Empowering Healthy and Productive Elderly Through Sustainable Environmental Utilization

Alyssa Amanda Zahro, Ardina Sari, Ardina Sari, Bintari Agustining Dyah, Ellen Moureena Bernaditta, Hasna Dianing Fiyandita, Idfit Tri Iqbal Pamungkas, Intan Dhewayani Kusumaningtyas, Laila Puspita, Nur Afifah, Titik Puji Lestari, Muhammad Nur Hudha*

Universitas Sebelas Maret, Surakarta, Indonesia
*Corresponding author, email: hudha.mn@staff.uns.ac.id

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Abstract
As Indonesia's elderly population grows, empowerment efforts are needed to help them remain physically, cognitively, and socially active. This study aims to implement a leadership project that empowers older adults by combining productive activities, cognitive stimulation, and environmental engagement at the Widhi Asih Nursing Home in Surakarta. The implementation method included a preparation phase, activity implementation, and monitoring and evaluation through observation and pre- and post-activity questionnaires. This program involved 16 older adults who participated in a series of activities, including health exercises, making pots from used water jugs, stringing beaded bracelets, planting Family Medicinal Plants (Tanaman Obat Keluarga/TOGA), and preparing herbal remedies. The results showed that the average overall questionnaire score for the elderly's condition increased significantly from 1.97 (low category) to 3.40 (very high category) after the program, with the greatest improvement in productive activities, environmental knowledge, and utilization. In addition, these activities successfully produced 11 decorative pots made from used plastic jugs, 15 handmade bracelets, 6 types of TOGA, and herbal remedies. Thus, an integrated, adaptive empowerment approach has proven effective in enhancing the enthusiasm, creativity, social interaction, and quality of life of the nursing home's elderly residents.

1. Introduction

Indonesia has had an aging population since 2021, when older adults made up more than 10% of the total population. According to the Central Statistics Agency (Badan Pusat Statistik/BPS), older adults made up about 12% of the population in 2024, or 29 million people. This figure is projected to rise to about 20% by 2045 (Badan Pusat Statistik Indonesia, 2024). This rapid increase in the elderly population must be balanced with empowerment efforts to ensure older adults not only grow in number but also remain healthy, independent, and productive. Therefore, attention to the elderly should not only focus on meeting basic needs but also on providing activities that help them remain physically, cognitively, and socially active.

Old age is a developmental period characterized by a decline in the body's physical, mental, and social systems. This decline can also reduce older adults' quality of life (Indrayogi et al., 2022). The urgency of this issue is based on the increasingly pronounced conditions of elderly residents in nursing homes, as they generally experience limited social interaction, physical activity, and productive activities compared to those living with their families. Furthermore, the team's initial observations revealed that routine activities at the Widhi Asih Nursing Home did not meet older adults' needs. They lack creative outlets and cognitive engagement. Therefore, an intervention is needed that not only fills free time but also stimulates residents' cognitive abilities and social interaction.

The leadership theory applied in the leadership project activities, "Empowering Healthy and Productive Elderly Through Sustainable Environmental Utilization," is an effective leadership concept introduced by Stephen Covey in The 7 Habits of Highly Effective People. Effective leadership matches the conditions faced with the leadership style applied (Tuti & El Adawiyah, 2020). This concept emphasizes that the success of a project is not only measured by the final result, but also by the implementation process, which prioritizes integrity, responsibility, collaboration, and continuous self-development (Covey, 2008).

Effective leadership significantly impacts quality improvement, discipline, communication, and creativity (Atika et al., 2026). In this project, effective leadership guided activity planning, task allocation among team

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members, communication with nursing home management and older adults, and adjustments to activities based on the older adults' conditions. Effective leadership aims to ensure activities are implemented well and benefit older adults.

Based on the initial findings, three main problems shape the project's implementation. First, a limited variety of productive activities can increase boredom and limit older adults' opportunities to develop creativity. Second, activities that involve active participation by older adults can stimulate cognitive function, fine motor skills, and social interaction. Third, the use of used goods and the potential of medicinal plants in the nursing home environment as resources to support productive activities and the health of older adults are not yet optimal.

A lack of productive activities reduces the elderly's quality of life, both physically (decreased fitness, increased risk of degenerative diseases) and psychosocially (boredom, low self-confidence, and reduced social interaction). The physical activities we will carry out, such as gymnastics and light exercise, are expected to increase muscle strength and flexibility and reduce the risk of degenerative diseases in the elderly. In contrast, social and recreational activities are expected to impact psychological aspects (Maharani et al., 2026). In addition to physical activity, our planned activity, weaving bracelets, which falls under manual skills or crafts, is also expected to support activity therapy for older adults. Making beaded bracelets is expected to support cognitive and affective training in older adults by increasing focus, improving mood and mental health, channeling emotions, increasing social interaction, and increasing productivity (Da Mendez et al., 2025). These activities are expected to improve older adults' quality of life, both physically and psychosocially.

On the other hand, Family Medicinal Plants (TOGA) have great potential to support older adults' health independently and sustainably. Studies show that counseling and assistance with planting TOGA at the Annur Nursing Home in Lhokseumawe City have increased older adults' knowledge of the benefits of medicinal plants and improved the availability of raw materials for herbal concoctions in the nursing home environment (Yuziani & Rahayu, 2021). On the environmental side, used goods such as plastic gallons piling up in nursing homes also remain unaddressed; using them as plant pots and craft materials supports sustainable, environmentally friendly practices.

Based on these conditions, this leadership project chose the theme of an integrated, participatory, and sustainable elderly empowerment program by connecting older adults' needs with the environmental potential of the Widhi Asih Nursing Home. The theme of empowering older adults through productive activities and using the environment was chosen because it can address several needs at once: maintaining fitness, providing cognitive stimulation and skills, increasing social interaction, introducing the use of TOGA, and fostering environmental awareness. designed to connect the problems of a lack of productive activities, limited cognitive-psychosocial stimulation, and not yet optimal environmental management in nursing homes through a series of mutually integrated activities, namely making pots from used gallons, weaving bracelets from beads, planting Family Medicinal Plants (TOGA), making herbal medicine from TOGA products, and healthy exercise for older adults. The Healthy and Prosperous Life theme emphasizes the importance of ensuring a healthy life and supporting well-being for everyone at every stage of life, so this project's activities are expected to support physical health, cognitive stimulation, improved mood, and social interaction for older adults. This activity is urgent to implement because, in addition to providing direct benefits for older adults' physical and cognitive health and independence, it also develops leadership, cooperation, and social-environmental awareness for PPG students as implementers.

2. Method

The leadership project activities are carried out through direct, hands-on implementation. They are designed to provide an enjoyable experience, increase older adults' engagement, and leverage available resources. The program has three phases: preparation, implementation, and monitoring and evaluation.

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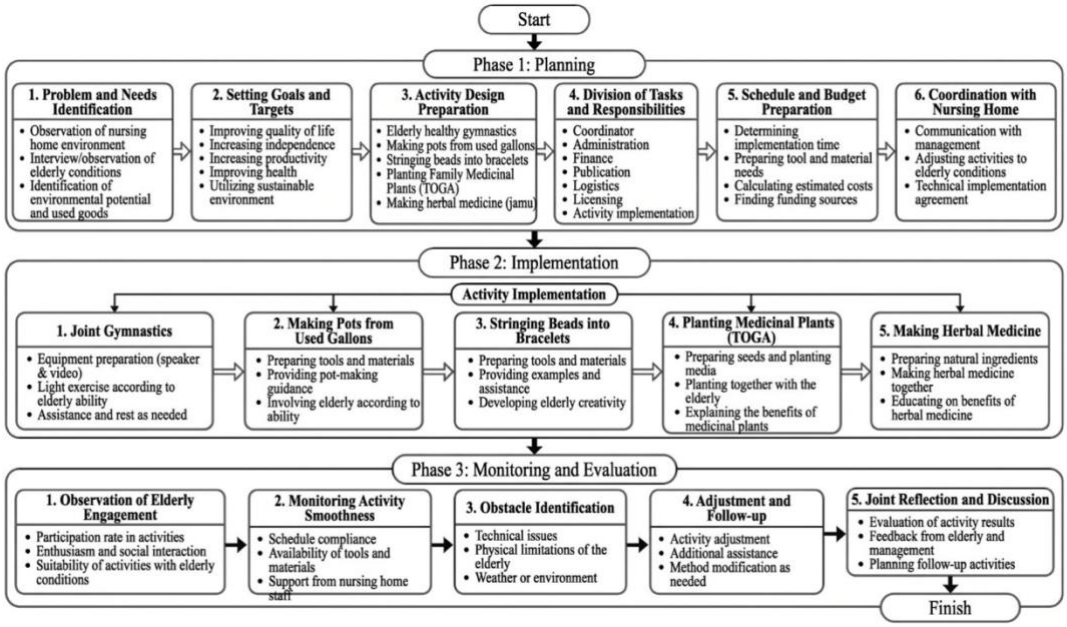


Figure 1. Flowchart of the Stages in the Implementation Method for the Leadership Project

3. Results and Discussion

Implementing the Leadership Project at the Widhi Asih Nursing Home in Surakarta yielded various activity outcomes and demonstrated positive changes, as shown by participant evaluations. These implementation and evaluation results are further detailed by participant characteristics, activity execution, achieved outcomes, changes in the elderly's condition, and an analysis of the project's impact on the elderly's productive activities, social interactions, and user environment.

3.1. Participant Characteristics and Activity Implementation

The Leadership Project activities were held on October 2–3, 2026, at the Widhi Asih Nursing Home in Surakarta. The 16 elderly participants, aged 58–89, included 10 nursing home residents and 6 seniors from outside the facility. The program included healthy exercise, crafting plant pots from used water jugs, making beaded bracelets, planting medicinal herbs (TOGA), and preparing traditional herbal medicine (jamu). The Leadership Project had 16 older adults participate on the first day and 15 on the second day (93.8%), meeting the 80% minimum attendance target.

3.2. Activity Output Achievements

The outcomes achieved by The Leadership Project, compared with the targets set during the planning stage, are presented in Table 1.

Table 1. Targets and Achievements of Activity Outputs

Output	Target	Achievements	Notes
Participation of the elderly	≥ 80% active	16 elderly individuals (day 1) and 15 elderly individuals (day 2)	Several older adults enter and exit the room.
Planter made from a used water jug	≥ 10 pot	11 pot	Decorated by an older adult using paint.
Stringing a bracelet	Bracelet products	15 bracelet	An assistant helps thread the beads onto the string.
TOGA Garden	≥ 4 types of medicinal plants (TOGA)	6 types of plants (ginger, turmeric, aromatic ginger, lemongrass, lime, and kaffir lime)	Planted in gallon-jug pots crafted by senior citizens.
Herbal medicine	Production derived from TOGA (medicinal plant) harvests	Producing turmeric-tamarind herbal drinks and custom-blended herbal concoctions	Partially achieved: the ingredients for making the herbal medicine (jamu) were purchased because the plants were not yet ready for harvest.
Healthy exercise	2 session	2 session	It did not reach the cool-down phase because the elderly individuals were already exhausted.

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3.3. Changes in the Condition of Elderly Individuals Based on Pre- and Post-Questionnaires

The study measured the activities' impact on older adults' condition using a 15-item questionnaire, with responses rated on a 1-4 scale (1 = Strongly Disagree; 2 = Disagree; 3 = Agree; 4 = Strongly Agree). The questions were read aloud by facilitators both before (pre) and after (post) the activities. Overall, the mean total score from the 15 questionnaire items increased from 1.97 (low category) before the activities to 3.40 (very high category) after the activities. This indicates a positive response and improved psychosocial well-being, knowledge, and interests among the elderly participants.

Table 2. Mean Scores from the Elderly Questionnaire by Aspect (Scale 1–4, n = 16)

Evaluation Aspects	Pre-average	Post-average	Increase (Difference)	Post-Category
Autonomy and Self-Confidence (Items 1–3)	2.19	3.23	+1.04	High
Productive Activities (Items 4–6)	1.90	3.73	+1.83	Very high
Social Interaction (Items 7–9)	2.42	3.56	+1.14	Very high
Interest in Handicraft & Medicinal Plant (TOGA) Activities (Items 10–12)	1.71	3.10	+1.39	High
Knowledge & Utilization of Medicinal Plants (TOGA)/the Environment (Items 13–15)	1.62	3.35	+1.73	Very high
Overall Average (Items 1–15)	1.97	3.40	+1.43	Very high

The largest increases in mean scores occurred in the Productive Activities indicators (from 1.90 to 3.73) and in Knowledge & Utilization of the Environment (from 1.62 to 3.35). Specifically, the questionnaire item on the desire to care for plants (item 15) showed the largest increase in mean score, rising from 1.12 to 3.12.

3.4. Discussion

Implementing the Leadership Project at the Widhi Asih Nursing Home in Surakarta has yielded positive responses to empowerment activities for older adults that combine physical activity, creative skills, social interaction, and environmental engagement. This is evident in the increase in average pre- and post-survey scores from 1.97 to 3.40, as well as the various outcomes of the activities carried out. The following discussion outlines the program's achievements in productive and creative activities, social interaction, use of TOGA and the environment, and physical activities for older adults.

3.4.1. Productive Activities and Creativity

The improvement in productive activities aligns with the initial situation, in which older adults often experience boredom due to the monotonous daily routines at the nursing home. Painting pots and making beaded bracelets have proven enjoyable and beneficial. This situation highlights the importance of offering a variety of activities so older adults can stay active, develop their interests, and use their free time positively. Painting pots and beading bracelets are among the creative activities that offer new experiences for older adults. Through these activities, older adults not only follow instructions but also create their own work. Painting pots lets them choose colors and decorate the medium according to their creativity, while beading bracelets involves selecting, arranging, and stringing beads into a finished product. Thus, these activities can help older adults spend their free time more meaningfully while also allowing them to continue participating in productive activities. These findings align with Chacur et al. (2022) on older adults' participation in artistic activities and highlight the importance of understanding their engagement in art as part of their later-life experience. In this community service initiative, the elderly participants' involvement in painting pots and stringing bracelets shows that creative activities can give older adults opportunities to use their time, express their creativity, and engage in the creative process. Therefore, productive activities should not be evaluated solely by the number of finished products, but also by the opportunities they provide for older adults to participate according to their individual abilities and interests. This supports Vadesma et al. (2023), who found that hands-on skills training for older adults in nursing homes effectively reduces loneliness and boredom. Furthermore, Sandvoll et al. (2020) emphasize that meaningful activities are key to maintaining older adults' quality of life and self-confidence. Craft training for older adults in other nursing homes has also been reported to provide skills that can be further developed (Suryawati et al., 2020).

However, the post-activity scores for the beading activity (item 11 = 3.06) and the gallon jug coloring activity (item 10 = 3.00) were relatively lower than those for other activities. Older adults' physical limitations influenced this. The large size of the gallon jug made it difficult for older adults to paint while sitting in wheelchairs, while the elastic string and low-contrast bead colors made it difficult for older adults with impaired vision. According to Schweighart et al. (2022), nursing home interventions must be tailored in stages to participants' individual ability levels.

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3.4.2. Social Interaction and Togetherness

The average social interaction score increased from 2.42 to 3.56. Group activities (such as beading and brewing herbal remedies) fostered warm communication among the seniors, nursing home staff, and student mentors. During the herbal remedy-making sessions, experienced seniors actively shared their go-to herbal recipes, thereby serving as experts. This role made them feel valued and recognized. These findings reinforce Wang et al. (2022) and Wang et al. (2023), which show that horticulture-based activities and group interactions in long-term care facilities can enhance subjective social functioning and strengthen emotional bonds among residents.

In addition to strengthening the bond between older adults and their caregivers, group activities can also create opportunities for residents to build relationships. Mikkelsen et al. (2019) examined social interventions to support social relationships among older adults in nursing homes. The study discussed various efforts to address loneliness, social isolation, and limited social support through activities that allow residents to interact. These findings apply to activities such as beading bracelets and brewing herbal remedies, as both provide a shared purpose that can catalyze conversation and collaboration. For example, while beading, older adults can discuss color choices, ask for help threading beads, or show finished pieces to other participants. During herbal tea brewing sessions, conversations can develop through the exchange of experiences regarding ingredients, preparation methods, and herbal tea consumption habits. Thus, group activities can foster more natural interactions, as communication takes place within the context of shared activities.



Fgure 2. Bracelet-Making Activity in Progress

3.4.3. The Use of Medicinal Plants (TOGA) and Environmental Awareness

Older adults' understanding of the benefits of medicinal plants (item 13) increased sharply from an average of 1.94 to 3.31. These results align with the TOGA education program conducted by Yuziani & Rahayu (2021) at the An-Nur Nursing Home in Lhokseumawe, which showed that combining theory with hands-on planting practice effectively improves older adults' health literacy. Repurposing 11 used gallon containers into decorative pots also serves as an eco-friendly educational tool (upcycling) without requiring much land. Although willingness to care for plants increased (item 15 rose from 1.12 to 3.12), the sustainability of this TOGA garden depends heavily on commitment to sharing daily watering duties, supervised by the nursing home staff.

The increase in older adults' understanding of TOGA aligns with Ismiyati et al. (2023) study, which combined education on medicinal plants with hands-on planting activities and knowledge assessment. The activity results showed a 50% increase in participants' knowledge after the educational session. These findings are relevant to the TOGA program implemented among older adults because they show that education combined with hands-on activities can enhance knowledge of medicinal plants. Furthermore, Santhyami et al. (2023), in a TOGA education program for a group of women farmers in Ngasem Village, Karanganyar, also reported a 61.5% increase in knowledge regarding the health benefits of TOGA following the implementation of the education and planting program. Both studies reinforce the relevance of an educational approach that combines information with hands-on experience.

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Figure 3. Implementation of the TOGA Planting Activity

3.4.4. Physical Activity Through Healthy Exercise

Exercise programs for older adults provide opportunities for physical activity and fitness. The caregiver's decision to stop the exercise session before the cool-down phase because the older adult felt fatigued was an appropriate adjustment. As recommended in the WHO guidelines (Bull et al., 2020), even short-duration or low-intensity physical activity still yields far better outcomes than sedentary behavior among older adults.

In addition, Sherrington et al. (2020) support exercise programs for older adults by systematically reviewing the WHO's recommendations on physical activity and fall prevention in people aged 65 and older. The study showed that physical activity programs incorporating balance and functional exercises can reduce fall risk among older adults. These findings underscore that exercise programs for older adults should not be viewed merely as activities to get the body moving, but also as part of efforts to maintain functional ability. When developing future programs, adapt movements to participants' abilities. For example, through simple seated movements, arm-raising exercises, ankle movements, or light balance exercises with adequate supervision. Tailor standing and position changes to each older adult's capabilities to maintain the benefits of physical activity without increasing the risk of falling.

A study by Rojer et al. (2020), published in "Aging Research Reviews", also found that low physical activity and high sedentary behavior are associated with a higher mortality risk among community-dwelling older adults. The study employed a systematic review and meta-analysis of objectively measured physical activity and sedentary behavior. These results underscore the importance of reducing the time spent sitting or lying down without activity while older adults are awake. However, these findings do not imply that a single short exercise session directly reduces mortality risk. A more accurate implication is that exercise can be one component of a regular active lifestyle, accompanied by other light physical activities appropriate for the participants' conditions.



Figure 4. Healthy Exercise Activity in Progress

4. Conclusion

The Leadership Project activity, themed "Empowering Healthy and Productive Seniors through Sustainable Use of the Environment," held at the Widhi Asih Nursing Home in Surakarta, successfully provided a positive experience for seniors through healthy exercise, making flower pots from used water jugs, stringing bracelets, planting TOGA, and preparing herbal remedies. Survey results showed that the average overall score increased from 1.97 before the activities to 3.40 after their implementation. This increase indicates a positive response from the seniors to the activities, particularly regarding productive activities, social interaction, TOGA knowledge, and TOGA utilization. In addition to keeping older adults active and fostering creativity, these activities also build environmental awareness by reusing discarded items. Therefore, the program's sustainability requires support and guidance from nursing home administrators, including care for TOGA plants and adapting activities to older adults' physical conditions and abilities so they can continue to realize these benefits.

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Declaration on AI Use

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