

# Assessing the Impact of Early Mobilization Protocols on Recovery and Length of Hospital Stay for Hip Fracture Fixation Patients

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## Abstract:

This study investigates the effects of early mobilization protocols on recovery outcomes and hospital stay lengths for elderly patients undergoing surgical fixation of hip fractures. A prospective cohort design included 100 participants aged 65 years and older, allocated into two groups based on admission dates: an Early Mobilization Group (n = 50) receiving interventions within 24 hours post-surgery, and a Standard Care Group (n = 50) following traditional mobilization protocols initiated after 48 hours post-surgery. Quantitative measures included length of hospital stay (LOS) and functional recovery assessed using the Timed Up and Go (TUG) test. Qualitative data were gathered through semi-structured interviews to explore patient experiences.

Results indicated that the Early Mobilization Group had a significantly shorter mean hospital stay (7.2 days  $\pm$ 1.5) compared to the Standard Care Group (9.5 days  $\pm$ 2.0) ( $p < 0.05$ ). Functional recovery, as measured by the TUG test, also favored the Early Mobilization Group (mean TUG score 15.8 seconds  $\pm$ 3.2) over the Standard Care Group (19.5 seconds  $\pm$ 4.0) ( $p < 0.05$ ). Qualitative findings highlighted themes of improved confidence in recovery and satisfaction with supportive care among early mobilization participants, despite challenges such as pain and fatigue.

**Keywords:** early mobilization, hip fracture, recovery outcomes, hospital stay, Timed Up and Go test, elderly patients

## Introduction

Hip fractures represent a significant public health concern, particularly among the elderly population, due to their association with increased morbidity, mortality, and reduced quality of life. These fractures often result from falls and occur in the proximal femur, requiring surgical intervention such as hip fracture fixation to restore mobility and functional independence (Kang et al., 2010).

The management of hip fractures involves a multidisciplinary approach encompassing surgical techniques, perioperative care, and rehabilitation strategies aimed at optimizing patient outcomes. Early mobilization, defined as the initiation of physical activity shortly after surgery, has emerged as a critical component in post-operative care protocols for hip fracture patients. Early mobilization protocols typically include mobilization out of bed, weight-bearing exercises, and ambulation within the first 24 to 48 hours post-surgery (Kenyon-Smith et al., 2019).

Research indicates that early mobilization may confer several benefits to hip fracture patients. These include faster recovery of mobility, reduced incidence of post-operative complications such as pneumonia and deep vein thrombosis, and potentially shorter hospital stays (Beaupre et al., 2013; Pedersen et al., 2008). Timely mobilization is hypothesized to enhance muscle strength, joint mobility, and overall functional capacity, thereby promoting earlier independence and reducing the burden on healthcare resources (Kenyon-Smith et al., 2019).

Despite these potential advantages, the implementation of early mobilization protocols varies across healthcare settings, influenced by factors such as patient comorbidities, surgical techniques, and institutional practices. Moreover, the optimal timing and intensity of mobilization protocols remain subjects of ongoing investigation and debate (Kang et al., 2010).

This paper aims to critically assess the impact of early mobilization protocols on recovery outcomes and hospital stay lengths for patients undergoing hip fracture fixation. By synthesizing existing literature and presenting original research findings, this study contributes to a deeper understanding of the role of early mobilization in hip fracture management, offering insights into potential avenues for enhancing clinical practice and patient care.

## Literature Review

Hip fractures in elderly populations present significant challenges due to their association with increased morbidity, mortality, and functional impairment. Surgical intervention, typically in the form of hip fracture fixation, is the primary treatment aimed at restoring mobility and reducing complications (Beaupre et al., 2013).

### Benefits of Early Mobilization

Early mobilization, defined as the initiation of physical activity soon after surgery, has garnered attention for its potential benefits in hip fracture management. Studies have shown that early mobilization protocols, which include mobilization out of bed, weight-bearing exercises, and ambulation within 24 to 48 hours post-surgery, contribute to improved functional outcomes (Kenyon-Smith et al., 2019; Pedersen et al., 2008)

Beaupre et al. (2013) emphasized the importance of maximizing functional recovery in seniors following hip fracture surgery. Their research highlighted that early mobilization enhances muscle strength and joint mobility, leading to earlier achievement of functional independence. Similarly, Pedersen et al. (2008) implemented a comprehensive hip fracture program that incorporated early mobilization, resulting in reduced complication rates and improved patient survival.

### Impact on Complications and Length of Hospital Stay

The reduction in post-operative complications is another significant advantage associated with early mobilization. Research by Kenyon-Smith et al. (2019) conducted a systematic review revealing that early mobilization protocols are effective in decreasing the incidence of complications such as pneumonia and deep vein thrombosis. These protocols also potentially shorten hospital stays, thereby reducing healthcare costs and enhancing patient satisfaction (Kang et al., 2010).

### Challenges and Considerations

Despite the documented benefits, challenges in implementing early mobilization protocols persist. Factors such as patient frailty, comorbidities, and surgical complexities may influence the feasibility and safety of early mobilization practices (Kenyon-Smith et al., 2019). Moreover, variability in protocol adherence across healthcare settings underscores the need for standardized guidelines tailored to patient-specific needs and clinical contexts (Kenyon-Smith et al., 2019).

### Gaps in Current Research

Current literature acknowledges several gaps in understanding the optimal timing and intensity of early mobilization protocols. Studies often lack consensus on standardized protocols, making it challenging to generalize findings across diverse patient populations and healthcare settings. Future research should focus on elucidating the mechanisms underlying the beneficial effects of early mobilization, refining protocol

guidelines, and addressing barriers to implementation in clinical practice (Beaupre et al., 2013; Pedersen et al., 2008).

## Methodology

This study employed a prospective cohort design to assess the impact of early mobilization protocols on recovery outcomes and length of hospital stay for patients undergoing hip fracture fixation at surgical unit in military hospital. The study was conducted over a one-year period, with ethical approval obtained from the ethics committee.

### Participants

The participants included elderly patients (aged 65 years and older) who underwent surgical fixation for hip fractures. Inclusion criteria comprised patients who were medically stable post-surgery and able to participate in early mobilization activities. Patients with severe cognitive impairment, unstable medical conditions, or those requiring intensive care were excluded from the study.

### Study Groups

100 Participants were allocated into two groups based on their admission dates to the hospital:

1. **Early Mobilization Group:** Patients in this group received mobilization interventions initiated within 24 hours post-surgery. The early mobilization protocol included supervised out-of-bed activities, progressive weight-bearing exercises, and assisted ambulation sessions conducted by trained physiotherapists.

2. **Standard Care Group:** Patients in this group followed traditional mobilization protocols, which typically involved mobilization initiated after 48 hours post-surgery, according to standard hospital practices.

### Data Collection

Data collection included both quantitative and qualitative measures:

#### - Quantitative Measures:

- Primary Outcome: Length of hospital stay (LOS) measured in days from the date of surgery to discharge.
- Secondary Outcomes: Functional recovery assessed using validated mobility scales such as the Timed Up and Go (TUG) test at discharge.

- **Qualitative Measures:** Semi-structured interviews were conducted with a subset of participants from both groups to explore their experiences with early mobilization. Themes related to patient satisfaction, perceived benefits, and challenges were identified through thematic analysis.

### Statistical Analysis

Quantitative data were analyzed using appropriate statistical methods, including independent t-tests or non-parametric equivalents to compare outcomes between the early mobilization and standard care groups. Qualitative data from interviews were transcribed, coded, and categorized into themes using thematic analysis techniques to provide deeper insights into patient experiences and perspectives.

### Limitations

Several limitations were identified during the study, including potential selection bias due to the non-randomized allocation of participants into study groups and challenges in ensuring adherence to early mobilization protocols across all participants. Additionally, variations in patient comorbidities and surgical complexities could influence study outcomes.

### Ethical Considerations

The study adhered to ethical guidelines outlined by ethics committee, with informed consent obtained from all participants or their legally authorized representatives. Confidentiality and anonymity of participant data were rigorously maintained throughout the study period.

By rigorously evaluating the impact of early mobilization protocols on hip fracture recovery outcomes, this study contributes valuable insights into optimizing post-operative care practices for elderly patients. The findings aim to inform clinical decision-making, enhance rehabilitation protocols, and ultimately improve patient outcomes following hip fracture fixation.

### Findings

#### Quantitative Findings

The study compared outcomes between two groups: the early mobilization group and the standard care group, focusing on length of hospital stay (LOS) and functional recovery measured by the Timed Up and Go (TUG) test.

Table 1: Length of Hospital Stay and Functional Recovery

Participants in the early mobilization group experienced a mean hospital stay of 7.2 days (SD ±1.5), significantly shorter than the standard care group with a mean stay of 9.5 days (SD ±2.0) ( $p < 0.05$ ). Functional recovery, measured by the TUG test, showed faster improvement in the early mobilization group (mean TUG score 15.8 seconds ±3.2) compared to the standard care group (mean TUG score 19.5 seconds ±4.0) ( $p < 0.05$ ).

Table 1: Quantitative Results

Outcome Measure	Early Mobilization Group (n = 50)	Standard Care Group (n = 50)	p-value
Length of Hospital Stay	Mean ±SD: 7.2 days ±1.5	Mean ±SD: 9.5 days ±2.0	$p < 0.05$
	Median (Range): 7 days (6-9)	Median (Range): 10 days (8-12)	
Functional Recovery	Mean ±SD: TUG score 15.8 ±3.2 sec	Mean ±SD: TUG score 19.5 ±4.0 sec	$p < 0.05$

#### Qualitative Findings

Qualitative data were gathered through semi-structured interviews with participants from both the early mobilization and standard care groups. Thematic analysis revealed several key themes and sub-themes related to participants' experiences with early mobilization post-hip fracture surgery.

##### Theme 1: Perceived Benefits of Early Mobilization

Sub-theme 1.1: Improved Confidence, participants expressed increased confidence in their recovery due to early mobilization: "Starting to walk early gave me confidence that I can recover sooner."

Sub-theme 1.2: Enhanced Functional Abilities, participants noted improvements in their physical capabilities early in their recovery process: "I felt stronger and could do more activities sooner than I expected."

## Theme 2: Challenges and Barriers

Sub-theme 2.1: Pain and Discomfort, several participants mentioned experiencing pain and discomfort during early mobilization: "It was painful to move right after surgery."

Sub-theme 2.2: Fatigue, participants reported feeling fatigued, particularly during the initial stages of mobilization: "I felt tired easily, especially during the first few days of mobilization."

Sub-theme 2.3: Fear of Falling, some participants expressed fear of falling, which affected their willingness to engage in early mobilization activities: "I was afraid of falling again, which made me hesitant to walk."

## Theme 3: Satisfaction with Care

Sub-theme 3.1: Supportive Healthcare Team, participants appreciated the support and encouragement received from healthcare providers: "The nurses and therapists were supportive and encouraged me to move."

Sub-theme 3.2: Clear Communication, effective communication about the benefits of early mobilization contributed to participants' satisfaction: "They explained the benefits of early mobilization clearly."

Sub-theme 3.3: Reassurance and Confidence, knowing that early mobilization was part of their recovery plan reassured participants about their progress: "Knowing that early mobilization was helping my recovery reassured me."

## Discussion

The findings of this study contribute to the growing body of literature on the impact of early mobilization protocols in enhancing recovery outcomes for hip fracture patients. Through a combination of quantitative and qualitative analyses, this discussion explores the implications of these findings within the broader context of clinical practice and patient care.

### Quantitative Findings

The quantitative analysis revealed significant differences between the early mobilization group and the standard care group in terms of both length of hospital stay (LOS) and functional recovery measured by the Timed Up and Go (TUG) test. Specifically, participants in the early mobilization group experienced a shorter mean hospital stay (7.2 days) compared to those in the standard care group (9.5 days). This reduction in hospital stay is consistent with previous research indicating that early mobilization can expedite recovery and reduce healthcare costs (Pedersen et al., 2008).

Functional recovery, as assessed by the TUG test, also favored the early mobilization group, with participants demonstrating faster improvement in mobility compared to the standard care group. This outcome aligns with studies emphasizing the benefits of early mobilization in enhancing muscle strength, joint mobility, and overall functional capacity early in the rehabilitation process (Kenyon-Smith et al., 2019)

### Qualitative Insights

Qualitative analysis provided deeper insights into participants' experiences with early mobilization. Themes such as improved confidence in recovery, enhanced functional abilities, and satisfaction with supportive care emerged prominently. Participants reported feeling more empowered and motivated by the early mobilization activities, contributing to their overall sense of well-being and progress towards independence.

However, challenges such as pain, fatigue, and fear of falling were also identified as barriers to early mobilization. These findings underscore the importance of personalized care approaches and comprehensive assessment of patient readiness before initiating mobilization protocols (Kenyon-Smith et al., 2019).

### Clinical Implications

The integration of both quantitative and qualitative findings supports the implementation of early mobilization protocols as a standard of care for hip fracture patients. Shorter hospital stays not only reduce healthcare costs but also minimize the risk of complications associated with prolonged immobilization, such as pressure ulcers and venous thromboembolism (Beaupre et al., 2013). Enhanced functional recovery further enhances patients' ability to regain independence and quality of life following surgery.

### Limitations and Future Directions

Despite the positive outcomes observed, several limitations should be acknowledged. The study's non-randomized design and potential selection bias may limit the generalizability of findings to broader patient populations. Variations in healthcare settings and patient demographics could also influence the outcomes of early mobilization protocols. Future research should focus on conducting large-scale randomized controlled trials to further validate these findings and explore optimal timing and intensity of early mobilization interventions.

### Conclusion

In conclusion, this study underscores the beneficial effects of early mobilization on recovery outcomes and hospital stay lengths for hip fracture patients. By combining quantitative evidence of reduced hospital stays and improved functional recovery with qualitative insights into patient experiences, the study advocates for the widespread adoption of early mobilization protocols in clinical practice. Addressing challenges and optimizing patient-centered care approaches can further enhance the implementation and effectiveness of early mobilization, ultimately improving outcomes and quality of life for hip fracture patients.

### References:

1. Beaupre, L. A., Binder, E. F., Cameron, I. D., Jones, C. A., Orwig, D., Sherrington, C., & Magaziner, J. (2013). Maximising functional recovery following hip fracture in frail seniors. *Best practice & research. Clinical rheumatology*, 27(6), 771–788. <https://doi.org/10.1016/j.berh.2014.01.001>
2. Kenyon-Smith, T., Nguyen, E., Oberai, T., & Jarsma, R. (2019). Early Mobilization Post-Hip Fracture Surgery. *Geriatric orthopaedic surgery & rehabilitation*, 10, 2151459319826431. <https://doi.org/10.1177/2151459319826431>
3. Kang, H. Y., Yang, K. H., Kim, Y. N., Moon, S. H., Choi, W. J., Kang, D. R., & Park, S. E. (2010). Incidence and mortality of hip fracture among the elderly population in South Korea: a population-based study using the national health insurance claims data. *BMC public health*, 10, 230. <https://doi.org/10.1186/1471-2458-10-230>
4. Pedersen, S. J., Borgbjerg, F. M., Schousboe, B., Pedersen, B. D., Jørgensen, H. L., Duus, B. R., Lauritzen, J. B., & Hip Fracture Group of Bispebjerg Hospital (2008). A comprehensive hip fracture program reduces complication rates and mortality. *Journal of the American Geriatrics Society*, 56(10), 1831–1838. <https://doi.org/10.1111/j.1532-5415.2008.01945.x>