefining the research questions
•"What are the P-ICU results that could be used as potential P-ICU outcome quality indicators?"

Finding relevant research,
•Searches were performed in 5 databases, from 2000 until December 2024

Study selection with the estabblishment of inclusion/exclusion creteria, based on familiarity with with the literature
•Inclusion criteria: 1) full text; 2) journal type; 3) peer-reviewed; 4) published in English; 5) final articles; 6) studies conducted in the ICU (Adult ICU); 7) original and review research; and 8) articles published from 2000 to December 2024.
•Exclusion criteria include articles with case study designs, perspectives, editorials, and reports.

Charting the data
•Charting of the data followed the PCC's tool. A narrative and thematic synthesis exploration was performed

Collating, summarizing,
•Analyzing the data

Reporting the results
•Reporting results and applying meaning to results

Consulting with subject matter experts
•The consultants, including experienced ICU nurses and anesthesiologists, enriched the discourse by providing relevant study references and valuable insights into the identified issues.

Figure 1. Arksey and O'Malley's scoping review framework as applied in this study.

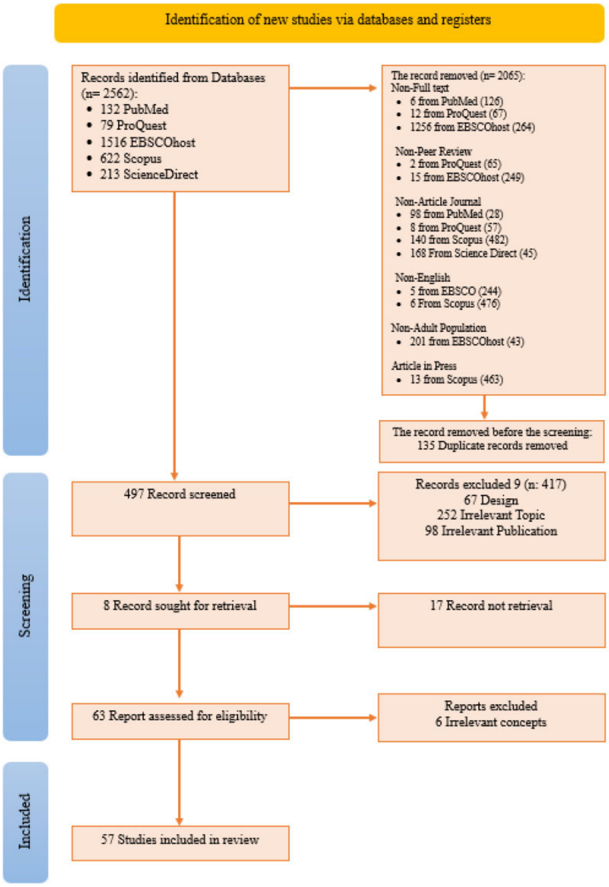


Figure 2. Preferred reporting items for systematic reviews and meta-analyses (PRISMA) flow diagram showing the screening, exclusion, and inclusion process of studies for the scoping review.

data charting process. The selected articles were identified based on their primary focus on outcomes during ICU care. This information was systematically recorded to support thematic synthesis and mapping of relevant outcome indicators within the context of intensive care.

Data Collection Process

The tools used to support the screening for the ScR in this study included Rayyan, and irrelevant articles were removed. The full-text articles were individually examined and deliberated upon to assess their compliance with the inclusion criteria. A third reviewer was consulted to settle disputes between the two reviewers during the selection process. The CAT assessed the articles' quality. It is essential to consider several key indicators to evaluate the quality of research methodology in a review using the CAT.

First, ensure the inclusion criteria are clear and relevant. Second, the appropriateness of the subjects and setting must be verified. Third, check if the exposure measurement is reliable. Fourth, assess the clarity and feasibility of the objective. Fifth, ensure valid criteria for variable classification. Sixth, identify and address confounders. Seventh, accurate and consistent outcome measurement must be verified. Lastly, confirm that the statistical analysis is appropriate and robust, ensuring valid conclusions. These indicators ensure methodological rigour.

Study risk of bias assessment

We used the CAT with eight key indicators to assess study quality: inclusion criteria, study setting, measurement, objectives, variable classification, confounders, outcomes, and statistical analysis. Scores of Yes (+), Unclear (?), and Not Applicable (-) were used. Three authors independently assessed and discussed scores to reach a consensus.

Consultation to Experts

The consultants enriched the discourse by providing supplementary references to studies with potential relevance for inclusion in the review and shared invaluable insights into the issues identified. Engaging seasoned ICU nurses and anesthesiologists as consultants, we sought their expert opinions on the study's findings. These authorities concurred with the results, underscoring the identified outcomes as a critical basis for formulating indicators pertaining to P-ICU's structural dimensions and procedural elements.

Synthesis of results

We synthesized results in the ScR using a thematic synthesis exploration.[28] Data from the included studies were analyzed and summarized to evaluate their strong relationships and to explore similarities and differences between studies.[29] The initial synthesis stage involved examining relationships between studies and assessing the included studies. The study was conducted with an in-depth analysis to identify themes and sub-themes (categories), which were then categorized as outcome categories.

Ethical approval

This scoping review did not involve collecting primary data from human participants. However, expert consultations were conducted to support theme validation and data interpretation. These consultations did not involve personal or sensitive data and followed ethical research standards. As such, formal ethical approval was not required.

RESULTS

Selection of Sources of Evidence

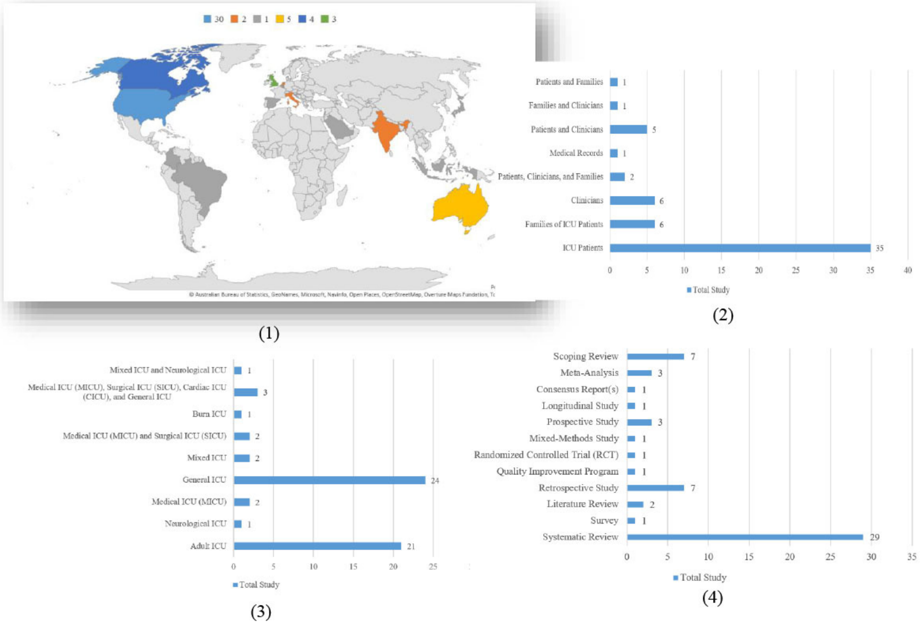
PRISMA flow diagram showing the screening and inclusion process of studies (Figure 2). There were 2,562 items obtained from the database as a result of the literature search. A total of 135 duplicate records were excluded. Following this, the authors reviewed the titles and abstracts, excluding an additional 417 studies based on design and irrelevant topic and publication criteria. After screening the full texts, 57 studies were included in this review.

Characteristics of Sources of Evidence

Figure 3 and Table 2 illustrate that fifty-seven (57) studies were examined. Most of the studies were conducted in the USA (30 studies),[20,30,39–48,31,49–57,32–38] making it the most researched country. Other countries with multiple studies include Australia (5 studies),[58–62] Canada (4 studies),[62–65] and the United Kingdom (3 studies).[66–68] Several other countries, such as Italy (2 studies),[19,69] India (2 studies),[70,71] Netherlands (2 studies),[72,73] and others, contributed only a small number of studies like Lebanon (1 study),[74] Indonesia (1 study),[75] Saudi Arabia (1 study),[76] Japan (1 study),[77] Spain (1 study),[78] Croatia (1 study),[79] Belgium (1 study).[80]

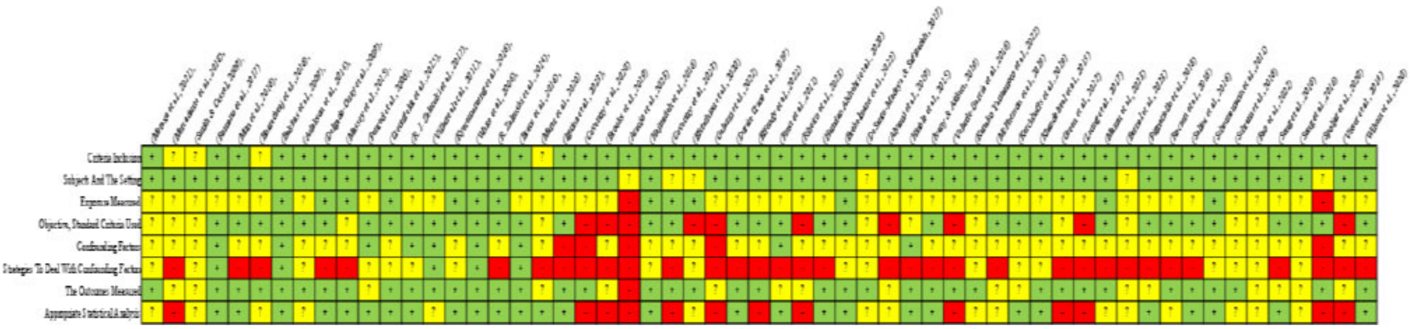
Regarding the study population, ICU patients were the most frequently studied group, with 36 studies.[30,36,54,55,57,61,62,65,66,73,74,77,37,81,82,38–40,46,49,50,53] Clinicians were involved in 6 studies[19,67,71,75,76,78], while families of ICU patients were studied in 6 cases.[47,48,58,60,69,70] Some studies examined a combination of populations, such as patients and clinicians (5 studies)[59,64,72,80,83] or patients, clinicians, and families together (2 studies).[31,63]

In terms of ICU type, General ICU was the most studied category with 24 studies[43,46,58,61–63,67,68,70,71,76,77,47,79,82,83,50,52–57] followed by Adult ICU with 21 studies.[19,20,39–41,44,59,60,69,72,74,75,30,78,31–37] Other ICU types, such as medical ICU (2 studies),[42,81] and Burn ICU (1 study),[66] had a smaller presence. Some studies covered multiple ICU types, such as Medical ICU, Surgical ICU, and Cardiac ICU (3



(1) (2) (3) (4)

Figure 3. The included studies will be distributed by (1) country of origin, (2) study population, (3) research design, and (4) intensive care unit (ICU) type.



Notes: +, Yes (Low risk); ?, Unclear (Unclear risk); - Not Applicable (high risk)

Figure 4. Risk of bias assessment using the Joanna Briggs Institute (JBI) critical appraisal tools.

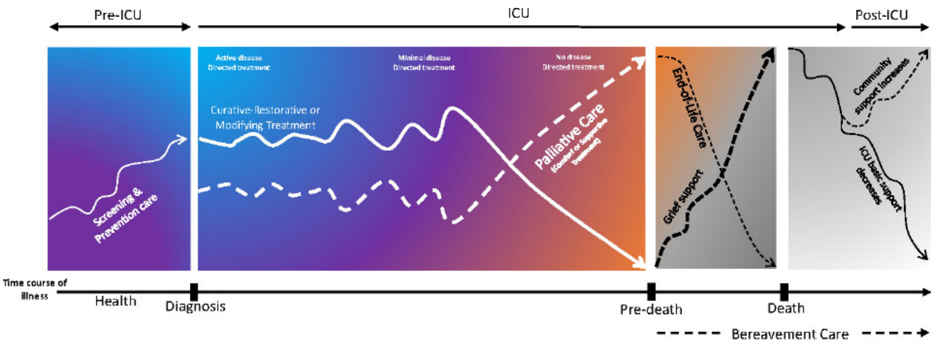
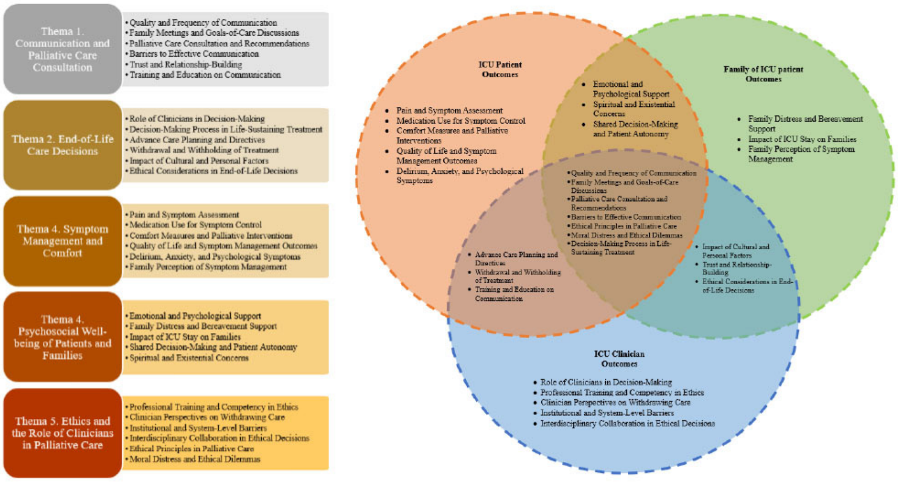


Figure 5. ICU care trajectory diagram: Integrating the palliative care continuum and transitional bereavement care. Adapted from Lichtenthal, *et al*., 2015, Lim 2016, and Myatra, *et al.* 2014.[85-87]



(1) (2)

Figure 6. Classification of sub-themes (outcome categories) based on (1) five major palliative care themes and (2) interconnection of outcome categories among intensive care unit (ICU) patients, families, and clinicians.

Figure 7. Milestones of comprehensive palliative care in the intensive care unit (ICU)

studies).[62,73,80]

Systematic Review was the most common approach in 29 studies when looking at study design.[20,30,55,56,59,62–64,69,70,73,76,46,78–80,82,83,47–51,53,54] Retrospective Study,[32,34,35,37,38,44,45] and Scoping Review[52,60,66–68,71,75,77] were each used in 7 studies. Meta-analysis[57,58,65] and Prospective Study[39,43,81] appeared in 3 studies each. Several other designs, such as Randomized Controlled Trial (RCT),[74] Literature Review,[40] and Survey,[19,31] were only used in 1 or 2 studies.

Critical Appraisal Within Sources of Evidence

Figure 4 illustrates that 57 studies met the inclusion and exclusion criteria. A methodological quality appraisal was conducted using the appropriate JBI critical appraisal checklists, selected based on each study design. Although formal risk of bias assessment is not mandatory in scoping reviews, this appraisal was included to enhance methodological transparency. The analysis showed that 50 studies met most of the appraisal criteria and were classified as having a low risk of bias. Meanwhile, seven studies presented some methodological uncertainties. They were categorized as having unclear risks, and none of the studies were rated as having a high risk of bias based on JBI thresholds. A similar distribution was observed in the 'Subjects and Setting' domain, where 50 studies were considered to have appropriate population and setting descriptions, six were unclear, and only 1 study was considered to have a high risk of bias in that specific domain.

Figure 5 illustrates the continuum of care throughout the course of an illness, beginning with the Pre-ICU stage, where individuals are still in good health. At this stage, the primary focus is on screening and prevention to detect and reduce the disease risk before it progresses. Once a diagnosis is made, the patient enters the curative-restorative or modifying treatment phase, which aims to cure or control the disease. Initially, treatment is actively directed toward the illness, but over time, as the condition worsens and the disease becomes minimal or no longer responds to therapy, curative interventions begin to decline.

Figure 6 (1) illustrates that from the analysis of 57 studies, 158 codes representing various palliative care outcomes in the ICU were identified. After screening, identifying, and eliminating duplicates, 122 unique codes were obtained and grouped into 29 sub-thema (categories) based on their meaning and context. These categories were further classified into five main themes to reflect key aspects of palliative care in the ICU: (1) communication and palliative care consultation (6 categories, 28 codes), (2)

Table 1. Characterization of studies samples

Category	Inclusion Criteria	Exclusion Criteria
Population	Adults (≥18 years) receiving palliative care in ICU settings; families; ICU clinicians involved in P-ICU	Pediatric patients; non-ICU settings
Context	ICU settings (medical, surgical, trauma, mixed ICUs) in any country	Non-ICU settings (e.g., palliative wards, nursing homes)
Concept	Studies discussing outcomes, indicators, or measures related to palliative care in ICU	Articles do not address palliative care outcomes or quality indicators.
Type of study	Original empirical studies (quantitative, qualitative, mixed-methods), systematic reviews	Editorials, commentaries, case reports, conference abstracts
Language	English	Non-English publications
Year of publication	Studies published between January 2000 – March 2024	Studies published before 2000

Notes: PCC = Population, Concept, and Context; ICU = Intensive Care Unit; P-ICU = Palliative care in the Intensive Care Unit.

end-of-life care decisions (6 categories, 26 codes), (3) symptom management and comfort (6 categories, 24 codes), (4) psychosocial well-being of patients and families (5 categories, 22 codes), and (5) ethics and the role of clinicians in palliative care (6 categories, 22 codes). this systematic classification ensures that each code is meaningfully organized, providing deeper insights into palliative care in the ICU.

The themes in palliative care in the ICU are categorized into five main areas, each encompassing specific aspects of care. Five main theme areas such as (1) communication and palliative care consultation, (2) end-of-life care decisions, (3) symptom management and comfort, (4) psychosocial well-being of patients and families, and (5) ethics and the role of clinicians in palliative care.

Figure 6 (2) illustrates the classification of 29 categories based on the interconnection of outcome categories in palliative care for ICU patients, families, and ICU clinicians. There are 5 categories related to ICU patients, focusing on their experiences and conditions during palliative care in the ICU. These categories include pain and symptom assessment, medication use for symptom control, palliative interventions for comfort, symptom management outcomes and quality of life, and psychological symptoms such as delirium and anxiety.

Thus, out of the total 29 categories, five categories relate to ICU patients, three categories to families, five categories to clinicians, three categories to patients and families, seven categories to patients, families, and clinicians, three categories to patients and clinicians, and three categories to families and clinicians. This classification provides a comprehensive overview of how interactions between patients, families, and healthcare providers influence ICU communication, decision-making, and palliative care.

Figure 7 outlines palliative care stages in the ICU, starting with supportive care, which integrates palliative principles for patient comfort, symptom management, and emotional support. As patients transition to P-ICU, the focus shifts to comfort-centered care, facilitated by palliative care consultations and shared decision-making. end-of-life care involves decisions about life-sustaining treatments, DNR orders, and ensuring a dignified passing. Bereavement care supports families and ICU staff post-death, providing grief counselling and addressing emotional impacts on staff. This framework ensures compassionate, individualized care, addressing the needs of both patients and their families throughout their ICU journey.

DISCUSSION

Effective communication in palliative care in the ICU is essential to align medical decisions with the expectations of patients and families. The complexity of medical information in stressful, emotional situations often makes it difficult for families to understand the prognosis and available treatment options. Theme "communication and palliative care consultation," which includes the sub-themes "trust and relationship-building," "barriers to effective communication," and "training and education on communication," reflects these challenges. Building trust between family and medical personnel often underemphasized in daily practice was highlighted in our findings as crucial, with participants emphasizing consistency, transparency, and empathy as key to trust-building.[88,89] Barriers such as language, cultural differences, and low health literacy were also noted by participants and are consistent with Cain et al. (2018), who found that culturally sensitive communication improves care quality. Regular family meetings and palliative consultations emerged in our data as effective means to address these barriers by facilitating open dialogue and understanding. Additionally, our participants noted a lack of communication training, aligning with the sub-theme on training and education, and emphasized the need for structured programs focusing on empathy, cultural sensitivity, and delivering difficult news. These findings reinforce that effective, trust-based, and culturally responsive communication is essential to support families and ensure care that respects patient values and dignity.

End-of-life care decisions in the ICU are a complex process influenced by ethical, medical, and family dynamics. Theme "end-of-life care decisions" comprises three unique sub-themes: "the impact of cultural and personal factors," "role of clinicians in decision-making," and "ethical considerations in end-of-life decisions." Our findings show that cultural background and individual beliefs significantly shape how families perceive appropriate end—of—life care—some insist on exhaustive curative measures. In contrast, others prioritize comfort and reduced suffering. In such cases, clinicians are pivotal in mediating family

Table 2. Characteristics of the country, purpose, methods, and outcomes results of 57 studies

No	Study (Author, Years, Country)	Country	Purpose	Methods				Outcome Results
				Design	Population	Total	ICU Type	
1	Metaxa *et al.*, (2021),	USA	to assess different models for incorporating palliative care into ICU settings and identify the variations in palliative care practices across different parts of the world.	Systematic Review	ICU Patient	58 Items	Adult ICU	ICU length of stay, hospital length of stay , decisions to limit life-sustaining treatment , mortality, advance care planning, costs, nurse satisfaction, family meetings and goals-of-care discussions
2	Mercadante, Gregoretti and Cortegiani, (2018)	Italy	to provide anesthesiologists and intensivists with a thorough overview of the goals, existing evidence, and practical guidance on implementing palliative care in the ICU.	National Survey	ICU Clinician	Unidentified	Adult ICU	Disconnection from mechanical ventilators, discontinuation of inotropic support, stopping artificial nutrition, stopping dialysis, discontinuation of hydration, recommendations on pain and symptom management, increase the formalisation rate of advance directives (do not resuscitate' orders before and after consultation), referral to hospice, improved quality of life Lower use of specific non-beneficial life-prolonging therapies for patients at the end of life.
3	Smith and Cassel, (2009),	USA	to outline the current understanding of potential cost and other non-clinical outcomes, particularly length of stay (LOS), when comparing palliative care to standard care.	Review	ICU Patients, Families of ICU patients, Clinicians	7 Items	Adult ICU	Cost reduction, improved quality of care, reduced length of stay, decreased icu utilization, symptom improvement, increased patient and family satisfaction
4	Romano *et al.*, (2017)	USA	This study evaluates the impact of early palliative care on ICU use in advanced cancer patients, aiming to show that early integration reduces ICU reliance at the end of life, enhancing quality of life and outcomes.	A Retrospective Cohort	Patients With Advanced Cancer	470 Patients.	Adult ICU	ICU utilization, hospital death, hospice enrollment, cancer treatment
5	Mun *et al.*, (2016),	USA	Integrating palliative care into the standard ICU workflow aims to increase palliative care consultations, enhance end-of-life care, and reduce ICU and hospital length of stay (LOS).	A Quality-Improvement Program	Patients With Medical, Surgical, Cardiac, And/Or Neurologic	850 Patients.	Adult ICU	Reduced ICU length of stay, reduced hospital length of stay, increased identification of goals of care, increased advance directive completion, improved identification of surrogate decision-makers, higher rate of code status determination, more frequent family meetings, greater utilization of "goals-of-care" video, expanded distribution of palliative care brochures, increased palliative care consultations

No	Study (Author, Years, Country)	Country	Purpose	Methods				Outcome Results
				Design	Population	Total	ICU Type	
6	Bharadwaj *et al.*, (2016),	USA	To showcase the advantages of integrating palliative care (PC) into a healthcare system.	Retrospective Medical Records	Medical Record	353 Patients.	Adult ICU	Enhanced quality of life, effective symptom management, lower mortality rates, reduced aggressive interventions, higher patient and family satisfaction, shorter hospital stay, healthcare cost savings, improved care planning, increased family support, better end-of-life care quality.
7	Bakitas *et al.*, (2009),	Lebanon	To assess the impact of a nursing-led intervention on quality of life, symptom severity, mood, and resource utilization in patients with advanced cancer.	Randomized Controlled Trial	Patients with advanced Cancer	322 Patients.	Adult ICU	Patient quality of life, symptom intensity, mood and depression, resource utilization, psychosocial well-being.
8	Aslakson *et al.*, (2014),	USA	To summarize these studies and their outcomes.	A Systematic Review of Interventions	Adult patient (ICU Patient)	37 Articles	Adult ICU	ICU length of stay, hospital length of stay, family satisfaction, mortality rate, communication quality and frequency, family symptom distress and anxiety, medical procedure utilization, time to comfort measures, withdrawal of life-sustaining treatments, time to do-not-resuscitate orders.
9	Delgado-Guay *et al.*, (2009),	USA	to evaluate the impact of palliative care team involvement on symptom management, quality of life, and decision-making for critically ill cancer patients in the intensive care unit	Retrospective	ICU Patients	1637 Patients.	Adult ICU	Symptom changes (ESAS, MDAS), delirium presence (MDAS score), family distress and support needs, symptom progression from baseline, palliative care recommendations.
10	Massey *et al.*, (2015),	USA	To create a standardized terminology inventory for the chaplaincy field, called the chaplaincy taxonomy.	Mixed Methods Approach	ICU Patient	1126 Patient 27 FGD Participant	Adult ICU	Building trust and support, aligning care with patient values, exploring hope, supporting grief journey, enhancing communication, providing emotional support, acknowledging the situation, facilitating closure, reducing emotional distress, encouraging self-reflection.
11	Penrod *et al.*, (2006),	USA	To evaluate the relationship between palliative care (PC) and intensive care unit (ICU) admission and to compare the per diem total direct, auxiliary (lab and radiology), and pharmacy expenses of PC patients against conventional care patients during terminal hospitalization.	Retrospective	ICU Patient	314 Patients.	Adult ICU	Lower care costs, reduced ICU utilization, enhanced communication, improved care coordination, better patient and family outcomes, decreased unnecessary tests and technology, enhanced quality of life.

No	Study (Author, Years, Country)	Country	Purpose	Methods				Outcome Results
				Design	Population	Total	ICU Type	
12	Creutzfeldt *et al.*, (2015),	USA	To investigate the frequency and kinds of possible triggers for palliative care consultations in neuro-intensive care units	Retrospective Cohort Study	ICU Patient	1268 Patients.	Neuro ICU	DNR orders at death, withholding life-sustaining therapy, withdrawal of life-sustaining therapy, ICU mortality rate, hospital mortality rate, discharge to hospice/palliative care, ICU length of stay.
13	Zalenski *et al.*, (2017),	USA	To ascertain the results for patients who underwent a palliative care consultation (PCC) and screened positive for palliative care referral criteria.	Prospective	ICU Patient	405 Patients.	Adult ICU	Conversion from full code to DNR status, discharge to hospice services, 30-day readmission to the same hospital/system, hospital length of stay (LOS), median direct variable costs.
14	Villarreal *et al.*, (2011),	USA	to calculate the proportion of MICU patients who were consulted about palliative care throughout the intervention	Prospective Data	ICU Patient	The Preintervention Period Was 243, And 348 In The Intervention Period	Medical ICU	increased palliative care consultations for deceased patients, a higher total number of patients in MICU, improved collaboration between MICU and palliative care teams, expanded training for MICU fellows and nurses, increased bereavement support and hospice discharge planning.
15	[40],	USA	To assess how length of stay (LOS) and expenses are affected by palliative care (PC) consultations in the intensive care unit	Literature Review	Adult patient (ICU Patient)	8 Study	Adult ICU	ICU length of stay (LOS), hospital length of stay (LOS), mortality rates, costs associated with ICU and hospital stays.
16	White *et al.*, (2006),	USA	To investigate nonclinical outcomes associated with a formalized inpatient palliative care speciality unit and provide evidence-based research on the costs related to hospital-based palliative care	A Longitudinal Study	ICU Patient	1744 Patient	Adult ICU	Symptom relief, quality of life, patient satisfaction, family satisfaction, emotional and spiritual well-being, end-of-life preferences, ICU length of stay, transition to hospice care, bereavement support, healthcare resource utilization.
17	Zalenski *et al.*, (2014),	USA	To investigate the connection between various unfavourable patient outcomes and palliative care screening criteria	Consensus Reports	ICU Patient	1071 Patient	Medical ICU	Percentage of patients screened upon admission to the MICU, percentage of patients who scored positive on the palliative care screening, percentage of patients with positive and negative screens referred for formal palliative care consultation, inpatient hospital mortality, hospice discharge status, length of stay (LOS) in the hospital and ICU.Length of stay (LOS) in the hospital and ICU.

No	Study (Author, Years, Country)	Country	Purpose	Methods				Outcome Results
				Design	Population	Total	ICU Type	
18	Braus *et al.*, (2016),	USA	To assess how a palliative care intervention affects palliative care procedures, clinical outcomes, and family outcomes.	Prospective	ICU Patient	203 Patients	General ICU	Frequency and timing of family meetings, hospital and ICU length of stay, family satisfaction with care, satisfaction with decision-making, psychological symptoms in family members (depression, PTSD), family-rated quality of dying.
19	Martz *et al.*, (2020)	USA	to determine the results of referring patients with critical illness to expert palliative care.	Retrospectively	ICU Patient	112 Patients	Adult ICU	Length of hospital stay, length of intensive care unit (ICU) stay, discharge disposition (where the patient is discharged, such as home or hospice), escalation of care (whether the patient's care needs increased during their stay).
20	Iguina *et al.*, (2023),	USA	To assess critically ill PCT patients' clinical features, ICU and palliative care interventions, and clinical results in a community-based mixed intensive care unit	Retrospective Study	ICU Patient	388 Icu Patients	Mixed ICU	Higher APACHE and SOFA scores, increased ICU resource utilization, worse clinical outcomes for PCT patients, common PCTs: prolonged ICU stay, ICU readmission, terminal prognosis, transitioning goals of care.
21	[58]	Australia	To synthesize qualitative studies of patients' families' experiences and perceptions of end-of-life care in the intensive care unit when life-sustaining treatments are withdrawn.	Qualitative Meta-Synthesis.	Families Of Patients	13 Study	General ICU	End-of-life communication, valued attributes of patient care, preparing the family, supporting the family, bereavement care.
22	Brooks, Bloomer and Manias (2019)	Australia	To describe how culturally sensitive communication is used by clinicians (nurses and physicians) when communicating with patients and families at the end of life in the intensive care unit (ICU).	Systematic Review	Adult Patients (ICU Patients) And Clinicians	9 Study	Adult ICU	Communication barriers, cultural and personal influences on end-of-life communication, lack of knowledge for effective culturally sensitive communication, challenges impacted by staff turnover and rotation in the ICU, uncertainty regarding prognosis, emotional and psychological well-being of clinicians affected by inadequate education and support.

No	Study (Author, Years, Country)	Country	Purpose	Methods				Outcome Results
				Design	Population	Total	ICU Type	
23	Araujo, da Silva and Wilson, (2023)	Brazil	To identify nursing interventions aimed at palliative care patients in the intensive care unit (ICU).	Systematic Review	Nursing Staff And ICU Patient	36 Study	General ICU	Promoting patient autonomy, respecting patient needs, effective communication with patients and families, shared decision-making, individualized care including family involvement in daily care and decisions, maintenance of basic nursing care for hygiene and comfort, encouragement of self-care, involvement of nursing palliative care specialists, need for continuing education programs for nursing staff and other professionals involved in palliative care.
24	Hajizadeh *et al.*, (2016)	USA	To evaluate the effectiveness of shared decision-making (SDM) in end-of-life (EOL) decisions compared to other decision-making styles.	Systematic Review	ICU Patient	7 Study	General ICU	Quality of communication, family satisfaction with communication, trust of physicians, satisfaction with care, decisional conflict, feeling rushed in making the decision, perceptions of the decision-making experience, quality of dying
25	Coventry *et al.*, (2023)	Australia	to identify and characterize interventions that assist families in preparing for the possibility of death in intensive care units, along with exploring barriers to implementation and associated outcomes.	Scoping Review	Families of ICU patients	7 Study	Adult ICU	Reduced symptoms of anxiety, reduced symptoms of depression, reduced symptoms of prolonged grief, reduced symptoms of post-traumatic stress.
26	Efstathiou *et al.*, (2020)	Canada	to conduct a mixed methods systematic review focusing on the terminal withdrawal of mechanical ventilation within intensive care units.	A Mixed Methods Systematic Review,	ICU Patients, Families of ICU patients, Or Healthcare Clinicians	25 Study	General ICU	Clinicians' perceptions and practices regarding terminal withdrawal of mechanical ventilation, time to death and predictors associated with withdrawal, practices related to analgesia and sedation during the withdrawal process, the physiological and psychological impact of the withdrawal process on patients and their families.
27	Galazzi *et al.*, (2022)	Italy	To investigate the connection between ICU diaries and the grieving process experienced by family members of adult patients who died in the ICU.	Systematic Literature Review	Families of ICU patients	6 Study	Adult ICU	Understanding the patient's condition, comfort in coping with loss, emotional adjustment post-death, making sense of events, remembrance of loved ones, photographs enhance impact, positive perception in bereavement support.
28	Durán-Crane *et al.*, (2019)	Colombia	to identify and synthesize available recommendations from scientific societies and experts on pain management at the end of life in the ICU.	Systematic Review	ICU Patient	10 Study	General ICU	Pain assessment tools, opioids and benzodiazepines, neuromuscular blockers, quality indicators.

No	Study (Author, Years, Country)	Country	Purpose	Methods				Outcome Results
				Design	Population	Total	ICU Type	
29	Effendy *et al.*, (2022)	Indonesia	to explore barriers and facilitators in providing palliative care in intensive care settings. It focuses on healthcare professionals' experiences and challenges in delivering end-of-life care.	Scoping Review	Healthcare Professionals	14 Study	Adult ICU	Reduced length of hospital stay, improved awareness of end-of-life care options, enhanced communication between team members and families, greater integration of palliative care practices in ICU settings, identifying barriers such as capabilities, family boundaries, practical issues, and cultural differences impacting palliative care delivery.
30	Frost *et al.*, (2011)	Canada	systematically review factors influencing end-of-life decision-making among critically ill patients and healthcare providers.	Systematic Review	Adult Patients And Healthcare Providers	102 Study	MICU, SICU	Improved communication, alignment with patient wishes, reduced intensity of care, family satisfaction, psychosocial support.
31	Ribeiro *et al.*, (2023)	United Kingdom	To review, appraise, and synthesize existing evidence about end-of-life care for patients in Burn ICUs.	Scoping Review	Adult Patients (ICU patients)	18 Study	Burn ICU	End-of-life decision-making (e.g., withdrawal of treatment), discussions on goals of care based on burn severity, focus on symptom control for patient comfort, importance of better integration of palliative care, variability in comfort care approaches based on clinician experience.
32	Hamdan Alshehri *et al.*, (2020)	Saudi Arabi[a]	to identify factors (barriers and facilitators) influencing integrating a palliative care approach in intensive care units (ICUs), as health care professionals perceive it.	Systematic Mixed-Methods Review	Health Care Professionals	24 Study	General ICU	Barriers and facilitators were identified, organizational structure challenges, work environment impact, interpersonal dynamics, communication difficulties, family involvement is essential, clinician perceptions.
33	Brekelmans, Ramnarain and Pouwels, (2022)	Netherlands	To provide an overview of different bereavement support strategies and their effects on relatives of deceased ICU patients, specifically regarding anxiety, depression, PTSD, and complicated Grief.	Systematic Review	ICU Patients	7 Study	MSICU, CICU, General ICU	The primary outcomes reported in the studies reviewed include levels of anxiety (measured using the Hospital Anxiety and Depression Scale, HADS), levels of depression (measured using HADS), symptoms of PTSD (measured using Impact of Event Scale-Revised, IES-R), complicated grief (measured using the Inventory of Complicated Grief, ICG), prolonged grief (measured through various constructs, including HADS and IES-R results).
34	DeSanto-Madeya and Safizadeh (2017)	USA	to explore the factors associated with family satisfaction with end-of-life care in the ICU.	Systematic Review	Families of ICU patients	30 Study	General ICU	Communication quality, decision-making involvement, perceived nursing care, environmental factors (ICU surroundings), availability of spiritual care.

No	Study (Author, Years, Country)	Country	Purpose	Methods				Outcome Results
				Design	Population	Total	ICU Type	
35	Alyami, Chan and New (2019)	Australia	To explore end-of-life care preferences of patients with advanced cancer and their families in intensive care units and if these align with essential elements for end-of-life care.	Systematic Review	ICU Patient	12 Study	General ICU	Care preferences change over time, patient-centered communication is critical, shared decision-making improves care consistency, marital status influences care preferences, gender affects end-of-life care experiences, ethnicity impacts treatment decisions, half of the studies align with essential care elements, no prospective studies were found on patient/family preferences, challenges exist in delivering ICU end-of-life care, need for further research in developing countries.
36	Hinkle, Bosslet and Torke (2015)	USA	To systematically review factors associated with family satisfaction with end-of-life care in the ICU.	Systematic Review	Families of ICU patients	23 Study	MICU, SICU	Increased family satisfaction is related to effective communication, expressions of empathy from healthcare providers, presence of family at the time of death, support for shared decision-making, specific patient-care measures (e.g., extubating before death), assurance of comfort and provision of written information, better quality of dying and death scores linked to family support.
37	Ivany and Aitken, (2019)	United Kingdom	to identify the challenges and facilitators that members of the ICU multidisciplinary team encounter in delivering end-of-life care to dying patients in ICUs.	Scoping Literature Review	Multidisciplinary Team In ICU	10 Study	General ICU	Communication challenges, barriers to effective care, lack of knowledge, family involvement, environmental factors, emotional impact, recommendations for improvement.
38	Velarde-García *et al.*, (2016)	Spain	To explore and review the challenges nurses face in providing end-of-life care (EOLC) in intensive care units (ICUs).	Qualitative Systematic Review	Nurses	22 Study	Adult ICU	Emotional burden, role in decision-making, communication challenges, barriers to care
39	Kanako Yamamoto *et al.*, (2022)	Japan	To evaluate the effectiveness of advance care planning (ACP) interventions for patients entering intensive care units (ICUs) and their families.	Scoping Review	Adult Patients (ICU patients)	4 Study	General ICU	Improved ACP knowledge, reduced decision-making conflict, increased care satisfaction, identified barriers to ACP, enhanced decision-making for patients' wishes.
40	McPherson *et al.*, (2019)	USA	To describe the variation and patient characteristics associated with limitations of life-sustaining treatment (LST) in critically ill patients within all types of ICUs in the U.S.	Systematic Review	ICU Patients	36 Study	General ICU	Frequency of limitation of life-sustaining treatment (LST), patient characteristics associated with limitation, trends over time, variability by ICU type, impact of race, proportion of deaths preceded by LST limitation, effect on resource use.

No	Study (Author, Years, Country)	Country	Purpose	Methods				Outcome Results
				Design	Population	Total	ICU Type	
41	Kerckhoffs *et al.*, (2019)	Netherlands	To identify strategies to optimize the decision-making process regarding continuing versus limiting life-sustaining treatment for ICU patients.	Systematic Review	ICU Patient And Health Care	32 Study	Adult ICU	Length of ICU stay, patient mortality, satisfaction of patients and surrogates, psychological distress, time to decision-making, documentation of care goals, quality of communication, cost implications.
42	Khandelwal *et al.*, (2015)	USA	To assess the impact of advance care planning and palliative care interventions on ICU admissions and ICU length of stay for critically ill adult patients with life-limiting illnesses.	Systematic Review	Adult Patients (ICU patients)	22 Study	General ICU	Reduction in ICU admissions, decrease in ICU length of stay (LOS), variability in outcomes across different studies (some reporting decreased LOS while others showed no change).
43	Green, Stewart-Lord and Baillie (2022)	United Kingdom.	To describe interventions at the very end of life and in the immediate bereavement period in acute hospitals, focusing on how these interventions are evaluated.	Scoping Review	Families of ICU patients And Staff	42 Study	General ICU	Person-centered and family-centered care experiences, acts of remembrance and memorialization, quality of communication and compassionate support, satisfaction with end-of-life care (measured through tools like the VOICES survey), the impact of institutional approaches on the quality of care provided, staff support and job satisfaction, emotional and psychological support for bereaved families.
44	Leung *et al.*, (2017)	Canada	To identify the social structures that contribute to timely, context-dependent decisions for transitioning from acute care to end-of-life care (EOLC) for patients with chronic critical illness (CCI) and their families.	Meta-Synthesis	Adult patients (ICU patients)	5 Study	Mixed ICU	Morally ambiguous expectations, limited communication, access to end-of-life care, decision-making mechanisms.
45	Mazzu *et al.*, (2023)	USA	To review studies on the procedures, protocols, and outcomes related to the withdrawal of mechanical ventilation at the end of life in ICU patients.	Systematic Review	Adult Patients (ICU patients)	49 Study	Mixed ICU, Neurological ICU	Time to death is associated with the withdrawal of mechanical ventilation, symptom assessment for dyspnea, pain, agitation, and delirium, communication effectiveness and ICU team support, symptom management strategies (e.g., use of opiates and sedation), family and clinician perceptions of end-of-life care quality.
46	Bernal, Roberts and Wu (2023)	USA	to map existing evidence regarding interprofessional interventions to improve serious illness communication in the ICU.	Scoping Review	ICU patients, Families of ICU patients	14 study	General ICU	Patient-focused outcomes, family-focused outcomes, provider-focused outcomes, systems-focused outcomes.

No	Study (Author, Years, Country)	Country	Purpose	Methods				Outcome Results
				Design	Population	Total	ICU Type	
47	Pignatiello, Hickman and Hetland, (2018)	USA	To synthesize the theoretical and methodological attributes of decision support interventions targeting surrogate decision makers (SDMs) of critically ill patients at the end of life.	Systematic Review	Adult Patients (ICU patients)	22 Study	General ICU	Improved communication between patients and families, enhanced understanding of patient prognosis, increased satisfaction with the decision-making process, reduction in decisional conflict among surrogate decision-makers (SDMs), better alignment of treatment choices with patient wishes, emotional support for families during end-of-life decisions.
48	Roczen, White and Epstein (2016)	USA	To systematically review the evidence for the effects of palliative care programs on selected clinical and nonclinical outcomes in intensive care units (ICUs).	Systematic Review	Adult Patients (ICU patients)	12 Study	General ICU	Hospital/ICU mortality rates, length of stay (LOS) in the ICU and hospital, use of life-prolonging treatments, timeliness of withdrawing and withholding life-sustaining treatment, symptom management effectiveness, family satisfaction and comprehension, decrease in conflict in the ICU, implementation of comfort-focused care plans, reimbursement outcomes for critical-care services integrating palliative care.
49	Salins, Deodhar and Muckaden, (2016)	India	Review the literature to determine the factors influencing family satisfaction with ICU care in the context of ICU death.	Systematic Review	Families of ICU patients	23 Study	General ICU	Effective communication (honesty, clarity, empathy), family support (respect, emotional attention), frequency and clarity of family meetings, involvement in decision-making, end-of-life care support and pain management, family-centered care, flexibility in visiting hours, palliative care consultation.
50	Scheunemann *et al.*, (2011)	USA	To conduct a systematic review of interventions designed to improve communication between healthcare providers and families of patients in the ICU.	Systematic Review	ICU Patients	21 Study	General ICU	Reduced family distress, improved family comprehension, decreased use of non-beneficial intensive treatments, reduced length of stay in the ICU, mortality rates mostly unchanged or decreased, improved communication processes.
51	Schram *et al.*, (2016)	USA	to identify physician competencies essential for patient and family satisfaction in palliative care settings within critical care environments at the end of life.	Systematic Review	ICU Patients and Families of ICU patients	15 Study	General ICU	Patient and family satisfaction with end-of-life care, effectiveness of physician competencies in palliative care, improvement in prognostication skills, enhanced conflict mediation abilities, improvement in empathic communication, increased awareness and implementation of family-centered care approaches.

No	Study (Author, Years, Country)	Country	Purpose	Methods				Outcome Results
				Design	Population	Total	ICU Type	
52	Rao *et al.*, (2022)	India	to explore physicians' attitudes toward withholding and withdrawal of life-sustaining treatments in end-of-life care, as well as to evaluate the factors associated with the observed attitudes	Scoping Review	Clinician	30 Artikel	General ICU	Withholding and withdrawing treatment, professional knowledge and skills, patient and family views, culture and context, costs of care.
53	Song *et al.*, (2016)	Canada	To determine the effect of structured communication tools for end-of-life decision-making in adult patients admitted to the ICU compared to usual care.	Systematic Review	Adult Patients (ICU patients)	19 Study	Micu, Sicu, Mixed ICU	Increased documentation of goals of care discussions, there is no significant effect on documentation of code status, no significant effect on decisions to withdraw or withhold life-sustaining treatments, reduced duration of mechanical ventilation, reduced length of ICU stays, reduced healthcare costs.
54	Oczkowski *et al.*, (2016)	Australia	To evaluate advance care planning in patients with primary malignant brain tumours and its impact on end-of-life (EOL) care.	Systematic Review	ICU Patients with Primary Malignant Brain Tumors	19 Study	General ICU	Lower hospital readmission rates, reduced intensive care unit utilization, increased likelihood of dying in a preferred place, higher hospice utilization, lower stress levels, anxiety, and depression in surviving relatives, variability in advance directive completion rates, the influence of ACP on quality of life and care at the end of life remains unclear.
55	Spoljar *et al.*, (2020)	Croatia	to analyze ethical issues related to end-of-life decision-making in intensive care units (ICUs), exploring ethical positions, arguments, and principles.	Systematic Review	ICU Patients, Healthcare	15 Study	General ICU	Identification of ethical positions, substantive and procedural positions distinguished, emergence of ethical principles, high agreement among experts, the importance of effective communication is emphasized, the need for well-designed protocols highlighted, beneficial role of ethics consultations noted, emphasis on early integration of palliative care, variability in decision-making practices observed, the necessity for ongoing education and training acknowledged.
56	Visser, Deliens and Houttekier, (2014)	Belgium	To study physician-related barriers to communication and patient- and family-centred decision-making towards the end of life in the ICU.	Systematic Review	ICU Patient, Physicians	36 Study	General ICU, MICU, SICU	Identification of barriers related to physicians, lack of communication training, physicians' attitudes affecting care, inadequate interdisciplinary communication, unrealistic expectations about patient prognosis, insufficient knowledge regarding ethical issues, focus on the futility of treatment, need for improved guidelines.

No	Study (Author, Years, Country)	Country	Purpose	Methods				Outcome Results
				Design	Population	Total	ICU Type	
57	Wilson *et al.*, (2020)	USA	To assess the rates and variability of do-not-intubate (DNI) orders in patients with acute respiratory failure requiring non-invasive ventilation or high-flow nasal cannula oxygen.	Systematic Review And Meta-Analysis	Adult Patients (ICU patients)	26 Study	General ICU	Mortality rates, efficacy of non-invasive ventilation, quality of life measures, patient satisfaction, duration of ICU stay.

ACP= advance care planning; EOL= end-of-life; HCP= healthcare professional; ICU= intensive care unit; LOS= length of stay; LST= life-sustaining treatment; MICU = medical intensive care unit; N/A= not available; P-ICU= palliative care in ICU; RCT= randomized controlled trial; SICU= surgical intensive care unit; ScR= scoping review's = qualitative systematic review; SR= systematic review; QI= quality improvement.

disagreements, guiding them through difficult choices, and ensuring that decisions align with ethical standards and respect patient values.[91,92] This aligns with our sub-theme on the "role of clinicians," where participants described their responsibilities in clinical guidance and supporting families through emotionally charged situations. Moral tensions also emerged in our data, particularly when professionals had to weigh respect for patient autonomy against their duty to minimize harm—an issue reflected in the sub-theme on "ethical considerations." These findings are consistent with Lustbader et al. (2011), who highlight the value of palliative consultations in clarifying treatment goals and reducing non-beneficial interventions. By centring care on patient dignity and aligning actions with expressed values, ICU teams can help facilitate more ethical and compassionate decision-making at the end of life.

Symptom management and comfort are fundamental aspects of palliative care in the ICU, given that patients in critical conditions often experience pain, shortness of breath, delirium, and anxiety. Theme "symptom management and comfort" has three unique sub-themes: "delirium, anxiety, and psychological symptoms," "family perception of symptom management and comfort measures," and "palliative interventions". Psychological disorders such as delirium and anxiety are often less noticed compared to physical pain, although these conditions can increase the patient's suffering and worsen the end-of-life experience. The balance between sedation and patient consciousness is a significant challenge[94,95] Because families are often worried about overmedication and its impact on the patient's survival. In addition, the family's perception of the effectiveness of symptom management significantly affects their satisfaction with the care provided. Therefore, transparent and responsive communication to family concerns is urgently needed. A holistic approach that combines pharmacological and non-pharmacological interventions is essential in optimizing symptom control while respecting the patient's dignity. Studies show that patient-centred symptom control strategies can significantly improve patient comfort, including music therapy, body position adjustment, and a more supportive ICU environment.[96] Thus, a multidisciplinary approach to symptom management can help reduce patient suffering and improve their quality of life.

The psychosocial well-being of patients and families in palliative care in the ICU is critical, given the emotional impact of critical illness. Theme "psychosocial well-being of patients and families" has three unique sub-themes: "impact of ICU stay on families," "spiritual and existential concerns and family distress," and "bereavement support". Extended stays in the ICU can cause chronic stress, anxiety, and even post-traumatic stress disorder (PTSD) for patients' families.[97–104] In addition, the spiritual and existential aspects are often essential to the end-of-life experience, where patients and families seek meaning in their separation process.[105] Unfortunately, support for the family after death is often inadequate, even though they need assistance to manage grief and gain a sense of closure. By paying more attention to this psychosocial aspect, palliative care in the ICU can become more holistic, alleviating the patient's suffering and helping the family cope better with the loss. Studies show that approaches that integrate emotional, spiritual, and psychosocial support can increase family resilience and help them in the grieving process.[3]

Theme "ethics and the role of clinicians in palliative care" highlights the ethical challenges and moral pressures experienced by healthcare workers in ICU-based palliative care. This theme consists of three unique sub-themes: "moral distress and ethical dilemmas," "institutional and system-level barriers," and "interdisciplinary collaboration in ethical decisions." Our findings revealed that moral distress frequently arises when clinicians feel torn between their clinical judgment and external demands—whether from families insisting on continued intervention or institutional protocols that limit flexibility. This reflects the sub-theme "Moral Distress and Ethical Dilemmas," in which participants described emotional and psychological burdens tied to ethically challenging decisions.[106,107] This is consistent with Romero-García et al. (2022), who reported associations between moral distress and increased anxiety and depression among ICU staff.[108]

Additionally, participants identified institutional obstacles such as limited staffing, inadequate training in ethics, and inflexible administrative policies as significant barriers to quality palliative care, aligning with the sub-theme on "institutional and system-level barriers." To address these issues, our study emphasized the importance of interdisciplinary collaboration, particularly in complex ethical cases. This corresponds with the sub-theme "interdisciplinary collaboration in ethical decisions," where team-based deliberations involving doctors, nurses, social workers, and ethics committees were crucial in reaching ethically sound and compassionate decisions. With a more coordinated and inclusive approach, ICU teams can better uphold ethical principles while ensuring that care remains humane, fair, and centred on the patient's best interests.

This scoping review has several limitations. First, including studies with heterogeneous designs, populations, and outcome definitions may limit the generalizability of the synthesized themes. Although we used a systematic charting approach, the diversity in terminology and measurement tools across studies posed challenges in achieving conceptual consistency. Second, the lack of critical appraisal in some original studies, despite our use of the JBI tool, introduced variation in methodological quality that could influence interpretation. These limitations highlight the need for future research that uses standardized frameworks and validated outcome indicators across ICU settings. In particular, Delphi consensus methods and mixed-methods studies are recommended to validate and operationalize the proposed outcome indicators. Furthermore, longitudinal research examining how these indicators affect care quality, patient comfort, and family satisfaction in ICU palliative care is warranted.

CONCLUSION

This scoping review identified five major domains and 29 outcome categories representing potential quality indicators for palliative care in adult intensive care units. These outcomes reflect the complexity and multidimensional nature of ICU-based palliative care, involving clinical, ethical, emotional, spiritual, and communication aspects that impact patients, families, and healthcare professionals. The findings provide a conceptual foundation for developing structured outcome frameworks to guide assessment, benchmarking, and improving palliative care services in the ICU setting.

Given the heterogeneity of definitions and limited standardization in current practice, further research is needed to validate and operationalize these indicators. Specifically, Delphi consensus methods involving key stakeholders could help refine and prioritize relevant outcome measures. Additionally, mixed-methods and longitudinal studies are essential to evaluate these indicators' applicability, reliability, and impact on care quality, patient outcomes, and family satisfaction across diverse ICU settings.

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CONFLICTING OF INTEREST

None declared.

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AUTHOR CONTRIBUTIONS

The authors contributed to the manuscript creation in various stages. HS, SS, and CE conceptualised, while HR and SS managed data curation. Formal analysis was conducted by HS, SS, and CE, with funding acquisition led by HS. HS, SS, and CE developed the methodology, and HS handled project administration. All authors contributed to the writing of the original draft and the manuscript's review and editing process.

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