

Realizing Healthy and Fit Elderly Through Njangkah Exercise and Simbah Bugar Application

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Submitted: February 11th 2025; Revised: April 13th 2025; Accepted: June 16th 2025

Keywords:

Elderly
Health and fitness
Pondok simbah
Seger waras

Abstract “Seger Waras,” which means healthy and fit, referred to important aspects of well-being for the elderly, including those at the Melati Bendosari Elderly Posyandu, in supporting their functional independence. Due to degenerative factors, the elderly were at risk of declining health and fitness, which could interfere with their daily functional activities. To address this, the *Pondok Simbah* program was developed. It consisted of the *Simbah Pinter*, *Simbah Njangkah*, and *Simbah Seger* components and involved Posyandu cadres, elderly participants, and their families. The program aimed to improve the knowledge of cadres, the elderly, and their families regarding elderly health and fitness, and to enhance the physical fitness of the elderly, measured using the Six-Minute Walk Test (6MWT). The program included the development of the *Simbah Njangkah* mobile application, which was made available on the Play Store to support the 5000-step daily exercise routine for the elderly. The program ran for approximately two months and began with *Simbah Pinter*, a counseling session on health and fitness for cadres, elderly participants, and their families, including training on how to use the application. This was followed by weekly monitoring and evaluation of the 5000-step exercise. After the counseling sessions, there was an increase in knowledge about elderly health and fitness among participants. In addition, elderly fitness levels improved, as shown by a 68 percent increase in the number of individuals who achieved high fitness scores on the 6MWT. The *Pondok Simbah* program proved to be highly beneficial in improving the health and fitness of the elderly at the Melati Bendosari Elderly Posyandu.

1. INTRODUCTION

According to Law Number 13 of 1998 on Elderly Welfare, a person is considered elderly upon reaching the age of 60 or above (Kurniawan et al., 2018). Over the past decade, the proportion of elderly individuals in Indonesia increased by at least 4 percent, from 2010 to 2022. In 2022, the elderly population reached 10.48 percent, and in 2023, it rose significantly by 1.27 percent to 11.75 percent (BPS, 2023). The elderly are classified into three categories: young elderly (60–74 years), middle-aged elderly (75–84 years), and old elderly (85 years and above) (Barbaccia et al., 2022). The elderly stage is marked by substantial physical, emotional, and social changes (Taffet, 2024). At this age, individuals often encounter more serious health

challenges, such as decreased mobility and an elevated risk of chronic illnesses. “Seger waras” is a Javanese phrase meaning “healthy and fit,” commonly used to describe someone in good physical and mental condition. “Seger” translates to “fresh,” and “waras” means “healthy,” and together they represent an ideal state of health and vitality. Physical fitness refers to the ability to perform daily tasks and activities with energy and without undue fatigue, encompassing components such as cardiovascular endurance, muscular strength, flexibility, and body composition (Booth et al., 2012). Health, on the other hand, refers to a state of complete physical, mental, and social well-being, not merely the absence of disease or

ISSN 2460-9447 (print), ISSN 2541-5883 (online)

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infirmity (WHO, 2019).

Low levels of physical fitness can lead to numerous risks for the elderly, including physical health problems, mental health challenges, and a decline in overall quality of life. Older adults with low fitness levels are more prone to chronic conditions such as diabetes, hypertension, cardiovascular disease, and obesity. Insufficient physical activity can reduce cardiovascular and respiratory capacity, increase the risk of heart attacks, and lead to difficulty in breathing. It can also result in muscle weakness and impaired balance, heightening the risk of falls and serious injuries (Anderson & Durstine, 2019). A sedentary lifestyle can contribute to joint stiffness and limited mobility, making routine tasks more difficult. In addition, lack of exercise is associated with a higher risk of depression, anxiety, and disrupted sleep, including insomnia or poor sleep quality (Pearce et al., 2022). Low activity levels may also cause a decline in bone density, raising the likelihood of osteoporosis and fractures. Furthermore, a decrease in physical fitness can limit an elderly individual's ability to perform essential daily activities independently, such as walking, bathing, and dressing. It is also linked to reduced cognitive function and an increased risk of dementia and Alzheimer's disease (Ramnath et al., 2018). Ultimately, elderly individuals with low fitness often experience a diminished quality of life, with constraints on social participation, recreational involvement, and interpersonal relationships (Wickramarachchi et al., 2023).

Bendosari Village is one of the areas located in Sukoharjo Regency. The prevalence of elderly residents in this village is relatively high, with a total of 386 individuals aged 60 and above. In addition to the large elderly population, the village's geographical location—situated far from the city center—has made it difficult for the local community to access adequate healthcare facilities. The Melati Elderly Posyandu functions as the primary healthcare service for elderly individuals in the area and serves as a crucial point of care.

According to the coordinator of the Melati Elderly Posyandu, the service continues to operate despite several challenges. These include a lack of structured health promotion activities targeting the elderly and the suboptimal execution of existing programs. Another major concern is the low level of awareness among elderly residents regarding the importance of maintaining health. Compounding the issue is the limited health knowledge among local health cadres, which has further contributed to the underperformance of the posyandu's initiatives in improving elderly health outcomes in Bendosari Village.

Further discussions with the posyandu coordinator revealed that family members also lack sufficient knowledge and awareness of the importance of physical fitness for the elderly. This gap in understanding has contributed to a decline in fitness levels among the elderly population. A study conducted by Putri et al. (2022) in Bendosari Village reported that the average score on the Two Minute Walking Test (2MWT) for individuals aged 60 to 67 was only 121.8 meters, compared to the

normal benchmark of 179.1 meters (Bohannon et al., 2015). This indicates a very poor fitness level among the elderly in the village. The Six Minute Walking Test (6MWT) is considered a more accurate measure of fitness because it reflects the cardiovascular system's capacity to supply oxygen during physical activity (Meys et al., 2023). Distances below 320 meters on the 6MWT indicate poor fitness, while distances above this threshold suggest better cardiovascular function and physical health (Intaruk et al., 2020).

In response to these challenges, the PKM team engaged in a collaborative discussion with the coordinator of the Melati Elderly Posyandu to identify suitable interventions. The posyandu staff emphasized the importance of increasing family involvement in physical fitness activities for the elderly, although they had not yet discovered effective strategies to achieve this goal. The PKM team identified the root cause as a lack of education and structured therapy programs that could support both the elderly and their families. To address this, the team proposed a solution focused on strengthening education and providing physical fitness therapy through a targeted community-based program.

The PKM team developed a program titled the *Pondok Simbah* program (PPS), which consists of three interrelated components: *Simbah Pinter* (SP), *Simbah Njangkah* (SJ), and *Simbah Seger* (SS). These sub-programs work in concert to improve both the knowledge and physical fitness of elderly individuals in the Melati Elderly Posyandu. The PPS aims to increase the understanding of health and fitness among local health cadres, elderly participants, and their families, while also improving physical fitness levels as measured by the Six Minute Walking Test. The program is designed to be comprehensive and community-oriented, offering sustainable support to enhance elderly well-being in Bendosari Village.

2. METHOD

The *Pondok Simbah* program was a community service initiative implemented at the Melati Elderly Posyandu in Bendosari, Sukoharjo. The activities were conducted based on an official permit issued by the Faculty of Health Sciences, Muhammadiyah University of Surakarta, addressed to the Head of Bendosari Village (No. 326.2/C.8-II/FIK/II/2024). All activities were conducted offline through in-person visits to health cadres, elderly individuals, and their families.

2.1 *Simbah Pinter*

The *Simbah Pinter* program was designed to support health cadres, elderly individuals, and their families in the community through structured health counseling sessions. The goal was to foster awareness, encourage concern, and improve knowledge regarding the importance of elderly health and physical fitness. This program consisted of the following two main activities.

1. The first activity provided health counseling and disseminated information about the *Simbah*

Njangkah application to educate participants on elderly health and fitness, as well as introduce the app to health cadres, elderly individuals, and their families (Figure 1).

2. The second activity focused on improving the knowledge of health cadres, elderly individuals, and their families regarding elderly health and fitness, which in turn contributed to better health and fitness outcomes for the elderly.



Figure 1 . Health education and Information dissemination on the *Simbah Njangkah* application to the elderly and cadres

2.2 Simbah Njangkah

This program aimed to improve the physical fitness of elderly individuals in Bendosari Village through a daily walking exercise of 5000 steps (Figure 2). To facilitate participation, the "*Simbah Njangkah*" application was developed with a user-friendly design tailored for elderly users (Figure 3), enabling them to track and achieve their daily step goal. In addition to the app, participants recorded their 5000-step activity in a physical journal called "*Diary Simbah*", which served as a supplementary monitoring tool to evaluate their progress.

2.3 Simbah Seger

This program focused on monitoring and evaluating previous activities while offering an alternative form of exercise by adapting "*Simbah Njangkah*" into a group-based game at the Posyandu. This initiative considered the physical, social, and emotional well-being of the elderly by creating enjoyable and socially engaging opportunities. The goal was to prevent boredom with routine app-based exercises by encouraging shared physical activity through interactive games. This approach fostered a lively and supportive environment, motivating participants to remain consistent in maintaining their physical fitness.

The program consisted of 5000-step exercises and modified games (Figure 4). In the 5000-step exercise, the elderly followed a routine developed by the community service team, which incorporated 5000 steps using sideways, forward-backward, and alternating leg movements combined with hand and foot coordination. The routine included a warm-up, core exercises, and a cool-down, with a total duration of approximately 60 minutes.



Figure 2 . *Simbah Njangkah* exercise with 5000 steps

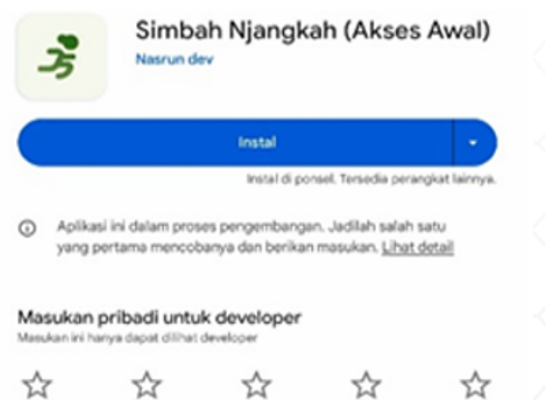


Figure 3 . *Simbah Njangkah* application in the Playstore application on a smartphone



Figure 4 . Implementation of the 5000 step modified game

The modified games were designed as an alternative to the 5000-step walking exercise, offering a more engaging and enjoyable physical activity. These games were intended to be held regularly at the posyandu each month to prevent the elderly from becoming bored with the daily walking routine. The games involved fun and competitive physical tasks that emphasized leg movement. Participants were divided into teams based on the total number of elderly involved. Each team lined up with arm's length spacing between participants.

The game began with music, prompting the elderly in each team to walk in place. When the music stopped, the

first person in line took a ball and passed it backward along the line. The last person in the line placed the ball into a basket located behind the team. The music resumed, and the participants continued walking in place. This sequence was repeated until all the balls were successfully transferred to the basket.

To ensure effective implementation, it was important to adjust the game's speed to match the physical capabilities of the participants. Additionally, safety was prioritized through active supervision by the health cadres.

The second game was designed to promote teamwork and coordination among the elderly, with a primary focus on leg movement. The objective was to foster mutual understanding, reduce feelings of loneliness, and alleviate stress. Additionally, the game aimed to improve balance and thereby reduce the risk of falls. In this activity, the elderly participants were divided into several teams. Each team was required to walk together while holding a balloon between them, ensuring that the balloon did not fall or burst during the movement.

3. RESULT AND DISCUSSION

3.1 Respondents' characteristics

The average age of the elderly participants at the Melati Elderly Community in Bendosari was 68 years, with women comprising the majority of participants in this PKM activity (Table 1). In general, the elderly at Melati did not suffer from hypertension. There was a 68% increase in the number of elderly individuals categorized as having high fitness before and after the implementation of the PKM activities.

Table 1 . The characteristics of respondents

Variable	mean±SD	n (%)
Age	68±4.9	
Gender		
Male		7 (14%)
Female		43 (86%)
Hypertension status		
Yes		8 (16%)
No		42 (84%)
6MWT pre	326.2±70.5	
Health fitness		
High		31 (62%)
Low		19 (38%)
6MWT post	426.9±71.9	
Health fitness		
High		45 (90%)
Low		5 (10%)

3.2 Knowledge of cadres, elderly, and families about elderly health and fitness

Based on Figure 5, there was a clear improvement in knowledge levels among cadres, elderly individuals, and their families after the PKM outreach activities. Cadres showed the most significant increase, rising from around 70 to over 90. Elderly participants improved from

approximately 60 to over 85, while family members increased their knowledge from about 70 to over 90. These results indicate that the PKM activities effectively enhanced awareness and understanding of elderly health and fitness across all groups.



Figure 5 . Level of knowledge among cadres, elderly, and families regarding elderly health and fitness

3.3 Health fitness of elderly

The number of elderly individuals with good fitness levels increased following the implementation of the PKM activities. This improvement indicates the effectiveness of the *Pondok Simbah* program, which integrated the *Simbah Pinter*, *Simbah Njangkah*, and *Simbah Seger* sub-programs. These programs successfully enhanced physical activity, motivation, and support among the elderly. As a result, the overall fitness status of elderly participants at the Melati Bendosari Elderly Posyandu improved significantly (Figure 6).

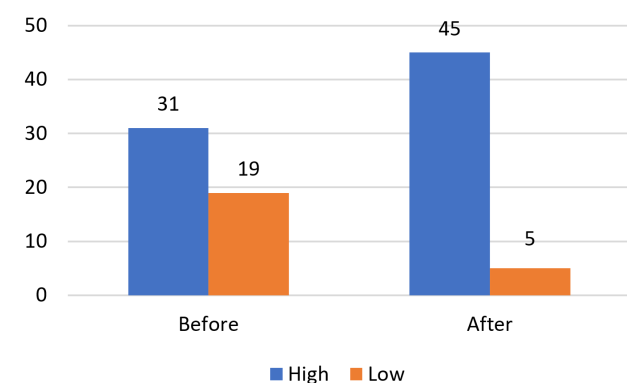


Figure 6 . Fitness before and after carrying out the 5000-step exercise and modified games

3.4 Discussion

The *Pondok Simbah* program, consisting of *Simbah Pinter*, *Simbah Njangkah*, and *Simbah Seger*, was successfully implemented at the Melati Bendosari Elderly Posyandu and had a significant positive impact on increasing the knowledge of cadres, elderly individuals, and their families regarding health and fitness. The program also improved physical fitness among the elderly,

as evidenced by better 6MWT outcomes and a reduction in the number of seniors in the low fitness category.

Education on elderly health and fitness is crucial and should be provided regularly to cadres, the elderly, and their families. In the *Simbah Pinter* component, knowledge transfer aimed to raise awareness and understanding among all three groups. Posyandu cadres play a pivotal role as front-line community health workers, actively delivering education, monitoring, and healthcare services to pregnant women, toddlers, and the elderly. Their contributions help improve quality of life in the community by promoting healthy lifestyles, balanced nutrition, and regular health monitoring, ultimately helping to reduce maternal and infant mortality rates (Lohrasbi et al., 2023). For the elderly, understanding their own health and fitness enables them to manage health conditions more effectively, prevent chronic illnesses, and maintain a better quality of life. This includes adopting healthier diets, engaging in regular physical activity, and adhering to routine check-ups (Anuar et al., 2021). Family support also plays an essential role in helping elderly individuals maintain a healthy lifestyle through emotional encouragement, motivation, and daily care. Families can assist with nutrition, physical activity, and medical appointments, while also fostering a sense of emotional well-being that contributes to improved mental and physical health (Wiraini et al., 2021).

The *Simbah Njangkah* program is an Android-based application that can be downloaded on Playstore. This application is one of the innovations (works) of the PKM team in helping create elderly people who are "fresh and sane" or healthy and fit. This application is equipped with a memory storage feature if the elderly have exercised walking 5000 steps. With the development of digital technology, this application is very useful for the elderly in particular and everyone in general. Walking 5000 steps has been widely researched before and provides many benefits for the body. In addition to improving body fitness, it can help improve heart health by lowering blood pressure and improving circulation. It also helps maintain a healthy weight, which can reduce stress on joints and lower the risk of obesity-related conditions such as diabetes. Additionally, walking improves mental health by releasing endorphins, which help reduce stress and improve mood. In addition, practicing walking 5000 steps can strengthen muscles and bones, thereby improving balance and reducing the risk of falling. Socially, walking can provide opportunities for interaction, reducing feelings of loneliness and isolation. Overall, incorporating 5,000 steps into a daily routine can lead to a more active, healthy, and fulfilling life for older individuals (Aranyavalai et al., 2020).

Modified walking exercises of 5000 steps are also recommended for the elderly, including the elderly doing aerobic exercise by increasing the number of steps. Apart from walking, this exercise also moves other body parts, so it can reduce joint stiffness, muscle pain, increase muscle flexibility, improve balance and coordination, reduce symptoms of developing autoimmune diseases, improve mental health and even a better quality of life (Hung

et al., 2023; Pinckard et al., 2019). Group exercise is highly recommended for the elderly, apart from having a positive effect on the body, it can also provide positive mental health energy for the elderly. There are 3 effects of group exercise, namely physical, mental and social. From a physical perspective, exercise helps improve muscle strength, flexibility and balance, thereby reducing the risk of falls and injury. Apart from this, this activity also improves heart and lung health, and helps control body weight and blood pressure. Mentally, group exercise can improve mood and reduce symptoms of depression and anxiety. This physical activity can also stimulate cognitive function, thereby helping to slow down the decline in memory and thinking skills that often occurs in old age. From a social perspective, group exercise provides an opportunity for seniors to interact with other people, build social relationships, and feel more connected to their community. This is very important to reduce feelings of loneliness and social isolation that are often experienced by the elderly (Mcphee et al., 2016).

Ultimately, health service and monitoring activities for the elderly do not have to be carried out in hospitals. Posyandu for the elderly is the right place to support the health and welfare of the elderly in the community. For example, the elderly posyandu provides basic health services that are easily accessible to the elderly, including routine health checks, blood pressure monitoring, and weight measurement. With routine health checks, elderly posyandu activities include helping in the early detection of various chronic diseases such as diabetes, hypertension and heart disease, so that treatment can be carried out earlier. Apart from that, in the field of health education, activities at elderly posyandu can include providing education about healthy lifestyles, nutrition, physical activity and disease prevention, helping elderly people to better understand how to maintain their own health (Ilyas, 2017).

4. CONCLUSION

The *Pondok Simbah* program, which consisted of the *Simbah Pinter*, *Simbah Njangkah*, and *Simbah Seger* components at the Melati Elderly Posyandu in Bendosari, successfully increased the knowledge of health cadres, elderly participants, and their families regarding elderly health and fitness. It also led to improvements in the physical fitness of the elderly, as reflected by an increase in average 6MWT scores and a reduction in the number of individuals classified as having low fitness.

ACKNOWLEDGMENT

We extend our sincere gratitude to the Head of Bendosari Village for granting permission to the PKM team to carry out the program at Posyandu Lansia Melati, Bendosari. We also thank the elderly community cadres, the elderly participants, and their families in the Melati elderly community of Bendosari Village for their cooperation, which enabled the successful implementation of this PKM activity. We hope that the initiatives introduced through

the *Pondok Simbah* program will continue to be adopted by the cadres, the elderly, and their families to support the improvement of health and fitness among the elderly at Posyandu Lansia Melati, Bendosari.

CONFLICT OF INTERESTS

The authors declare that there are no conflicts of interest related to this study.

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