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The effect of reminiscence exercise therapy on functional mobility and psychological well-being among elderly

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ABSTRACT

Background: Elderly individuals often experience decline in both physical mobility and psychological well-being. reminiscence exercise therapy (RET) is a novel approach that integrates reminiscence therapy with targeted physical exercises. This study aims to investigate the effect of RET on functional mobility and psychological well-being of elderly residents in a nursing home in Semarang City.

Methods: This pre-experimental study used a one-group pretest-posttest design with 36 elderly participants selected through purposive sampling. Functional mobility was assessed using the timed up and go test (TUG) and elderly mobility scale (EMS), while psychological well-being was measured using the geriatric depression scale (GDS-15) and satisfaction with life scale (SWLS). RET was conducted in 6 sessions over 3 weeks. Data were analyzed using the Wilcoxon Signed Rank Test.

Results: Significant improvements were observed in all parameters after RET intervention. Mean TUG test time decreased from 15.64 to 12.37 seconds (p=0.001), mean EMS score increased from 14.78 to 17.92 (p=0.001), mean GDS-15 score decreased from 7.36 to 4.83 (p=0.002), and mean SWLS score increased from 18.25 to 23.64 (p=0.001).

Conclusion: RET showed potential to improve both functional mobility and psychological well-being in elderly nursing home residents. However, the pre-experimental design limits causal inferences, and further controlled studies are needed.

Keywords: reminiscence exercise therapy, functional mobility, psychological well-being, nursing, elderly care.
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INTRODUCTION

Aging brings various biological, psychological, and social changes that significantly impact functional mobility and psychological well-being of the elderly. Declining physical abilities often lead to dependency, social isolation, and decreased quality of life.[1] Data from Indonesia's Central Bureau of Statistics projects an increase in the elderly population from 9.6% in 2020 to 19.8% by 2045, creating new challenges for healthcare systems.[2]

Elderly individuals in nursing homes face complex challenges. Physically, sarcopenia, weakness, and balance disorders can reduce mobility.[3] Psychosocially, environmental changes, family separation, and loss of autonomy affect psychological well-being.[4] Previous research found that approximately 65% of nursing home residents in Indonesia experience depressive symptoms and 72% report loneliness, correlating with decreased physical activity.[5]

Reminiscence therapy encourages elderly individuals to recall and share past life experiences, helping them integrate these experiences into a broader life perspective.[6] Recent study has demonstrated that reminiscence therapy significantly reduces depressive symptoms among institutionalized older adults.[7] Physical exercise improves mobility, strength, and balance, reducing fall risk and increasing independence.[8] A meta-analysis by Talar et al. (2023) confirmed that resistance training significantly improves physical function and muscle mass in elderly populations.[9] Reminiscence Exercise Therapy (RET) innovatively combines these approaches to simultaneously address physical and psychological domains.

International studies have demonstrated the effectiveness of integrated approaches. Previous study found that exercise programs with reminiscence elements significantly improved mobility and reduced depression in Korean elderly.[10] Similarly, another study showed that integrated interventions were more effective than single interventions for improving quality of life.[11] Recent research further validates this approach, showing that combined cognitive-physical interventions yield greater benefits for functional independence than either intervention alone.[12]

In Indonesia, research on RET remains limited. Wijayanti (2019) showed reduced depression with reminiscence therapy but didn't measure physical parameters, while Prasetyo (2020) demonstrated improved mobility with exercise but excluded reminiscence components.[13,14] The integration of these approaches in geriatric nursing care needs further exploration, particularly highlighted the need for multidimensional interventions for Indonesian elderly.[15] A preliminary assessment at a Semarang nursing home found 70% of 40 elderly residents had decreased mobility (TUG >13.5 seconds)

and 65% showed depressive symptoms.

This study aimed to evaluate RET's effect on functional mobility and psychological well-being of elderly residents, potentially providing evidence for integrated nursing approaches in elderly care.

METHODS

This pre-experimental study with a one-group pretest-posttest design was conducted in January 2024 at a nursing home in Semarang City. The study included individuals aged 60 and above who demonstrated good communication abilities, could walk independently (using assistive devices if needed), showed no evidence of severe cognitive decline (with a Mini-Mental State Examination score of 20 or higher), and had agreed to participate. Exclusion criteria included severe cardiovascular disorders, acute musculoskeletal disorders, progressive neurological disorders, and concurrent physical therapy. From 40 eligible residents, 36 participants were selected through purposive sampling, calculated using the Slovin formula (95% confidence level, 5% margin of error).

Functional mobility was assessed using the timed up and go test (TUG) and elderly mobility scale (EMS). TUGT measures the time required to stand from sitting, walk 3 meters, turn, return, and sit down, with >13.5 seconds indicating fall risk.[16] EMS (0-20 points) evaluates various mobility aspects with higher scores indicating better mobility.[17] Psychological well-being was measured using the Geriatric Depression Scale-15 (GDS-15) and Satisfaction with Life Scale (SWLS). GDS-15 screens for depression (0-15 points, higher scores indicating more severe symptoms), and SWLS assesses global life satisfaction (5-35 points, higher scores indicating greater satisfaction).[18,19] The RET intervention consisted of 6 sessions over 3 weeks (60 minutes/session, twice weekly). The twelve participants were divided into three groups. Each session consisted of a twenty-minute reminiscence phase where past experiences were recalled and shared, a subsequent thirty-minute exercise phase that included strength, balance, flexibility, and coordination exercises, and a final ten-minute integration phase where exercises were adapted based on the memories discussed.

The exercise protocol followed evidence-based recommendations from Fragala et al. (2023) for older adults, incorporating progressive resistance training with moderate intensity.[20] Session themes included childhood activities, traditional games, daily activities, traditional dances, gardening, and celebrations. Exercises included chair squats, heel raises, balance training, coordination exercises, functional reaches, transfer training, and walking variations. All exercises were adapted to participants' abilities and linked to reminiscence themes. Attendance was 91.7%, with no participant missing more than one session. Pretest measurements were taken one day before the first intervention and posttest measurements one day after the last intervention. Data were analyzed using Wilcoxon Signed Rank Test ($p<0.05$) after Shapiro-Wilk tests showed non-normal distribution.

The study received ethical approval from the Health Research Ethics Committee of Karya Husada University Semarang (92/KEP/UNKAHA/SLE/II/2025).

RESULTS

Most participants were female (58.3%), aged 70-79 years (47.2%), with elementary education (41.7%), widowed (66.7%), and had lived in the nursing home for 1-5 years (61.1%) (Table 1). In Table 2, participants showed impaired mobility (mean TUG: 15.64±3.87 seconds; mean EMS: 14.78±3.12) and psychological distress (mean GDS-15: 7.36±2.84; mean SWLS: 18.25±4.62). After intervention, all parameters improved significantly. The mean TUG decreased to 12.37±2.91 seconds (p=0.001), mean EMS increased to 17.92±2.03 (p=0.001), mean GDS-15 decreased to 4.83±2.27 (p=0.002), and mean SWLS increased to 23.64±3.88 (p=0.001).

DISCUSSION

Before intervention, most participants showed impaired functional mobility, with TUGT times exceeding the 13.5-second fall risk threshold established by Shumway-Cook et al.,[16] consistent with previous findings that nursing home residents typically have lower mobility than community-dwelling elderly.[21] The average EMS score (14.78) indicated moderate

Table 1. Characteristics of 36 respondents

	Frequency	Percentage (%)
Age (years)		
60-69	14	38.9
70-79	17	47.2
≥ 80	5	13.9
Gender		
Male	15	41.7
Female	21	58.3
Education level		
No schooling	5	13.9
Elementary	15	41.7
Junior high	9	25.0
High school	6	16.7
College	1	2.8
Marital Status		
Never married	3	8.3
Married	9	25.0
Widowed	24	66.7
Length of stay in nursing home (years)		
< 1	7	19.4
1-5	22	61.1
> 5	7	19.4

Table 2. Functional mobility and psychological well-being before and after the intervention among 36 older adults

Variable	Pre-test Mean ± SD	Minimum-Maximum	Post-test Mean ± SD	Minimum-Maximum	Mean Difference	*P*-value
TUG test (seconds)	15.64 ± 3.87	9.32-24.78	12.37 ± 2.91	7.85-19.42	3.27	0.001
EMS (score)	14.78 ± 3.12	8-19	17.92 ± 2.03	12-20	3.14	0.001
GDS-15 (score)	7.36 ± 2.84	3-13	4.83 ± 2.27	1-10	2.53	0.002
SWLS (score)	18.25 ± 4.62	10-27	23.64 ± 3.88	15-31	5.39	0.001

EMS, elderly mobility scale; GDS-15, geriatric depression scale-15 items; SWLS, satisfaction with life scale; TUG, timed up and go.

mobility limitations. Psychologically, the mean GDS-15 score (7.36) suggested mild depression, and the SWLS score (18.25) indicated below-average life satisfaction.

After RET intervention, functional mobility improved significantly. The mean TUGT time decreased to 12.37 seconds (below the fall risk threshold), and the mean EMS score increased to 17.92, approaching the maximum value of 20. These improvements align with recent findings by Justine et al. (2022), who demonstrated significant mobility improvements in institutionalized elderly following multicomponent exercise interventions.[22] Psychological well-being also improved, with the mean GDS-15 score decreasing to 4.83 (borderline normal/mild depression) and mean SWLS score increasing to 23.64 (above-average life satisfaction). These results are consistent with Kim et al. (2023), who found reminiscence therapy effectively reduced depression and improved quality of life in nursing home residents.[23]

Several mechanisms may explain these improvements. The exercise component likely enhanced strength, balance, and coordination, consistent with the neuromotor adaptation mechanisms.[24] The reminiscence elements potentially increased motivation and engagement, a phenomenon documented by Sato et al. (2023) in their research on narrative-based exercise programs.[25] Mood improvement through reminiscence may have indirectly enhanced physical performance through increased activation. Psychologically, reminiscence helped participants integrate past experiences into coherent life narratives, contributing to ego integrity as conceptualized by Erikson. This process aligns with previous findings, who identified improved self-continuity as a key mechanism in reminiscence therapy's effectiveness.[26] Additionally, positive memory sharing and physical activity likely increased positive affect and reduced depression, consistent with the neurobiological mechanisms.[27]

The observed improvements appeared somewhat greater than those reported for single interventions in previous studies. For example, Prasetyo reported a 2.1-second decrease in TUG time after conventional exercise, compared to our 3.27-second decrease.[14] Similarly, previous study reported a 1.8-point decrease in GDS-15 after standard reminiscence therapy, compared to our 2.53-point decrease.[13] From a nursing perspective, RET offers an innovative approach to geriatric care by integrating psychosocial elements with physical exercises. This aligns with the evolving paradigm of geriatric nursing, which emphasizes holistic assessment and multimodal interventions addressing physical, psychological, and social dimensions of health.[28]

Several limitations should be acknowledged. The pre-experimental design without a control group limits causal inferences; improvements might reflect factors beyond RET (e.g., social interaction, attention effects). This study design was vulnerable to threats to internal validity, including history, maturation, and testing effects.[29] The short intervention duration (3 weeks) may be insufficient for sustained benefits, and long-term effects remain unevaluated. Recent research by Oliveira et al. (2023) suggests that interventions of at least 8-12 weeks are optimal for creating lasting physiological adaptations in older adults.[30] Our sample size and purposive sampling from a single nursing home limit generalizability. Potential confounding variables (health conditions, medications, social support) were not systematically controlled. Additionally, while our assessment tools are validated, they provide limited perspectives on complex constructs as noted in their review of geriatric assessment methodologies.[31] Finally, intervention delivery by a single nurse may limit generalizability to other practitioners. The therapeutic relationship's influence on outcomes, represents a potentially confounding variable that wasn't controlled.[32] Despite these limitations, our findings provide preliminary evidence supporting integrated approaches that address both physical and psychological domains in elderly care.

CONCLUSION

This study found significant improvements in functional mobility and psychological well-being following a 3-week Reminiscence Exercise Therapy program for nursing home residents. While these findings suggest RET's potential as a holistic approach for improving elderly well-being, the pre-experimental design limits causal inferences. The improvements observed might reflect factors beyond the specific intervention components. Nevertheless, this study provides preliminary evidence supporting integrated approaches that simultaneously address physical and psychological domains, though more rigorous research is needed to confirm these findings.

ETHICAL CLEARANCE

This research received approval from the Health Research Ethics Committee of Karya Husada University Semarang (92/KEP/UNKAHA/SLE/II/2025).

CONFLICT OF INTEREST

None declared.

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AUTHOR CONTRIBUTIONS

FAMM designed the research, collected data, performed statistical analysis, and wrote the manuscript.

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