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Early Mobilisation Practices among Intensive Care Unit Nurses: A scoping review of influencing factors

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Abstract
Background: Early mobilisation in Intensive Care Units (ICUs) is associated with reduced complications, shorter stays, and improved recovery; yet its implementation remains inconsistent worldwide. Aim**:** To explore factors influencing ICU nurses' early mobilisation practices. Objectives: To synthesise existing evidence and identify gaps requiring research and policy improvement. Methods: A scoping review was conducted using PubMed, CINAHL, Scopus, and ScienceDirect for studies published between 2015 and 2025; 25 studies met the inclusion criteria. Findings: Key factors were nurses' knowledge, training, staffing ratios, protocols, interdisciplinary collaboration, and organisational culture, with notable gaps and unclear role definitions identified.

Keywords: *Early ambulation, intensive care unit*, critical care

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1.0 Introduction

Mobilisation at the early stages of intensive care unit (ICU) admission is an essential element in the management of critically ill patients. It is associated with several advantages, including reduced ICU length of stay, prevention of ICU-acquired complications, and improved functional outcomes (Jungmin Lee, 2025). Despite these advantages, early mobilisation (EM) techniques are inconsistently implemented across ICUs globally.

The involvement of ICU nurses is essential for the successful execution of emergency medicine protocols, given their constant presence and direct engagement in patient care. However, various factors impede their ability to implement EM interventions effectively. This includes obstacles at the individual level, such as insufficient knowledge and training, organisational difficulties such as inadequate staffing and resource shortages, and systemic problems characterised by a lack of clear guidelines and deficiencies in interprofessional communication.

The complexity of these challenges underscores the necessity for a comprehensive understanding of the factors influencing EM practices among ICU nurses. Currently, there is insufficient evidence to directly explore nurses' perspectives and experiences regarding EM. Addressing this deficiency is essential for formulating tailored treatments and policies that help nurses navigate these hurdles, thereby enhancing the implementation of EM and optimising patient outcomes in critical care environments.

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2.0 Literature Review

Early mobility (EM) of critically ill patients in the intensive care unit (ICU) is a recognised technique that markedly enhances patient outcomes. This technique is associated with reduced ICU length of stay, reduced ICU-acquired frailty, and improved functional recovery. Despite the recognition of its benefits, the consistent implementation of EM remains suboptimal in many ICU settings.

The role of ICU nurses in facilitating EM is essential; however, their ability to implement these practices is influenced by a complex array of factors. Studies have identified numerous barriers that hinder nurses' effective implementation of EM techniques. The factors include excessive workload, inadequate staffing, insufficient time, inadequate training, and the absence of clear rules or protocols (Changhwan Kim, 2019). Furthermore, factors such as excessive sedation, patient instability, and safety concerns complicate the mobilisation process (Pooja M. Akhtar, 2021). Significant barriers have been identified, including organisational culture, communication challenges within healthcare teams, and resource constraints.

Considering these intricate challenges, it is essential to conduct a thorough analysis and clarification of the current research to enhance our understanding of the factors influencing EM practices among intensive care unit nurses. This understanding is crucial for developing targeted initiatives that enhance the execution of EM, which may ultimately lead to improved patient outcomes in critical care environments.

The advantages of early mobility in intensive care unit environments are well established; however, the existing literature often focuses on interdisciplinary teams or patient outcomes, neglecting the specific contributions of ICU nurses. The existing literature often fails to adequately address the unique challenges and contributions of nurses in emergency medicine (Pooja M. Akhtar, 2021). Furthermore, the current research is fragmented and does not provide a comprehensive understanding of the specific factors that influence ICU nurses' behaviours. A scoping review is essential for delineating these factors, identifying research trends, and highlighting areas that require additional investigation.

3.0 Methodology

3.*1 Study Design*

The approach used in this article is a scoping review. The objective of a scoping review is to generate high-quality information more efficiently through a comprehensive quality assessment. The process of article review consists of 9 distinct stages: formulating the review question, developing search keywords, establishing selection criteria, identifying information sources, determining search strategies, extracting relevant articles, mapping and collecting the articles, reporting the results of the analysis, and consulting with other components involved in the review.

The scoping analysis will adhere to the PRISMA-ScR (Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews) checklist to ensure transparency and comprehensiveness in reporting (Tricco et al., 2018). The process of selecting studies complied with the PRISMA-ScR (Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews) standards, which are specifically tailored for scoping reviews.

This scoping review is limited by its reliance on predominantly descriptive and self-reported data, which may introduce bias. The definitions of EM and population settings exhibited variability, which constrained direct comparability. Moreover, participation by individuals from low-resource or non-English-speaking nations was limited.

3.*2 Eligibility Criteria*

This scoping review encompassed studies that investigated the practices of early mobilisation (EM) specifically carried out by nurses in intensive care units (ICUs). Studies that met the eligibility criteria were required to include nurses as the primary participants or implementers of EM interventions. Various study designs were considered, including qualitative, quantitative, and mixed-methods studies, as well as systematic reviews.

Studies were excluded from this review if they focused solely on physiotherapists, physicians, or other healthcare professionals without involving nursing staff. Furthermore, studies conducted outside intensive care units (ICUs), including those in general wards or rehabilitation units, were not included. The review also excluded conference abstracts, editorials, letters to the editor, and publications that had not undergone peer review.

3.3 Information Source and Search Strategy

The literature for this scoping review was identified through systematic searches conducted across five major electronic databases: PubMed, Scopus, CINAHL (via EBSCO), and ScienceDirect. The search took place on 30 April 2025. Studies were included only if published in English. Furthermore, the evaluation focused exclusively on peer-reviewed journal articles published between 2015 and 2025. The search strategy integrated both controlled vocabulary and free-text terms pertinent to early mobilisation and nursing within the ICU environment. The key concepts were combined utilising Boolean operators in the following manner: ("early mobilisation" or "early mobilisation") AND ("ICU" or "intensive care unit") AND ("ICU nurses" or "nursing") AND ("barriers" or "factors" or "practices" or "implementation"). A thorough manual search was conducted across the reference lists of all included studies and relevant reviews to identify additional relevant papers. All search results were entered into a reference management system, and duplicate searches were removed prior to screening titles and abstracts.

3.4 Selection Process

The reviewer evaluated the title and abstract to assess the study's relevance. The complete texts of the publications that met the inclusion criteria were examined. Records that did not pertain to nurse-led early mobilisation in ICUs or that met other exclusion criteria were excluded.

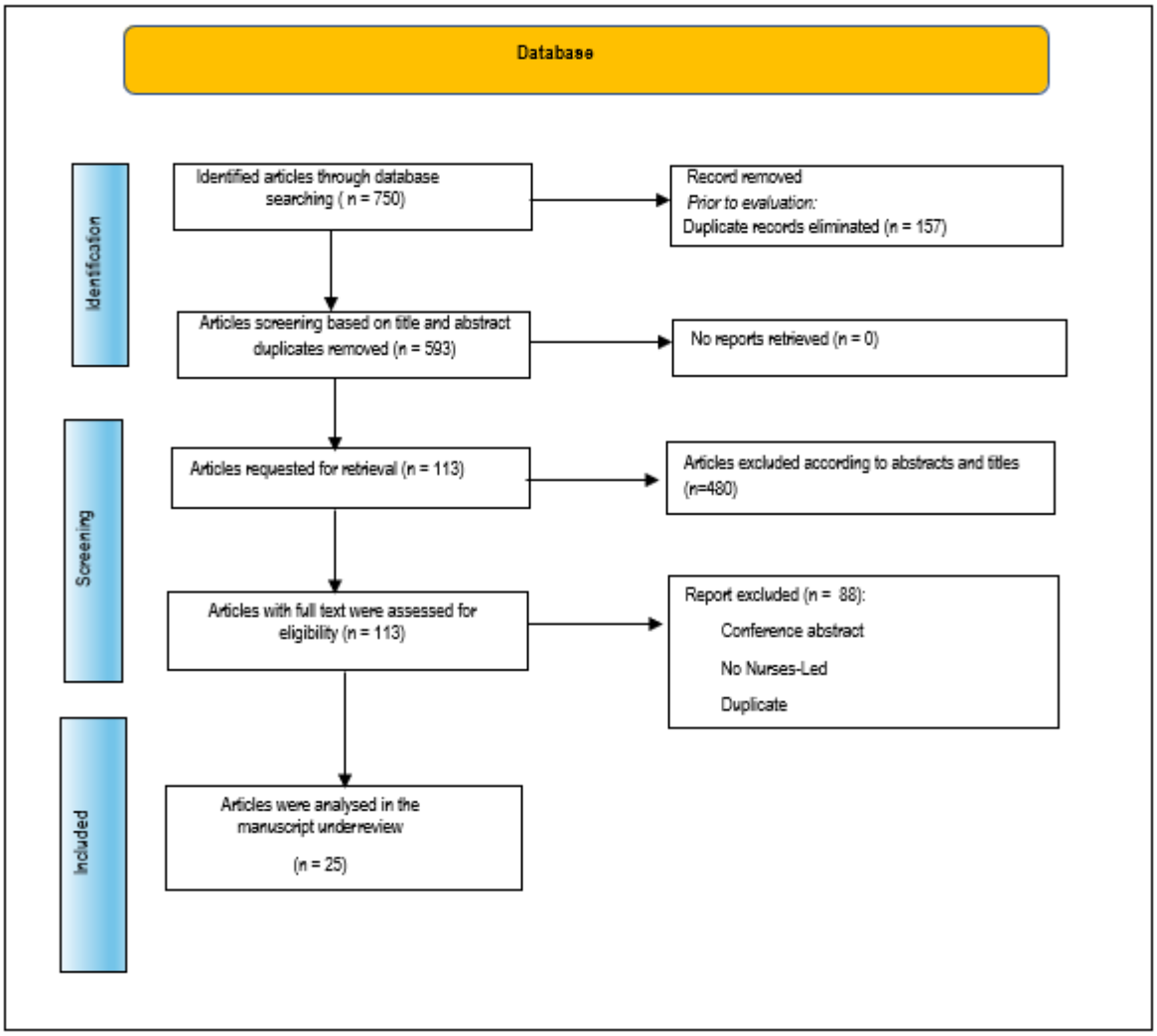
3.5 Study Risk of Bias Assessment

Bias evaluation was not conducted, as the aim of this scoping review was to examine the selected outcomes regardless of study quality.

3.6 Study Selection

A combined collection of 750 articles was initially gathered through searches in the databases. After eliminating 157 duplicate data points, 593 articles were retained for further screening. In the assessment of titles and abstracts, 480 papers were removed for failing to satisfy the established eligibility criteria. Subsequently, the whole texts of 113 potentially pertinent publications were meticulously evaluated, resulting in 25 research being classified as eligible and incorporated into the final synthesis.

Fig. 1: PRISMA-ScR Flow Diagram of Study
(Tricco et al., 2018)



3.7 Study Features

This research encompassed a decade (2015–2025) and was sourced from eight nations, including the primary resources from the United States (seven studies) and China (six studies). South Korea and Iran each provided two primary studies, whilst Spain, Colombia, Egypt, and Malaysia each provided one study; moreover, two surveys utilised international samples from Latin America and France. The predominant methodological approach employed in these investigations was cross-sectional surveys (n = 14), which evaluated ICU nurses' self-reported knowledge, attitudes, barriers, and practices related to mobilisation. Four qualitative studies utilised semi-structured interviews or focus groups to examine healthcare personnel's lived experiences of early mobilisation. Three cohort or observational studies prospectively assessed patient mobility levels. They identified related factors, while two mixed methods design integrated

surveys with in-depth interviews to offer both breadth and context. In conclusion, two review articles have consolidated the available empirical evidence to provide overarching guidance about the execution of early mobilisation.

Furthermore, most of the research focused solely on registered ICU nurses, with sample sizes ranging from 18 to 1,521 participants and requiring 1 year of ICU experience for eligibility. Four studies also incorporated other essential professionals in intensive care, including medical doctors, physical therapists, and respiratory care specialists, resulting in a total of diverse samples ranging from 31 to 210 people. Three observational studies included 124 to 642 patients on mechanical ventilation to assess their actual mobility levels and the factors predicting these levels.

In clinical settings, the practices of early mobilisation were investigated across diverse ICU environments. Most of the research was conducted in medical-surgical intensive care units; however, two studies specifically examined pediatric ICUs, while three investigations focused on specialised units, including cardiac, neurotrauma, and subarachnoid haemorrhage ICUs, thereby emphasising the unique challenges associated with specific conditions. All 25 studies were published in peer-reviewed journals, including Nursing in Critical Care, Intensive and Critical Care Nursing, Australian Critical Care, and Critical Care Nurse.

4.0 Findings

A total of 45 outcomes were identified across the 25 studies included in the analysis. The outcomes were categorised into seven domains: knowledge and attitudes, perceived barriers, nurse-led EM practices, organisational and structural factors, training and education, interdisciplinary collaboration, and patient-specific factors.

4.1 Knowledge and Attitudes

Among the 23 empirical studies, seven examined ICU nurses' expertise and perspectives on early mobilisation (EM). In conclusion, as noted by Wang et al. (2020) and Zhang et al. (2023), a significant majority of nurses, ranging from 68% to 80% expressed positive attitudes, agreeing that the advantages of EM outweigh the potential risks. Nonetheless, there were widespread knowledge gaps: fewer than 50% of respondents accurately recognised the criteria for safe initiation (Hashim & Wahab, 2022; Boehm et al., 2020). It is noteworthy that nurses possessing advanced educational qualifications or specialised training in emergency medicine demonstrated a 20–30% improvement in their performance on knowledge assessments (Jannoun et al., 2025). This indicates that although attitudes are positive, targeted education is necessary to translate support into informed, safe practices.

4.2 Perceived Barriers

Thirteen studies identified barriers to EM, with the most frequently cited issues being staffing shortages and high workload, as reported by 76% of respondents in Kim & Lee (2019) and 82% in Mahran et al. (2019). A lack of clear protocols was reported by 50–64% of nurses (Zhu et al., 2018; Wang et al., 2024), while safety concerns, particularly regarding accidental extubation or hemodynamic instability, were noted by 58% (Hashim & Wahab, 2022). Additionally, Popoola et al. (2021) discovered that even units with adequate staffing faced challenges in risk perception unless they utilised structured risk-assessment tools. The gathered data highlights the need to create protocols and provide workflow support to reduce workload and address safety concerns.

4.3 Nurse-Led EM Practices

Six studies have been detailed by Stolldorf et al. (2018) and Hashim & Wahab (2022), which outline the specific emergency management activities undertaken by nurses. In-bed mobilisation, including both passive and active range of motion and head-of-bed elevation, was almost universally adopted, with 97–99% of nurses using these methods. Conversely, activities conducted outside of bed, including sitting at the bedside, transferring to a chair, and ambulation, were noted in only 5–30% of patients (Mahran et al., 2019; Salazar-Caicedo et al., 2025). The main limitations were concerns regarding workload and safety. The disparity between knowledge and action underscores the potential for focused, protocol-driven practices and for allocating equipment and resources.

4.4 Organizational & Structural Factors

Seven studies established a link between unit-level characteristics and EM uptake. Intensive care units that implemented formal early mobilisation protocols demonstrated mobilisation rates that were 1.8 times higher (Raurell-Torredà et al., 2021). A one-to-one (1:1) ratio of physiotherapists to patients resulted in a twofold increase in the likelihood of active mobility (OR 2.0; Raurell-Torredà et al., 2021). Additionally, nurse-to-patient ratios of 1:2, compared with 1:4, were associated with a 25% increase in emergency medicine attempts (Zhu et al., 2018). Support from leadership and advocates across disciplines has been identified as an essential facilitator (Boehm et al., 2020; Ashkenazy et al., 2023), underscoring the importance of resource allocation and executive endorsement.

4.5 Training and Education

Five studies found that EM-specific training led to notable improvements in confidence and practice frequency. Nurses who participated in a one-day simulation workshop indicated a 40% rise in their weekly emergency medicine sessions (Kim & Lee, 2019), while those engaged in continuing education programs conducted emergency medicine 1.5 times more frequently (Zhang et al., 2023). The results support the implementation of compulsory emergency medicine training modules within the orientation process for ICU nurses and in their continuous professional development.

4.6 Interdisciplinary Collaboration

Four studies emphasised the role of teamwork in driving EM. Units that conducted daily multidisciplinary rounds with clearly defined EM objectives experienced a 30% increase in mobilisation rates compared with those that did not implement such practices (Krupp et al., 2022). Facilitators comprised shared checklists, collaborative decision-making huddles, and well-defined roles among nurses, physiotherapists, and physicians (Foudhaili et al., 2024; Cederwall et al., 2022). Conversely, ineffective communication led nurses to postpone EM, even when clinical eligibility was present. It is advisable to implement structured interdisciplinary protocols.

4.7 Patient-Specific Factors

Three studies examined the individual-level factors that predict outcomes in emergency medicine. The Higher Muscle Research Council (MRC) sum scores (OR 1.05 per point) and the absence of severe delirium were associated with an increased likelihood of active mobility (Raurell-Torredà et al., 2021). In contrast, individuals with a BMI greater than 30 or those undergoing deep sedation exhibited a 40–60% reduction in the likelihood of experiencing EM (Krupp et al., 2024). Objective eligibility criteria, including IMS thresholds and risk screening tools, can help nurses effectively identify suitable candidates.

5.0 Discussion

This scoping review aims to elucidate the current literature on factors influencing early mobilisation practices among ICU nurses, while also identifying areas that require further research and policy advancement. The reviewer synthesised information from 23 empirical studies and two extensive reviews to identify the factors associated with mobilisation practices involving nurses in critical care units (ICUs). Seven core themes emerged: knowledge and attitudes, perceived barriers, nurse-led EM practices, organisational and structural factors, training and education, interdisciplinary collaboration, and patient-specific factors. There are 45 outcomes across these seven categories. The analysis revealed that ICU nurses generally strongly endorse early mobility, recognising its benefits in minimising ICU-acquired frailty, shortening mechanical ventilation time, and improving patient outcomes. Nonetheless, despite favourable perceptions, numerous nurses demonstrated deficiencies in their clinical knowledge, particularly in determining appropriate timing, eligibility criteria, and safe mobilisation guidelines. This discrepancy between belief and clinical capability highlights the necessity for more organised, evidence-based education and protocol-driven practice guidelines. Many nurses acknowledge the advantages of EM; however, knowledge gaps remain concerning patient eligibility and safety. A significant proportion of ICU nurses, ranging from 68% to 80%, acknowledged the benefits of early mobilisation. However, fewer than half correctly identified the clinical criteria necessary for the safe initiation of EM. Nurses who underwent EM-specific training demonstrated 20–30% higher performance on knowledge assessments than their untrained counterparts.

Perceived barriers emerged as the most frequently reported themes across various studies. Nurses frequently recognised that staffing shortages, time constraints, unclear protocols, and concerns about patient safety were significant barriers to the implementation of EM. The results align with the existing literature, indicating that, in the absence of sufficient resources and support, EM remains an underutilised intervention across numerous ICU environments. The ongoing presence of these obstacles, even in well-equipped settings, suggests that factors such as organisational culture, risk perception, and workflow integration are equally important to staffing levels. Frequently identified obstacles include staffing shortages, the lack of standardised protocols, and safety issues, such as the risk of extubation and patient instability. A significant 76–82% of respondents identified staffing shortages as a primary obstacle to emergency management (Kim & Lee, 2019; Mahran et al., 2019; Salazar-Caicedo et al.,2025). The absence of well-defined, documented protocols impacted 50–64% of nursing staff, with 58% expressing safety concerns, particularly regarding the risks of accidental extubation or hemodynamic instability.

The review revealed a restricted scope of nurse-led practices. While nearly all ICU nurses participate in in-bed mobilisation tasks, such as passive range of motion or elevating the head of the bed, a significantly smaller proportion engage in out-of-bed activities, including chair sitting or ambulation.

The results suggest careful consideration of mobility, frequently limited by perceived risks and the demands of workload, rather than by clinical contraindications. This underscores an opportunity to broaden the reach of nurse-led mobilisation by clarifying delegation, fostering interprofessional collaboration, and ensuring the availability of equipment such as lifts and walkers. Although in-bed mobilisation is commonly implemented, out-of-bed activities are infrequently undertaken due to concerns regarding workload and the potential for complications. In-bed mobilisation techniques, including both passive and dynamic ranges of motion and head-of-bed elevation, were performed by 97–99% of nurses. Activities performed outside of bed, such as chair transfers and ambulation, were significantly less frequent, occurring in merely 5–30% of eligible patients.

Several studies emphasised the role of institutional infrastructure in facilitating or obstructing EM practices. Intensive care units that implemented structured mobilisation protocols, maintained advantageous nurse-to-patient ratios, and ensured accessible physiotherapy support observed significantly elevated rates of early mobilisation. Elevated emergency medicine rates correlate with the implementation of structured protocols, appropriate staffing ratios, and the availability of physiotherapy support. The findings underscore the importance of organisational readiness, indicating that EM implementation should not depend solely on individual nurses' initiative but should be integrated into the unit's policies, workflows, and leadership priorities. Organisational and structural influences are crucial in developing protocols and guidelines to ensure the success of EM activities.

Training and education will enhance ICU nurses' confidence and expertise. Targeted training interventions, including simulated workshops and organised onboarding programs, were consistently associated with higher EM knowledge scores and greater practice frequency. Nurses with specialised training in emergency medicine exhibit heightened confidence and engage in mobilisation activities more frequently. The findings advocate for the incorporation of education centred on emergency management into undergraduate

nursing programs and into continuous professional development initiatives. It is essential that training incorporates risk-mitigation strategies to alleviate fear and hesitation when mobilising critically ill patients. Successful early mobilisation requires collaborative efforts across disciplines. Interdisciplinary teamwork must be developed in the ICUs to improve patient outcomes.

This review highlights that the implementation of daily multidisciplinary rounds, the establishment of shared EM goals, and the promotion of joint accountability significantly improved mobilisation rates. On the other hand, insufficient communication and ambiguous role boundaries led to missed opportunities in emergency management. The results indicate that promoting a collaborative culture within the ICU, bolstered by effective leadership and team training, can enhance the safety and consistency of mobilisation practices. Collaboration across disciplines and the incorporation of EM objectives during daily rounds enhance the consistency of mobilisation initiatives.

Patient factors such as sedation, delirium, obesity, and overall acuity play a significant role in shaping nurses' decisions regarding the initiation of EM. Although a degree of caution is clinically justified, numerous studies have suggested that an exaggerated perception of risk can lead to unwarranted immobilisation. Instruments such as the ICU Mobility Scale (IMS) and organised eligibility checklists can assist nurses in making objective and personalised determinations regarding the readiness for mobilisation.

6.0 Conclusion & Recommendations

Early mobilisation (EM) remains a crucial evidence-based intervention for improving functional outcomes and reducing complications among critically ill patients. However, its implementation by ICU nurses continues to be hindered by knowledge deficits, staffing constraints, safety concerns, and the absence of standardised protocols. This review underscores the importance of targeted educational initiatives, clear institutional guidelines, adequate resource allocation, and interdisciplinary collaboration to strengthen nurse-led EM practices. It is recommended that healthcare institutions integrate EM-focused training into professional development frameworks and adopt policy measures that facilitate consistent, safe, and effective mobilisation. Further research is warranted to evaluate the impact of these strategies and to inform evidence-based policies that enhance the quality of critical care.

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Paper Contribution to the Related Field of Study

This study contributes to the growing body of knowledge on early mobilisation practices in intensive care settings by identifying key factors influencing implementation among ICU nurses. It highlights critical gaps in knowledge, staffing, protocols, and safety perceptions, offering practical insights for improving nursing practice and patient outcomes. The findings support the development of structured training programs, multidisciplinary collaboration, and standardised protocols to enhance the consistency and safety of early mobilisation in Malaysian ICUs and beyond.

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