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Elderly Patient Safety Management Using Peer to Peer Safety Companion (P2PSC) Intervention

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Abstract

Adverse events, particularly falls and medication errors, remain a significant challenge in elderly patient care at home. The Peer to Peer Safety Companion (P2PSC) intervention leverages peer support to enhance patient engagement and safety vigilance. This study aimed to evaluate the effectiveness of P2PSC in reducing fall risk and improving medication adherence among elderly patients at home. A pre-experimental one-group pretest-posttest design involved 56 elderly participants receiving P2PSC support for 4 days over 2 weeks. Data analysis used paired samples t-test, The results showed a significant reduction in fall incidents (p=0.001) and improvements in medication adherence (p=0.001). Mean fall risk scores decreased from 12.5 to 9.2, while medication adherence scores increased from 72.5 to 81.3. The P2PSC intervention effectively enhances safety management for elderly patients and is recommended as a supplementary standard in geriatric care management at home.

INTRODUCTION

The increasing elderly population in Indonesia necessitates a corresponding rise in safe and effective healthcare services. Older adults face a 2-3 times higher risk of adverse events compared to younger adults due to complex conditions such as comorbidities, polypharmacy, and cognitive decline (WHO, 2021). Falls are a leading contributor to adverse events in the elderly, followed by medication errors stemming from non-adherence or miscommunication (Huh & Shin, 2021). Adverse events in older adults, particularly falls and medication non-adherence, are driven by interrelated factors. Intrinsic factors contributing to falls include balance and gait disturbances, neurological disorders, medication side effects, acute and chronic medical conditions, and cognitive impairments such as dementia or delirium. Extrinsic factors include environmental hazards like slippery floors, loose carpets, inadequate lighting, and inappropriate equipment. Medication non-adherence in older adults is influenced by regimen complexity, cognitive impairment, sensory deficits, beliefs and perceptions, and healthcare system and social factors. Effective patient safety strategies are needed, such as person-centered care models that actively engage patients. The Peer to Peer Safety Companion (P2PSC) intervention emerges as a promising innovation to enhance elderly patient safety. P2PSC involves non-clinical peer companions serving as safety reminders, communication facilitators, and social support providers (Conwell et al., 2021).

Previous research conducted by (He et al., 2025) aimed to examine the effectiveness of an online community-based intervention for cancer patients receiving outpatient care. The intervention focused on creating social connections through companionship and experience sharing. Using a pilot study design, the researchers found that cancer patients involved in the

online community intervention showed significant improvements in health status and quality of life compared to the control group, indicating that peer support can enhance well-being, chronic disease management, and social support for elderly patients.

The novelty and distinction of the Peer-to-Peer Safety Companion (P2PSC) intervention lie in the involvement of trained Peer Companions who have overcome similar challenges, possess good energy, and have effective communication skills. These Peer Companions conduct home visits to elderly patients, with a frequency of 2 hours per day for 4 days over 2 weeks, emphasizing fall prevention and medication adherence. This approach addresses the specific needs of the study population, where approximately 10% of elderly individuals have a history of falls and medication non-adherence, as identified through prior interviews. This study aims to empirically evaluate the effectiveness of P2PSC implementation on fall incidence and medication adherence among elderly patients at home, contributing to improved safety and healthcare strategies.

RESEARCH METHODS

This study employed a pre-experimental, one-group pretest-posttest design conducted in the Kapasan Surabaya area. The population comprised elderly individuals meeting inclusion criteria: fully conscious (GCS 15), able to communicate verbally, and without terminal illness. Simple random sampling yielded 56 respondents.

The data collection process was conducted after obtaining research permission, with reference number : 009/436.9.22.2./2025. The researcher explained the purpose and intent of the study to ensure participants understood what would be done and what was expected. Participants were asked to sign an informed consent form, indicating that they understood the purpose and intent of the research and agreed to participate.

The P2PSC intervention was delivered by trained Peer Companions - elderly survivors or volunteers with caregiving experience-over 4 days weekly for 2 weeks, involving: reinforcing fall prevention education, reminding and verifying medication schedules (5 Rights), and providing social support and facilitating communication with healthcare providers.

The measurement of fall incidence and medication adherence variables employed methods aligned with the research objectives. Fall incidence was assessed using daily incident records (binary data: yes/no), a common approach in epidemiological studies for measuring disease or incident occurrence. Medication adherence was evaluated through a modified medication adherence questionnaire (scale 1-10), a widely used method in health research for assessing patient adherence to treatment (Morisky et al., 2008). Data analysis involved univariate analysis (frequency distribution and descriptive statistics) and bivariate analysis (paired samples t-test) to compare the mean reduction in fall risk and improvement in medication adherence scores pre- and post-intervention, following normality and homogeneity testing (Creswell, 2009).

RESULT

The results of the study are presented in the following table:

Table 1. Characteristics of Respondents

Characteristics	F	%
Age		
Early Elderly (60-69 years)	32	57
Advanced Elderly (≥70 years)	24	43
Total	56	100
Sex		
Male	24	43
Female	32	57
Total	56	100%
Religious Affiliation		
Islam	50	89
Christianity	5	9
Hinduism	1	2
Total	56	100%
Employment Status		
Retired	35	62
Employee	15	27
Self Employed	6	11
Total	56	100%
Monthly Income		
Insufficient (<Surabaya Minimum Wage)	40	71
Sufficient (>Surabaya Minimum Wage)	16	29
Total	56	100%
Living Arrangement		
Alone	2	4
Co-residing with partner/family members	54	96
Total	56	100%
History of Falls		
Never	34	61
Ever (≥1 fall in the past year)	22	39
Total	56	100%
Medication Adherence		
Yes	46	82
No	10	18
Total	56	100%

Based on Table 1, respondents were predominantly early elderly (57%), female (57%), and Muslim (89%). Most were retirees (62%) with low income (71%) and lived with family (96%). While 61% had no history of falls, 39% reported previous falls. The majority (82%)

were on regular medication, indicating a high prevalence of chronic conditions in this population.

Table 2. Medication Adherence

Characteristics	Pre		Post	
Measurement	Mean	Mean differences	Standard Deviation	P-value
Fall Risk				
Pre test	12.5	3.3	1.8	0.001
Post test	9.2			
Medication Adherence				
Pre test	72.5	8.8	4.5	0.001
Post test	81.3			

Based on Table 2, paired t-test analysis revealed a significant reduction in fall risk scores ($p = 0.001$), with a mean decrease from 12.5 to 9.2 (mean difference = 3.3). Medication adherence scores significantly improved ($p = 0.001$), with a mean increase from 72.5 to 81.3 (mean difference = 8.8).

DISCUSSION

This study demonstrates the effectiveness of P2PSC in elderly patient safety management, aligning with existing literature. The significant reduction in fall incidence ($p=0.001$) underscores the role of trained companions as consistent non-clinical supervisors. Elderly individuals often fall due to forgetfulness or reluctance to seek help (Lee & Yu, 2020). Trained peer companions provide critical redundancy in reminders, particularly during mobilization or daily activities, serving as a robust fall prevention mechanism.

A very significant increase in adherence ($p<0.001$) is consistent with (Shalaby & Agyapong, 2020), who stated that peer support facilitates better communication and transfer of health information. Peer companions use language that is more easily understood by the elderly and can reinforce education from nurses, helping elderly patients who have difficulty remembering schedules and purposes of various medications (polypharmacy). This is a crucial element in preventing dose errors and drug interactions.

Safety companions provide physical accompaniment to ensure elderly safety (e.g., preventing falls, reminding medication intake, or accompanying during activities). This peer-to-peer program involves fellow elderly individuals or those without formal medical training, thus not replacing professional caregivers or nurses, but serving as a valuable complement (Joo et al., 2022). A "peer" can visit or contact elderly individuals at home to enhance social interaction, indirectly improving their mental well-being and environmental awareness. Elderly individuals who are more active and motivated (thanks to peer support) also tend to have a lower risk of home accidents. As noted by (Braun et al., 2025), serving as a peer supporter is a complex experience that offers various benefits while also presenting several challenges.

To meet expected competencies, pre-intervention basic training (orientation & training) is conducted, encompassing active listening skills for peer supporters, emphasizing they are not mere advisors and teaching the importance of maintaining professional and personal boundaries.

Peer supporters are not substitutes for nurses, therapists, or doctors; thus, they must recognize when to seek professional assistance, understand the importance of confidentiality, and learn respectful interaction strategies (Sanchez-Moscona & Eiroa-Orosa, 2021). Once trained, peer supporters conduct home visits to elderly individuals on a consistent schedule, with visit frequencies or contacts of 2 hours daily for 4 days. Although peer supporter interventions primarily provide social support, they offer various activity options, including casual conversations about past experiences or hobbies, engaging in light hobbies together (e.g., knitting, accompanying short walks in the yard if feasible), and teaching basic technology skills (e.g., video calling with grandchildren).

Post-intervention, light documentation is conducted, requiring peer supporters to make brief notes after interactions (e.g., elderly mood, discussed topics) solely for monitoring trends and needs, not for medical diagnosis. Implementation of P2PSC necessitates ongoing coordination and support, involving family members or primary caregivers to understand the peer supporter's role and ensure the program aligns with the elderly's medical care.

Regular team meetings via monthly gatherings are necessary for all peer supporters to share experiences, collaboratively address challenges, and receive refresher training. Additionally, appointing a program coordinator is crucial to oversee, facilitate, and intervene when issues arise. Key safety aspects must be emphasized: peer supporters should refrain from providing medical advice, altering medication dosages, performing physically demanding caregiving tasks (e.g., bathing, lifting), or offering professional therapy. Their primary role is to provide emotional, social, and motivational support.

Peer-to-peer safety companionship, in the context of motivational and psychosocial support, can and is recommended to be conducted at elderly patients' homes. However, for physical safety functions, the program requires support from family and/or professional caregivers regarding home hazard prevention. According to a synthesis of previous publications by (Solihin & Effendy, 2024), P2PSC operates through: (1) Psychosocial support (reducing anxiety and isolation, increasing alertness); (2) Facilitating respondent engagement (encouraging active questioning and information verification); and (3) Reinforcing health behaviors (adherence to regimen).

Research on Peer-to-Peer Companion/Support has shown broadly positive outcomes, particularly in enhancing well-being, managing chronic diseases, and providing social support. Key findings include: (He et al., 2025) found that online peer-to-peer (P2P) community-based interventions improved global health status and quality of life (QOL) in outpatient cancer patients. (Reidy et al., 2024) reported that peer support, especially for chronic conditions, reduced distress and enhanced QOL among recipients. (Conwell et al., 2021) discovered that peer companionship programs for socially isolated older adults in primary care reduced depressive symptoms (measured by PHQ-9) and anxiety (measured by GAD-7) compared to controls. (Schwei et al., 2021) found that P2P Support programs helped maintain mental and physical health status and QOL over time in older adults.

This study differs from (Reidy et al., 2024) in several aspects, primarily in its focus. While (Reidy et al., 2024) examined the benefits of peer support in chronic health conditions broadly, this study specifically investigates the effects of peer support on patient safety

outcomes (falls and adherence). Additionally, the intervention duration differs; this study employed a relatively short intervention period of 4 days over 2 weeks, whereas (Reidy et al., 2024) did not specify the intervention duration. The outcomes measured in this study are clinical safety outcomes (falls and adherence), whereas (Reidy et al., 2024) assessed broader benefits of peer support, such as quality of life and self-management.

Despite these differences, both studies share commonalities in examining the effects of peer support on improving patient health outcomes and employing similar research designs involving peer support interventions and outcome measurements. The findings of this study provide empirical evidence linking peer support mechanisms directly to clinical safety outcomes (falls and adherence). The limitations of this study include the relatively short intervention duration (4 days over 2 weeks) and the potential for a Hawthorne effect in the intervention group, which were not specifically mentioned in (Reidy et al., 2024).

CONCLUSION

The Peer-to-Peer Safety Companion (P2PSC) intervention has proven to be effective and significant in enhancing elderly patient safety management, particularly in reducing fall incidence and improving medication adherence at home. P2PSC effectively promotes patient safety through psychosocial support, respondent engagement facilitation, and health behavior reinforcement. Recommendations :

1. Integrate P2PSC into standard geriatric care operational procedures, complemented by structured training for peer companions.
2. Educate and raise awareness among families and caregivers about P2PSC's importance in improving elderly patient safety.
3. Conduct regular evaluations and monitoring to ensure the program's effectiveness and quality.

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