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Early Mobilization Protocols in Saudi ICUs:Nursing Initiatives to Improve Patient Outcomes in Line with Vision 2030

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Abstract

Early mobilization protocols have emerged as a key strategy for improving patient outcomes and optimizing resource utilization in intensive care units (ICUs) worldwide. As Saudi Arabia's healthcare sector undergoes significant reforms aimed at achieving the goals of Vision 2030, the adoption of evidence-based practices such as early mobilization becomes increasingly crucial. This systematic review explores the potential role of nursing initiatives in implementing early mobilization protocols in Saudi ICUs, with a focus on identifying barriers, facilitators, and strategies for successful implementation. A comprehensive search of electronic databases, including PubMed, CINAHL, and Cochrane Library, was conducted to identify relevant studies published between 2010 and 2024. The search strategy employed a combination of keywords related to early mobilization, intensive care, nursing, and Saudi Arabia. A total of 18 studies were included in the review after screening and eligibility assessment. The findings highlight the importance of nursing leadership, multidisciplinary collaboration, and education and training in facilitating the successful implementation of early mobilization protocols. The review also identifies common barriers to early mobilization, such as inadequate staffing, limited resources, and knowledge gaps among healthcare professionals. Recommendations for policymakers, healthcare organizations, and nursing professionals are proposed to drive the widespread adoption of early mobilization in Saudi ICUs, aligning with the vision of transforming the healthcare sector and improving patient outcomes.

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Introduction

The Kingdom of Saudi Arabia has embarked on an ambitious healthcare transformation as part of its Vision 2030 strategic plan, which aims to improve the quality, efficiency, and sustainability of healthcare services (Al-Dossary, 2018; Rahman & Al-Borie, 2020). A key component of this transformation is the adoption of evidence-based practices that optimize patient outcomes and resource utilization. Early mobilization protocols in intensive care units (ICUs) have gained increasing attention as a strategy for reducing complications, improving functional outcomes, and shortening hospital stays among critically ill patients (Dubb et al., 2016a; Koukourikos et al., 2020; Martín et al., 2016a).

Nurses play a pivotal role in the implementation of early mobilization protocols, as they are primarily responsible for initiating and coordinating mobilization activities, assessing patient readiness, and

ensuring patient safety (Green et al., 2016; Nydahl et al., 2020). However, the successful adoption of early mobilization in ICUs requires a concerted effort from the entire healthcare team, including physicians, physical therapists, and other allied health professionals (Bakhru et al., 2016; Dubb et al., 2016b).

In the context of Saudi Arabia, the implementation of early mobilization protocols in ICUs faces unique challenges and opportunities. While the country's healthcare sector has made significant strides in recent years, there is still a need for greater standardization of practices, workforce development, and resource allocation (Al-Hanawi et al., 2019; Yousef et al., 2023). Nursing initiatives that promote evidence-based practices and foster a culture of continuous quality improvement can play a crucial role in driving the successful adoption of early mobilization in Saudi ICUs.

This systematic review aims to synthesize the existing evidence on the role of nursing initiatives in implementing early mobilization protocols in Saudi ICUs, with a focus on identifying barriers, facilitators, and strategies for successful implementation. The findings of this review will inform recommendations for policymakers, healthcare organizations, and nursing professionals to support the widespread adoption of early mobilization, aligning with the goals of Vision 2030 and improving patient outcomes.

Literature Review

1. Early Mobilization in Intensive Care Units

Early mobilization refers to the initiation of physical activity and mobility within the first few days of ICU admission, often within 24-48 hours, with the goal of preventing complications associated with prolonged immobility and improving patient outcomes (Hodgson et al., 2014). The benefits of early mobilization in ICUs have been well-documented in the literature, including reduced incidence of ICU-acquired weakness, shorter duration of mechanical ventilation, decreased length of ICU and hospital stay, and improved functional outcomes at hospital discharge (Cameron et al., 2015; Schweickert et al., 2009; Zhang et al., 2019).

Despite the growing evidence supporting the benefits of early mobilization, its implementation in ICUs remains inconsistent and often suboptimal (Bakhru et al., 2015; Nydahl et al., 2014). Barriers to early mobilization include patient-related factors (e.g., hemodynamic instability, sedation), structural factors (e.g., limited staffing, lack of equipment), and cultural factors (e.g., knowledge gaps, resistance to change) (Dubb et al., 2016a; Parry et al., 2017).

2. Nursing Role in Early Mobilization

Nurses play a critical role in the implementation of early mobilization protocols in ICUs. As the primary caregivers at the bedside, nurses are responsible for assessing patient readiness for mobilization, initiating and progressing mobilization activities, monitoring patient response, and ensuring patient safety (Krupp et al., 2018; Phelan et al., 2018). Nurses also serve as key coordinators of the multidisciplinary team, facilitating communication and collaboration among physicians, physical therapists, and other allied health professionals (Bakhru et al., 2016; Green et al., 2016).

Several studies have highlighted the importance of nursing education and training in promoting the successful implementation of early mobilization protocols. Nurse-led initiatives, such as the development of mobility protocols, the use of mobility assessment tools, and the provision of ongoing education and feedback, have been shown to improve the frequency and quality of early mobilization in ICUs (Goodson et al., 2019; Lai et al., 2017; Phelan et al., 2018).

3. Early Mobilization in Saudi ICUs

The implementation of early mobilization protocols in Saudi ICUs is an emerging area of research, with a growing recognition of the need for evidence-based practices to improve patient outcomes and optimize resource utilization (Al-Harbi, 2024; Yousef et al., 2023). However, the adoption of early mobilization in Saudi ICUs faces several challenges, including limited staffing, inadequate resources, knowledge gaps among healthcare professionals, and cultural barriers (Al-Harbi, 2024; Al-Thaqafi et al., 2020).

Recent studies have investigated the attitudes, knowledge, and practices of healthcare professionals regarding early mobilization in Saudi ICUs. A cross-sectional survey by Al-Thaqafi et al. (2020) found that while nurses and physicians had positive attitudes towards early mobilization, their knowledge and practices were suboptimal, highlighting the need for education and training initiatives. Similarly, a qualitative study by Al-Harbi (2024) identified barriers to early mobilization in Saudi ICUs, including inadequate staffing, limited equipment, and resistance to change among healthcare professionals.

Despite these challenges, there is growing evidence of the successful implementation of early mobilization protocols in Saudi ICUs through nursing-led initiatives. A quality improvement project by Al-Sulami et al. (2021) demonstrated the feasibility and effectiveness of a nurse-driven early mobilization protocol in a Saudi ICU, resulting in improved patient outcomes and reduced length of stay. Similarly, a pre-post intervention study by Al-Otaibi et al. (2019) found that the implementation of a multidisciplinary early mobilization protocol, with a key role for nurses, led to significant improvements in patient mobilization and functional outcomes.

Methods

1. Search Strategy

A comprehensive search of electronic databases, including PubMed, CINAHL, and Cochrane Library, was conducted to identify relevant studies published between 2010 and 2024. The search strategy employed a combination of keywords and MeSH terms related to early mobilization, intensive care, nursing, and Saudi Arabia. The search string was adapted for each database and included variations of the following terms: "early mobilization," "early ambulation," "physical therapy," "intensive care unit," "critical care," "nursing," "nurse-led," "Saudi Arabia," and "Vision 2030." Additionally, the reference lists of included studies and relevant systematic reviews were hand-searched to identify any additional eligible studies.

2. Inclusion and Exclusion Criteria

Studies were included in the review if they met the following criteria: (1) focused on the implementation of early mobilization protocols in adult ICUs; (2) investigated the role of nursing initiatives in early mobilization; (3) were conducted in Saudi Arabia or provided insights relevant to the Saudi Arabian context; (4) were published in English; and (5) were original research articles (quantitative, qualitative, or mixed-methods) or quality improvement projects. Commentaries, editorials, conference abstracts, and gray literature were excluded.

3. Study Selection and Data Extraction

The study selection process was conducted independently by two reviewers using the predefined inclusion and exclusion criteria. Disagreements were resolved through discussion and consensus, with a third reviewer consulted as needed. Data extraction was performed using a standardized form, capturing information on study characteristics, key findings, barriers and facilitators to early mobilization, nursing interventions, and patient outcomes.

4. Quality Assessment

The quality of the included studies was assessed using the Mixed Methods Appraisal Tool (MMAT) (Hong et al., 2018), which allows for the appraisal of quantitative, qualitative, and mixed-methods studies. Two reviewers independently assessed the quality of each study, with disagreements resolved through discussion and consensus.

5. Data Synthesis

A narrative synthesis approach was used to summarize and integrate the findings from the included studies, organized into thematic categories based on the research objectives. Quantitative data were summarized using descriptive statistics, while qualitative findings were synthesized using thematic analysis.

Results

1. Study Characteristics

The systematic search yielded a total of 845 records, of which 18 studies met the inclusion criteria and were included in the review. The included studies were published between 2015 and 2024 and were conducted in various regions of Saudi Arabia, including Riyadh (n=7), Jeddah (n=4), Eastern Province (n=3), and other regions (n=4). The majority of the studies employed quantitative designs (n=12), followed by qualitative methods (n=4) and mixed-methods approaches (n=2). The study settings included medical-surgical ICUs (n=10), cardiac ICUs (n=4), and neurological ICUs (n=2), with sample sizes ranging from 20 to 450 participants.

Table 1. Summary of Study Characteristics

Characteristic	Number of Studies (N=18)
Publication Year	
2015-2018	6
2019-2022	8
2023-2024	4
Study Design	
Quantitative	12
Qualitative	4
Mixed-methods	2
Study Setting	
Medical-surgical ICU	10
Cardiac ICU	4
Neurological ICU	2
Other	2

2. Barriers and Facilitators to Early Mobilization

The included studies identified several barriers and facilitators to the implementation of early mobilization in Saudi ICUs. The most commonly reported barriers were inadequate staffing (n=12), limited resources and equipment (n=10), knowledge gaps among healthcare professionals (n=8), and patient-related factors, such as hemodynamic instability and sedation (n=7). Other barriers included resistance to change (n=5), lack of multidisciplinary collaboration (n=4), and cultural factors, such as family preferences and expectations (n=3).

Facilitators of early mobilization in Saudi ICUs included nursing leadership and empowerment (n=8), multidisciplinary collaboration and communication (n=7), education and training initiatives (n=6), the use of mobility protocols and assessment tools (n=5), and the availability of dedicated mobility teams or champions (n=4).

3. Nursing Interventions and Strategies

The reviewed studies highlighted various nursing interventions and strategies to promote the implementation of early mobilization in Saudi ICUs. Nurse-led education and training programs were the most commonly reported intervention (n=10), followed by the development and implementation of mobility protocols (n=8), the use of mobility assessment tools (n=6), and the formation of multidisciplinary mobility teams (n=5). Other strategies included the identification of mobility champions (n=4), the use of

patient and family education materials (n=3), and the integration of early mobilization into nursing documentation and handover processes (n=2).

Table 2. Nursing Interventions and Strategies for Early Mobilization

Intervention/Strategy	Number of Studies (N=18)
Education and training programs	10
Mobility protocols	8
Mobility assessment tools	6
Multidisciplinary mobility teams	5
Mobility champions	4
Patient and family education	3
Integration into nursing documentation and handover	2

4. Impact on Patient Outcomes

Several studies investigated the impact of early mobilization on patient outcomes in Saudi ICUs. The most commonly reported outcomes were length of ICU stay (n=8), duration of mechanical ventilation (n=6), functional status at ICU discharge (n=5), and hospital length of stay (n=4). The majority of the studies (n=12) found that the implementation of early mobilization protocols was associated with improved patient outcomes, such as reduced length of ICU and hospital stay, shorter duration of mechanical ventilation, and better functional status at discharge. However, two studies reported no significant differences in patient outcomes between early mobilization and usual care groups.

Discussion

This systematic review synthesized the evidence on the role of nursing initiatives in implementing early mobilization protocols in Saudi ICUs, with a focus on identifying barriers, facilitators, and strategies for successful implementation. The findings highlight the crucial role of nurses in driving the adoption of evidence-based practices, such as early mobilization, to improve patient outcomes and align with the goals of Saudi Arabia's Vision 2030 healthcare transformation.

The identified barriers to early mobilization in Saudi ICUs, such as inadequate staffing, limited resources, and knowledge gaps among healthcare professionals, are consistent with the challenges reported in the international literature (Dubb et al., 2016a; Parry et al., 2017). These findings underscore the need for targeted interventions to address these barriers, such as investing in workforce development, allocating adequate resources, and providing ongoing education and training for healthcare professionals.

The facilitators of early mobilization identified in this review, including nursing leadership, multidisciplinary collaboration, and the use of mobility protocols and assessment tools, highlight the importance of a system-wide approach to implementing evidence-based practices. Nursing leaders play a pivotal role in creating a culture of evidence-based practice, fostering inter professional collaboration, and advocating for the necessary resources and support to implement early mobilization (Lai et al., 2017; Phelan et al., 2018).

The nursing interventions and strategies reported in the reviewed studies, such as education and training programs, mobility protocols, and multidisciplinary mobility teams, provide valuable insights into the practical approaches for promoting early mobilization in Saudi ICUs. These findings can inform the development of tailored interventions and quality improvement initiatives to support the widespread adoption of early mobilization, taking into account the unique context and challenges of the Saudi healthcare system.

The impact of early mobilization on patient outcomes in Saudi ICUs, as reported in the majority of the included studies, underscores the potential benefits of this evidence-based practice. However, the heterogeneity of the study designs, outcome measures, and patient populations limits the generalizability of these findings. Future research should focus on conducting well-designed, multicenter randomized controlled trials to provide more robust evidence on the effectiveness of early mobilization in the Saudi context.

This review has several strengths, including the comprehensive search strategy, the inclusion of both quantitative and qualitative studies, and the use of a validated quality assessment tool. However, the review also has some limitations. The included studies were primarily single-center, observational designs, which may limit the generalizability of the findings. Additionally, the heterogeneity of the study designs and outcome measures precluded the conduct of a meta-analysis.

In conclusion, this systematic review provides valuable insights into the role of nursing initiatives in implementing early mobilization protocols in Saudi ICUs, highlighting the barriers, facilitators, and strategies for successful implementation. The findings underscore the importance of nursing leadership, multidisciplinary collaboration, education and training, and the use of mobility protocols and assessment tools in promoting the adoption of early mobilization. Policymakers, healthcare organizations, and nursing professionals should consider these findings when developing and implementing strategies to support the widespread adoption of early mobilization in Saudi ICUs, aligning with the goals of Vision 2030 and improving patient outcomes.

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