Indonesian Journal of Global Health Research
Volume 7 Number 2, April 2025
e-ISSN 2715-1972; p-ISSN 2714-9749
http://jurnal.globalhealthsciencegroup.com/index.php/IJGHR

THE EFFECT OF EARLY AMBULATION ON POSTOPERATIVE ELDERLY : A SYSTEMATIC REVIEW

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ABSTRACT
Elderly patients face various surgical risks, including complications, slower recovery, prolonged hospital stays, functional decline, and even death. Early ambulation is beneficial in reducing these risks in older adults. However, elderly patients often lack motivation to ambulate due to insufficient understanding and family support, leading to longer bed rest. Aim : To evaluate the impact of early ambulation as an intervention to enhance postoperative recovery in elderly patients. Methods: This is a systematic review study with a PICO approach. Article searches were conducted using online databases such as EBSCO, PubMed, ScienceDirect, SpringerLink, and Scopus with the keywords (Elderly OR Older Adult) AND (Post Operative OR Post Surgery) AND (Early Ambulation OR Early Mobilization) AND (Reduce Length of Stay) published between 2014–2024 and The 5 relevant articles were found. Results: Five studies indicated that the implementation of early ambulation programs in elderly surgical patients not only reduces length of stay but also improves functional capacity and decreases the incidence of complications such as pneumonia, atelectasis, and venous thrombosis. Conclusion: The studies show that early mobilization reduces hospital stays, accelerates organ function recovery, and provides psychological benefits, such as reduced postoperative anxiety.

Keywords: early ambulation; older adults; surgery

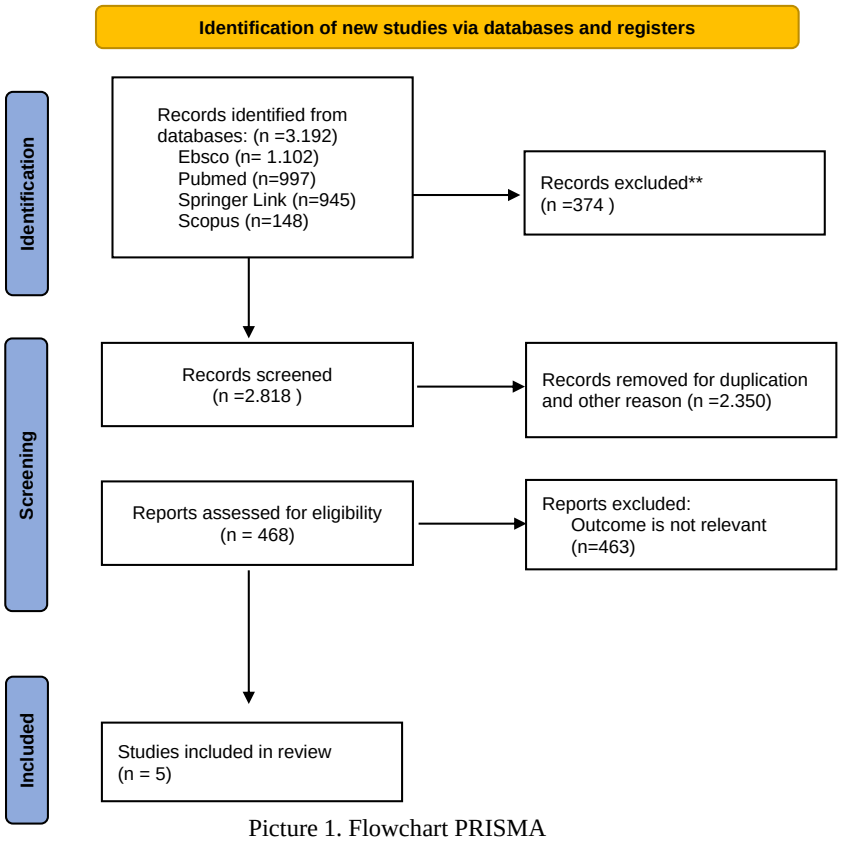
How to cite (in APA style)
Susana, S., Rekawati, E., Sahar, J., & Putri, Y. S. E. (2025). The Effect of Early Ambulation on Postoperative Elderly: A Systematic Review. Indonesian Journal of Global Health Research, 7(2), 465-472. https://doi.org/10.37287/ijghr.v7i2.5412.

INTRODUCTION

As the elderly population grows, the number of surgical procedures performed on older individuals is also increasing. In the UK, approximately 2.5 million people aged 75 years and older undergo surgery annually, with nearly 30% of these patients being over 85 years old. Furthermore, women aged 85 years and older now constitute the largest group of emergency surgical admissions in Australia compared to other age and gender groups (Lin et al., 2016). Understanding the presentation of elderly patients is critical, as they face higher surgical risks than younger adults. Older adults often have reduced physiological reserves to cope with the additional demands caused by surgery (Berman et al., 2021).The risks associated with surgery in elderly patients include complications, slower recovery, extended hospital stays, reduced functional ability, and even mortality. The decline in various physiological functions due to aging results in slower recovery, prolonged hospitalization, and a higher likelihood of post-operative complications (Brunner & Suddarth, 2010). These outcomes are influenced by several interacting factors. The elderly tend to have lower muscle mass and strength, hindering recovery. Additionally, their weakened immune systems reduce their ability to fight infections and delay the healing process. Comorbidities and diminished physiological reserves consistently predict poor outcomes in this population (Perry & Potter, 2017).

One effective strategy to minimize post-operative risks in elderly patients is early ambulation. Early ambulation involves guiding post-operative patients to engage in physical activities as soon as possible, beginning with light exercises in bed and progressing to getting out of bed and walking to the bathroom (Brunner & Suddarth, 2016). This standard nursing intervention aims to enhance post-operative outcomes (Pelletier, 2017).The benefits of early ambulation for post-operative patients are well-documented. Engaging in early ambulation can improve functional status, alleviate pain, and reduce post-operative complications (Huang et al., 2021). Research by Mohamed (2018) highlights that early ambulation has synergistic positive effects, including reducing post-operative respiratory tract infections, improving respiratory parameters, and shortening hospital stays in elderly patients. However, elderly patients often exhibit low motivation to ambulate post-surgery. Factors such as a lack of understanding or knowledge about early ambulation and insufficient family support contribute to extended bed rest in this population (Rahayu et al., 2023).Given the above, a systematic review is essential to underscore the importance of early ambulation in elderly post-operative patients. Effective recovery after surgery is vital to preventing complications, accelerating healing, alleviating pain, improving blood circulation, and enhancing the quality of life for elderly individuals. Early ambulation is a promising intervention that can play a pivotal role in achieving these outcomes. Therefore, this study aims to investigate the impact of early ambulation on elderly patients after surgery.

METHOD



Picture 1. Flowchart PRISMA

This study is a systematic review using the Preferred Reporting Items for Systematic Reviews and Meta-Analyzes systematic guide. The formulation of research questions uses the PICO approach (population, intervention, comparison of interest, and outcome). Article searches were conducted by searching literature through online databases, namely EBSCO, PubMed, ScienceDirect, Springer Link, Scopus with keywords in the Medical Subject Headings (MesH) using descriptors in the form of (Elderly OR Older Adult) AND (Post Operative OR

Post Surgery) AND (Early Ambulation OR Early Mobilization) AND (Reduce Length of Stay).The selected articles are articles with open access and full text discussing early ambulation interventions, elderly, post-operative, in English, and published in 2014-2024. The study design used in the article is a Randomized Control Trial (RCT), and a Quasy-experimental study. Using the PRISMA Scheme stages with the stages of identification, screening, eligibility, and included. The CSAP instrument (Critical Appraisal Skills Programme) for RCT design articles and JBI for Quasy-experimental design articles.

RESULT

The articles obtained amounted to 5 articles that met the criteria and then a systematic article review was carried out in table 1.

Table 1.
Analyzed articles

First Author	Country, Year	Objective	Method	Number of Respondents	Results
Zhao Mei Cui	Shadong, China, 2020	The purpose of this study was to assess the program implementation of early ambulation and its impact on the recovery of elderly patients after coronary bypass surgery.	*Randomized Controlled Trial*	178 elderly	*Precision Early Ambulation (PEA)* program was shown to be effective in shortening the postoperative length of stay by an average of 9.04 days compared to the control group with an average of 10.09 days. In addition, PEA also increased the incidence of early discharge, with 46.1% of patients returning home compared to 27.0% in the control group (P = 0.009). Time to first bowel movement was also faster in the PEA group, which was 3.18 days compared to 3.97 days (P < 0.001). Overall, PEA showed better results in reducing the length of stay and improving mobilization outcomes compared to the control group.
Julia E. Moore	Canada, 2019	The aim of this study was to conduct a replication study evaluating the impact of an evidence-based mobilization intervention on surgical, psychiatric, medical, and cardiology inpatient units.	*Quasi-experimental* using *interrupted time series design.*	3,098 elderly	There was a significant increase in patient mobilization immediately after the intervention period compared to before the intervention. ReratThe length of hospital stay decreased during the intervention: - Before intervention: 26.24 days - During intervention: 23.81

First Author	Country, Year	Objective	Method	Number of Respondents	Results
					days - After intervention: 24.69 days Results showed that *the mobilization of vulnerable elders in Ontario* (MOVE On) intervention was successful in increasing mobilization and reducing length of hospital stay.
EPM of Almeida	Sao Paulo, Brazil 2017	The aim of this study was to assess the efficacy, feasibility and safety of a supervised early postoperative ambulation exercise program.	*Randomized Controlled Trial Single-blind, parallel-arm, randomized trial*	108 elderly	The early mobilization group showed better results than the standard care group. On postoperative day 5, only 16.7% of patients in the early mobilization group were unable to walk without assistance, while in the standard care group, the figure reached 38.9% (P = 0.01), indicating a significant difference. Regarding postoperative complications and length of hospital stay, there were no significant differences between the two groups, although there were indications that some patients in the intervention group were discharged earlier.
Ismail Ceylan	Baghdad, Iraq 2023	Objective In this study, we aimed to design and evaluate an early mobilization program for cardiac rehabilitation in elderly patients after cardiac surgery.	*Randomized Controlled Trial*	100 elderly	The intervention group managed to walk a greater distance in 2 minutes, reaching 135.6 m, compared to the control group which was only 123.4 m. In the measurement, *Short-Form International Physical Activity Questionnaire* (SF-IPAQ), the intervention group also obtained a higher score, which was 556.16, while the control group

First Author	Country, Year	Objective	Method	Number of Respondents	Results
					was only 389.44. In addition, the TUG *(Timed Up and Go) time* in the intervention group was faster, indicating increased mobility. Early mobilization and functional exercise programs are effective in improving balance, function, and quality of life in elderly cardiac patients.
Jan Oberfeld	Wuerzburg, Germany 2021	To investigate the effects of mobilization on the day of surgery after total hip arthroplasty (THA) in elderly, obese, and severely ill patients, with a focus on time to readiness for discharge and the incidence of adverse events.	*Prospective randomized controlled trial* (*RCT*).	167 elderly	Time to readiness for discharge was shorter in the group mobilized on Day 0, at 3.25 days, compared to 3.99 days in the Day 1 group, with a significant difference ($p<0.01$). The rate of adverse events on the day of surgery was similar in both groups (0.28 and 0.25; $p = 0.73$). In conclusion, mobilization on the day of surgery after *total hip arthroplasty* (THA) is associated with shorter time to discharge without increasing side effects, including in elderly and high-risk patients. . However, further research is needed to explore the long-term impact of early mobilization.

DISCUSSION

The effect of early ambulation on postoperative elderly has been the main focus in this literature review. UIn an effort to improve the quality of postoperative care, early ambulation is one of the interventions that is getting more attention, especially in the elderly aggregate. Older adults are at higher risk for postoperative complications and require a holistic and proactive approach to speed up recovery. In older adults, who often experience declines in physical and cognitive function, early ambulation becomes even more important. Studies have shown that early mobilization can reduce hospital stay and improve functional ability (Cui et al., 2020 ; De Almeida et al., 2017) .Elderly individuals can accelerate the recovery process from anesthesia and reduce the risk of complications such as deep vein thrombosis and pneumonia by increasing mobility.Early mobilization is necessary for the elderly because they are more susceptible to the negative effects of prolonged bed rest, including muscle atrophy

and decreased cardiovascular endurance. According to research, patients who mobilize early after cardiac surgery, for example, show better outcomes in terms of length of hospital stay and complication rates (Cui et al., 2020) . In addition, early mobilization helps improve blood circulation, which is important for wound healing and optimal organ function recovery (Amari et al., 2023) .

The results of the study showed that early ambulation is not only beneficial for accelerating physical recovery, but also has a positive impact on the mental health of patients . A study by (De Almeida et al., 2017) found that patients who performed early ambulation after abdominal cancer surgery showed increased functional capacity and decreased postoperative anxiety symptoms. This suggests that early mobilization contributes to the emotional well-being of the elderly, who are often affected by the surgical experience. Early ambulation is not always without risks; therefore, precautions must be taken. Several contraindications must be considered, such as certain medical conditions that can endanger the patient during mobilization, such as low blood pressure, balance disorders, or unstable cardiovascular conditions (Tazreean et al., 2022) . Therefore, it is important to conduct a thorough evaluation before starting an early ambulation program, as well as to involve the medical team in the planning and implementation of mobilization.

The positive impact of early ambulation has been significantly reported in studies (Ceylan et al., 2024; Cui et al., 2020; De Almeida et al., 2017; Huang et al., 2021; Moore et al., 2019) . In addition to accelerating physical recovery, early ambulation can also reduce postoperative pain, increase appetite, and improve sleep quality. Studies have shown that patients who ambulate siearly tend to experience a reduction in postoperative complications, which in turn have a positive impact on hospital length of stay and health care costs (Cui et al., 2020; De Almeida et al., 2017) . Another study also reported that ambulation within 24 hours after lumbar fusion surgery in elderly patients was independently associated with reduced incidence of postoperative adverse events and shorter hospital stay (Wang et al., 2024) . This study emphasizes the importance of implementing early ambulation as part of a reinforced recovery protocol after surgery, as it can reduce the risk of complications and accelerate patient recovery. In addition, factors such as age, higher intraoperative blood loss, and poor coagulation function were identified as risks for delayed ambulation.

The correct steps for early ambulation begin with assessing the patient's condition and ensuring that there are no contraindications to mobilization. On the first day after surgery, the patient can be helped to sit on the edge of the bed, followed by standing for a few minutes. On the second day, the patient can start walking with the help of a rehabilitation therapist (Cui et al., 2020) . It is important to monitor vital signs and watch for symptoms such as dizziness or shortness of breath during the ambulation process. With a structured and safe approach, early ambulation can be implemented effectively in the elderly postoperatively (Brunner & Suddarth, 2016) .Some barriers to early ambulation in postoperative patients include lack of patient education regarding the importance of early mobilization, absence of standard targets for daily ambulation, and patient anxiety regarding physical activity after surgery (Zeller, 2022) . To overcome these barriers, strategies used include providing preoperative education verbally and in writing to patients, implementing clinical pathways that provide specific targets for daily ambulation, and involving family or caregivers in supporting patient mobilization (Rahayu et al., 2023; Zeller, 2022) .

Although studies provide effective evidence for the benefits of early mobilization, they also emphasize the need for a personalized approach. Each patient has different health conditions

and physical capacities, so mobilization interventions must be tailored to minimize risks and increase effectiveness. This approach is important, especially for elderly patients who may have comorbidities or high risk of postoperative complications (De Almeida et al., 2017) . The effect of early ambulation in the elderly after surgery has been proven to significantly reduce the length of stay, accelerate recovery, increase mobility, which ultimately has an impact on quality of life and increases satisfaction with the recovery process. Early ambulation is an important intervention in the recovery process of the elderly after surgery. With a good understanding of the benefits, contraindications, and appropriate stages, the medical team can help elderly patients get the maximum benefit from early mobilization, thereby accelerating recovery and improving their quality of life.

CONCLUSION

Early ambulation has a significant impact on the recovery of elderly patients after surgery. By accelerating physical recovery, reducing complications such as deep vein thrombosis and pneumonia, and improving mental health, early ambulation proves to be a crucial intervention. Studies have demonstrated that early mobilization shortens hospital stays, expedites the recovery of organ function, and offers psychological benefits, such as reduced postoperative anxiety. Despite challenges such as insufficient patient education and potential contraindications, a structured and safe approach involving the medical team can optimize the success of early ambulation.

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