The Application of Origami Therapy in Older Adult with Impaired Cognitive Function: A Case Study

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Abstract

Introduction: Older adults are prone to cognitive decline, which impacts their quality of life. While origami therapy is known to improve concentration and fine motor skills, studies on its effect on cognitive function in older adults remain limited. As a non-pharmacological intervention, origami folding offers cognitive stimulation through enjoyable activities. Objective: To determine the effectiveness of origami therapy in improving cognitive function in an older adult with cognitive impairment. Methods: This study employed a case study design involving a 71-year-old resident of Griya Lansia Garut. The intervention was carried out in six sessions over a period of ten days. Cognitive function was assessed using a standardized cognitive assessment tool on the first and last day of the intervention. Results: The client's score increased from 18 to 22, which remains within the mild cognitive impairment category but indicates improvement. Enhancements were observed in the client's ability to follow instructions, recall folding steps, name objects, and orient to time. Conclusion: These findings suggest that origami folding may help enhance cognitive funtion in older adults, particularly in attention, memory, and orientation. Further research with a larger sample size is recommended to explore the broader effectiveness of this intervention.

Keywords: origami, art therapy, cognitive function, older adult

Introduction

Older adults are individuals aged 60 years and above who hold equal rights within society, the nation, and the state (UU RI No. 12 tahun 1998). This stage of life is marked by the natural aging process, which affects physical, cognitive, and social functions. According to the World Health Organization (WHO), by 2025 the number of older adults in Indonesia is projected to increase by 41.4%, positioning the country among those with the fastest-growing aging populations (Akbar et al., 2021). In 2024, older adults made up approximately 12% of Indonesia's total population, and this figure is expected to rise to 65.83 million people, or 20.31%, by 2045 (Badan Pusat Statistik, 2024). Based on data from the National Socio-Economic Survey (Susenas) in March 2024, 21 provinces have already entered the aging population phase, with the proportion of older adults exceeding 10%. One such province is West Java, where older adults account for 10.18% of the total population (Badan Pusat Statistik, 2024).

The aging process in older adults leads to a decline in various organ functions, including the brain, heart, liver, and kidneys, as well as a reduction in active tissues, particularly muscle mass. This condition makes the body more susceptible to a range of illnesses, thereby increasing the risk of mortality (Wulandari et al., 2023). Along with the rising number of older adults in Indonesia, this phenomenon presents new challenges in public health, particularly concerning degenerative conditions associated with aging—one of the most prominent being cognitive decline.

Cognitive function refers to the brain's ability to process, retain, and solve information by engaging various parts of the nervous system, including the cerebrum, thalamus, limbic system, and brainstem reticular formation. This process is known as the holistic and mind theory (Shokhifah, 2019). A decline in cognitive function among older adults occurs due to reduced efficiency in neural transmission within the brain, which leads to slower processing of new information and difficulty recalling past or current events (Sahathevan, 2015). As a result, many older adults experience deterioration in visual memory, such as frequently forgetting familiar faces, having trouble focusing, and easily shifting their attention (Dewi MPP, 2020).

This condition of decreased cognitive function can progress through three stages: the normal aging phase, mild cognitive impairment, and ultimately dementia, which is one of the major health problems in older adults (Toh et al., 2016). Cognitive impairment in older adults is often marked by forgetfulness, which is the most frequently reported symptom—experienced by 85% of individuals over 80 years old and 38% of those aged 50–59 years. This decline can interfere with their daily social functioning and poses a significant public health challenge, as older adults may require more intensive care. Consequently, this situation places a financial burden on families, communities, and governments, making the management of cognitive function a pressing issue (Pragholapati et al., 2021).

Cognitive function decline in older adults is considered one of the most serious health issues, as it directly affects their quality of life and independence in carrying out daily activities. To prevent and slow this decline, various interventions have been developed through both pharmacological and non-pharmacological approaches. Pharmacological therapies such as cholinesterase inhibitors and memantine are commonly used, but their effectiveness remains limited and they may cause unwanted side effects (Birks & Harvey, 2018). As a result, non-pharmacological therapies are increasingly favored because they are considered safer and offer broader benefits. Several non-pharmacological interventions that have been widely studied include cognitive therapy, which aims to enhance memory and executive function (Silva et al., 2022); reminiscence therapy, which helps improve long-term memory and encourages social engagement (Woods et al., 2018); and art therapy, which uses creative activities such as painting and music to stimulate cognitive and emotional functioning (Camic et al., 2014). In addition, physical and social activities play a key role in supporting neuroplasticity and reducing the risk of social isolation in older adults (Livingstone

et al., 2020). These approaches have shown effectiveness in slowing cognitive decline and improving the overall well-being of this population group.

Among various non-pharmacological therapies, origami folding art therapy has gained increasing attention as a promising cognitive training method for older adults. Origami, a traditional Japanese paper folding art, is not only a creative activity but also engages multiple cognitive domains. This activity requires coordination of fine motor skills, sustained attention, working memory, and planning (Huimin & Li, 2023). A study by Tenbrink & Taylor (2015) emphasized that folding origami is not merely about mechanically following step-by-step instructions. Instead, it involves complex cognitive processes—individuals must reinterpret verbal or visual instructions, adapt them to their own understanding, mentally visualize the expected outcome, and evaluate whether each fold aligns with the intended shape. These steps activate a wide range of cognitive abilities such as attention, language processing, spatial reasoning, decision-making, and problem-solving. Moreover, the process also stimulates long-term memory by requiring individuals to recall and adjust based on previous experiences and learned folding techniques.

In clinical practice, nurses play an important role in identifying cognitive decline in older adults as well as in designing and implementing appropriate therapeutic interventions. As healthcare professionals who frequently interact directly with clients, nurses are well-positioned to integrate origami therapy as a holistic intervention that stimulates cognitive function through engaging and structured activities. Beyond its cognitive benefits, origami therapy also has the potential to enhance psychosocial well-being by promoting social interaction during therapy sessions (Villanova Nursing College, 2019). In addition, nurses are responsible for monitoring clients' responses to the intervention and conducting regular evaluations to assess its effectiveness. Based on the evaluation results, modifications can be made to ensure the therapy remains relevant and beneficial to each client's individual needs (Suangga et al., 2024).

Although origami has long been recognized as an activity that supports the development of fine motor skills and concentration, most existing studies focus on children as the target population. Research that specifically explores the effectiveness of origami therapy for older adults with cognitive decline remains very limited. A study by Huimin & Li (2023) highlighted the potential of origami as a cognitive training tool in general, but did not examine its specific application in older adults experiencing cognitive impairment. In fact, studies that investigate the impact of origami on older adults with mild to severe cognitive decline are still scarce, and those that do exist often use less-than-optimal research designs, limiting the strength of their conclusions. Research conducted by Suangga et al. (2024) showed that origami therapy had a positive effect on the cognitive function of older adults, but the study still employed a quasi-experimental design, which limits the strength of causal conclusions. In addition, other studies such as Ryanis et al. (2023) have highlighted the benefits of origami in reducing anxiety and stress among older adults, yet they did not specifically assess its impact on cognitive function in a comprehensive manner. These limitations underscore the need for further research using more rigorous methodologies and thorough measurements of cognitive function, particularly among older adults experiencing cognitive impairment. Based on these considerations, this study aims to explore the effectiveness of origami therapy in improving cognitive function in older adults.

This study focuses on older adults with mild to severe cognitive impairment, which is characterized by a decline in mental functions such as disorientation in time, place, and identity, as well as reduced ability in tasks like counting and object naming. Based on an assessment conducted in February 2025 at Griya Lansia Garut, out of 85 older adults screened using the Mini Mental State Examination (MMSE), 21.18% were found to have mild cognitive impairment and 28.24% had severe impairment. In response to this condition, the researchers sought to implement origami folding art therapy for older adults at Griya Lansia Garut as a strategy

to help enhance their cognitive function. The aim of this case study is to examine the effect of a non-pharmacological intervention—origami folding art therapy—on improving the cognitive function of older adults with mild to severe cognitive impairment in this setting.

Research Method

This study employs a case report approach, providing an in-depth examination of the health condition of an older adult and the non-pharmacological intervention applied—namely, origami folding art therapy—as an effort to enhance cognitive function. The research was conducted in February 2025, with data collected through client interviews, physical assessments, and a review of secondary data from medical records.

The subject of this study is Mrs. D, a 71-year-old older adult who has been residing at Griya Lansia Garut for approximately three years. The client reported no difficulty in remembering the location of personal items or the names of people around her. However, when asked about the reason for her admission and the name of her younger sibling—who also previously lived at Griya Lansia Garut—she was unable to recall them. The client has a history of Diabetes Mellitus and routinely takes metformin every morning under the supervision of the caregiving staff at the residential facility.

The instrument used in this study was the Mini Mental State Examination (MMSE), which consists of 11 question items and simple tasks designed to assess and classify the cognitive status of older adults. Cognitive function assessments using the MMSE were conducted twice—on the first day and the tenth day—to evaluate any changes in overall cognitive ability. The origami therapy intervention was carried out six times over a 10-day period. The data obtained from the assessments were then analyzed to formulate an appropriate nursing care plan.

The examination results showed that the client was in a compos mentis state, with the following vital signs: blood pressure 108/60 mmHg, respiratory rate 20 breaths per minute, pulse rate 68 beats per minute, body temperature 35.3°C, and oxygen saturation at 97%. A blood glucose test revealed a level of 216 mg/dL. The client weighed 44.5 kg and had a height of 138 cm, resulting in a Body Mass Index (BMI) of 23.4, which falls within the normal range. Based on the KATZ Index, the client was classified in category A (independent). Cognitive function was assessed using the MMSE, in which the client scored 18, indicating mild cognitive impairment. Additionally, the Short Portable Mental Status Questionnaire (SPMSQ) showed a score of 8, which also suggests mild intellectual impairment. During the MMSE, the client was unable to complete approximately half of the tasks, particularly those related to orientation, memory, and attention and calculation.

Case Description

Based on the results of the assessment, a nursing diagnosis of Memory Impairment was established (PPNI, 2017). The interventions provided were guided by the Memory Training protocol outlined by PPNI (2018b). One of the interventions designed by the researchers was origami folding art therapy, aimed at supporting the achievement of the nursing outcome 'memory' (PPNI, 2018a). The implementation involved a non-pharmacological therapeutic approach in the form of origami folding activities, accompanied by monitoring of behavioral changes in the client before and after the intervention.

Intervention Procedure

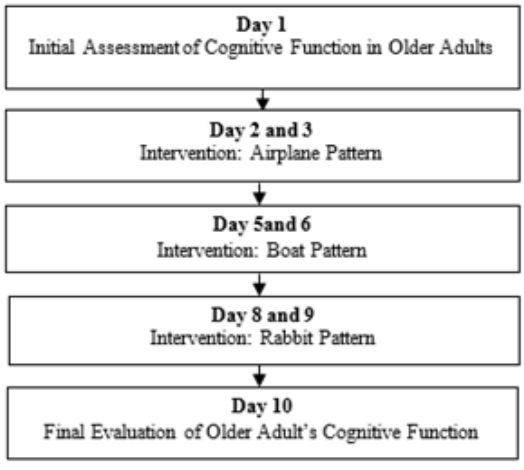


Figure 1. Flowchart of Origami Therapy Intervention Implementation Over 10 Days

The intervention was carried out over a period of ten days, consisting of six origami therapy sessions. An initial cognitive assessment was conducted on the first day using the Mini Mental State Examination (MMSE) instrument. All assessments and intervention sessions were conducted under consistent conditions and timing—specifically in the morning, after the client had completed routine morning activities and breakfast at the care facility—to ensure the client's physical and mental condition was optimal.

The intervention sessions began on the second and third days with the introduction of the first pattern, the airplane, which was conducted over two consecutive days. Each session lasted 30 minutes and began with the researcher demonstrating the origami folding steps three times, followed directly by the client attempting the folds. At the end of each session, a qualitative evaluation was conducted by asking the client to recreate the pattern independently, without guidance, as a way to assess memory and the ability to follow instructions.

The fourth day served as a rest day to allow the client time to recover before continuing with the next pattern. The second pattern, the boat, was introduced on the fifth and sixth days, following the same procedure as before. The seventh day was again designated as a rest day, followed by the implementation of the third pattern, the rabbit, on the eighth and ninth days.

On the tenth day, a final evaluation was conducted using the same MMSE instrument, under conditions consistent with the previous sessions in terms of time and setting. In addition to the origami therapy, the researchers also provided repeated and consistent reality orientation stimulation during each session. This included introducing the day, date, location, and the identities of individuals around the client.

The implementation protocol for origami therapy in this study is a modification of the intervention protocol developed by Huimin & Li (2023), which emphasizes the use of repetitive folding activities to stimulate cognitive function, fine motor skills, and memory through visual repetition and hand-eye coordination.

Data Analysis

Data were analyzed descriptively by comparing the MMSE scores before and after the intervention to identify changes in cognitive function. In addition, qualitative observations of the client's behavior during and after the therapy sessions were recorded to support the interpretation of the results.

Research Ethics

This study received approval from the management of Griya Lansia Garut. The researcher explained the purpose and procedures of the intervention to the client and ensured that participation was entirely voluntary. The client's identity has been anonymized to maintain data confidentiality and privacy.

Trustworthiness

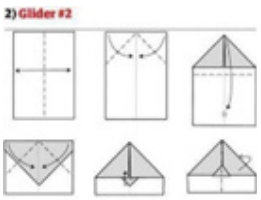
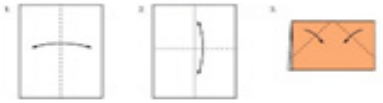
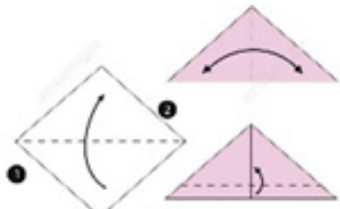
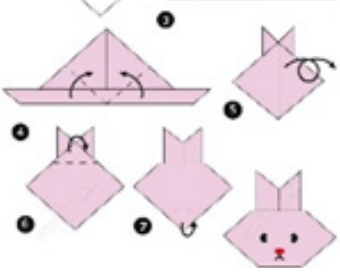
Efforts to ensure data validity were carried out through source triangulation, which included interviews, observations, and a review of medical records. Intervention consistency was also maintained by implementing therapy sessions with uniform timing, duration, and procedures across all sessions.

Results

After formulating a nursing care plan, the researcher implemented a non-pharmacological intervention in the form of origami folding therapy. Over the course of ten days, six intervention sessions were conducted, during which the researcher monitored the client's behavior and responses before and after each session. The client's cognitive status was assessed using the Mini Mental State Examination (MMSE), with an initial score of 18 on the first day of clinical practice, indicating mild cognitive impairment. Following the six sessions, a re-assessment was conducted on the tenth day, showing an improved MMSE score of 22, which suggests enhanced cognitive function. Based on the interpretation of the assessment results, the client was identified

as experiencing disorientation to reality, reduced calculation ability, difficulty recalling the names of three objects, and impaired long-term memory.

Table 1. Daily Progress of Origami Intervention

Session Number	Pattern	Progress
1.	**Airplane pattern** 	**The client was able to follow the steps of making the origami airplane but still exhibited several errors during the folding process. When asked to repeat the procedure independently, the client was able to recall only 3 out of 8 steps correctly. To support independent practice, the client was provided with a printed guide outlining the steps of origami folding.**
2.		**The client was able to recall and perform the first three steps of making an origami airplane. After three practice sessions with the researcher, the client successfully remembered six out of eight steps, although the accuracy and precision of the folds remained imperfect. The client was still unable to answer orientation-related questions, including those regarding place, day, date, and the researcher's name.**
3.	**Boat Pattern** 	**The client was able to follow the first four steps, noting that the folding pattern felt familiar from the previous day. However, the client continued to experience difficulty in replicating the folding process as demonstrated and required assistance during the activity. After three guided practice sessions, the client was able to recall up to the fifth step. Notably, the client began to remember the researcher's name, although they were still unable to accurately state the place, day, or date.**
4.		**At the beginning of the session, the client was able to recall only the first four steps of the origami folding process. Following three guided demonstrations, the client successfully completed up to the sixth step with minimal assistance. The client was able to state the name of the current month but remained unable to identify the specific day, year, or current location.**
5.	**Rabbit Pattern** 	**The client was able to follow the steps of making the origami rabbit well when guided by the researcher. However, when asked to perform the task independently, the client was only able to recall three out of eight steps. The client demonstrated improvement by correctly identifying the current month and year but remained unable to state the day, date, or specific location. While the client remembered the name of the dormitory, she was unable to recognize her exact location within Griya Lansia Garut.**
6.		**At the beginning of the session, the client was only able to recall the first two steps of making the origami rabbit. After receiving guidance and completing three joint practice sessions, the client was able to independently complete up to the fifth step. The client was able to state the correct day, month, and year but was still unable to identify the exact date. Additionally, the client could recall the researcher's name and the name of the dormitory, although she remained unaware of the specific name of her current residence location.**

Based on Table 1, the evaluation results following the implementation of origami folding art therapy using three different patterns across six sessions (each lasting 30 minutes) indicated an improvement in the client's cognitive abilities. The client was able to recall and independently perform 5–6 folding steps, although she was not yet fully capable of completing the entire sequence without assistance

Figure 2. Results of Origami Therapy Intervention by the Client

The results of the client's origami creations during therapy are presented in Figure 2. The client reported that the rabbit pattern was the most enjoyable, describing it as the simplest and easiest to follow compared to the other origami patterns. However, the client experienced difficulty in independently drawing the eyes and nose on the rabbit figure and required assistance from the researcher to complete these details.

Table 2. Results of MMSE Assessment Before and After the Intervention

MMSE Component	Question	Maximum Score	Pre-Intervention Score	Post-Intervention Score
Time Orientation	**Correctly States** **•Year** **•Season** **•Date** **•Day of the week** **•Month**	**5**	**2**	**4**
Place Orientation	**Correctly States** **• Country (Indonesia)** **•Province** **•City** **•PTSW (Social Welfare Service Center)** **•Doritory/Ward**	**5**	**3**	**3**

Registration	**Name three objects (by the examiner), saying each object at a rate of one per second. Then ask the client to repeat all three objects.**	**3**	**3**	**3**
Attention and Calculation	**Ask the client to start from 100 and subtract 7 successively five times •93 •86 •79 •72 •65**	**5**	**2**	**2**
Recall (Delayed Memory)	**Ask the client to repeat the three objects mentioned earlier in item No. 2 (registration). If correct, give 1 point for each object.**	**3**	**1**	**2**
Language	**1. Show the client an object and ask them to name it. 2. Ask the client to repeat the following phrase: "No ifs, ands, or buts." If correct, score one point. 3. Ask the client to follow a three-step command: "Take the paper in your hand, fold it in half, and place it on the floor." 4. Ask the client to close their eyes. 5. Ask the client to write a complete sentence and to copy a drawing.**	**9**	**7**	**8**
Total			**18**	**22**

After six therapy sessions over a period of ten days, the client's cognitive function was reassessed on February 13, 2025. The results indicated an improvement in cognitive abilities, particularly in the area of orientation to reality. The client was able to more accurately state the day, month, and year compared to before the intervention. Additionally, improvements were observed in short-term memory, as demonstrated by the client's ability to recall previously mentioned objects and to follow simple verbal instructions more effectively. Although the client was not yet able to complete the origami folding independently with full accuracy, progress was evident in the ability to remember and sequence the folding steps without continuous guidance. These findings suggest that consistent implementation of origami folding art therapy—conducted six times—had a positive impact on cognitive function, especially in the domains of orientation, attention, and memory.

Discussion

Cognitive Function Improvement through Origami Therapy

Origami folding art therapy is a non-pharmacological intervention implemented gradually over six sessions within a ten-day period for a 71-year-old older adult with mild cognitive impairment at Griya Lansia Garut. The intervention integrates visual and motor activities designed to stimulate cognitive domains such as memory, attention, and concentration. Evaluation on day 10 revealed an increase in the client's Mini Mental State Examination (MMSE) score from 18 to 22, indicating an improvement in cognitive function, although the client remained within the mild cognitive impairment category.

The improvement in cognitive function was primarily observed in the domains of attention, memory, and orientation. These findings are consistent with the study by Tenbrink & Taylor (2015), which demonstrated that origami therapy can enhance attention and memory in older adults through progressive fine motor and cognitive stimulation. However, contrasting evidence exists. A qualitative study conducted in Nigeria, which implemented a 12-week origami activity program, found that while origami significantly reduced stress and anxiety levels, it did not lead to measurable improvements in core cognitive functions such as memory or attention. This variation suggests that the effectiveness of origami therapy may depend on factors such as the specific outcomes being measured, the initial cognitive condition of participants, and the duration and design of the intervention. Therefore, selecting appropriate evaluation tools, such as the MMSE, is crucial for accurately assessing the impact of therapy on targeted cognitive domains.

Following the intervention, the client was able to correctly name three objects and follow all verbal instructions without difficulty. In addition to the MMSE score improvements, enhancements in cognitive function were also evident through qualitative observations during therapy sessions. These observations demonstrated progress in the client's ability to comprehend instructions, recall the sequence of folding steps, recognize the researcher's identity, and improve orientation to time. This improvement aligns with the findings of Harianti et al. (2021), which suggest that activities requiring a high level of concentration can enhance the ability to retain and apply information. Such activities are particularly beneficial for older adults experiencing cognitive decline, as the cognitive stimulation elicited through the processes of thinking, focused attention, and memory during origami folding can contribute to both the improvement and maintenance of cognitive function.

Preference and Complexity in Origami Patterns

The evaluation of the three origami patterns—airplane, boat, and rabbit—revealed that the rabbit pattern was the easiest for the client to perform. The client reported that the rabbit design involved fewer folds and was easier to remember in terms of shape, although assistance was still needed for drawing finer details such as the eyes and nose. This finding is supported by a community engagement study conducted by Sakariah et al. (2018) in Sekarjalak Village, which found that origami patterns with lower levels of complexity and familiar shapes were more manageable for older adults to follow and recall, thereby enhancing their enthusiasm and motivation during therapy sessions. Furthermore, an article Suangga et al. (2024) confirms that the success of origami therapy is strongly influenced by the compatibility between the pattern and participants' abilities and preferences. Simple designs are shown to be more effective in improving fine motor skills and stimulating cognitive function. Therefore, the client's personal preference for the rabbit shape also contributed positively to the sustainability and overall effectiveness of the origami therapy intervention.

Fine Motor Skill and Coordination Enhancement

Research by Izquierdo (2020) suggests that origami can enhance both cognitive function and fine motor skills in older adults. By engaging in folding exercises of varying

complexity, this activity stimulates brain activity, particularly in the domains of memory and coordination. In the context of the present study, the client demonstrated similar progress. The client gradually began to recall the sequence of origami steps without assistance and became more independent in completing the folds. This improvement became more noticeable during the second session of each pattern, where the client was able to complete five to six folding stages independently. This finding aligns with the study by Huimin & Li (2023), which highlights that the combination of hand movements and visual stimuli in origami activities can reinforce memory and accelerate cognitive processing. Although the client's orientation to time and place had not yet fully improved, the ability to consistently recall folding sequences indicates that origami can serve as an effective mild cognitive exercise.

In addition to enhancing memory, origami activities have also been shown to improve motor coordination and self-confidence in older adults. Origami requires the simultaneous use of visual and motor skills, strengthens finger muscles, and enhances spatial awareness and shape recognition (Samarth Community, 2020). During the therapy sessions, the researcher observed improvements in the client's hand coordination while folding paper, although minor errors were still present. The client also appeared more enthusiastic and confident when asked to repeat the origami steps without assistance. This observation is consistent with the improvement in MMSE scores, which reflect enhanced cognitive function, particularly in the domains of attention and memory.

The physiological mechanism underlying the benefits of origami can be explained through multisensory stimulation, which integrates fine motor coordination and cognitive engagement to increase alpha wave activity in the brain (Kim, 2017). Alpha waves are associated with relaxation, focused attention, and more efficient information processing, all of which contribute to improved cognitive performance as measured by tools such as the MMSE. Furthermore, studies have shown that fine motor training can enhance neuroplasticity and neural connectivity, particularly in the prefrontal and parietal cortex—brain regions crucial for executive function and memory (Liu & Shi, 2023). Therefore, origami therapy provides not only cognitive benefits but also supports motor and emotional well-being in older adults. In addition to increasing concentration and self-confidence, the activity offers an enjoyable experience and evokes a sense of achievement upon successfully completing a folded figure.

Social Interaction and Psychological Well-being

In addition to cognitive and motor benefits, this intervention also had a positive impact on social aspects. The client demonstrated enthusiasm during therapy sessions, and the activity drew the interest of other elderly residents at Griya Lansia Garut, who occasionally joined in. Origami as a group activity fosters social interaction among older adults and helps create a supportive and positive atmosphere. This aligns with Izquierdo's (2020) assertion that origami can serve as a medium for interpersonal engagement, strengthening emotional bonds and indirectly enhancing psychological and cognitive well-being. Moreover, literature suggests that group-based art activities such as origami are associated with reduced risks of social isolation and depression in older adults, and contribute significantly to improved psychological well-being (Creech et al., 2013).

Limitations and Implications

This study has several limitations, the most notable being its single-subject design and the limited number of origami therapy sessions—only six sessions conducted over a ten-day professional practice period. As a result, the findings cannot be generalized to the broader older adult population. Therefore, further research involving a larger sample size and a longer intervention duration is needed to more accurately assess the long-term effects and consistency of cognitive improvements achieved through origami folding art therapy. Based on these findings, origami folding art therapy is recommended as an alternative

non-pharmacological intervention in gerontological nursing practice. This therapy offers a low-cost, accessible, and enjoyable daily activity that can be incorporated into routine care for older adults. In addition to being engaging and easy to implement, origami has the potential to support the maintenance and improvement of cognitive functions in older adults, making it a valuable complementary approach in elderly care.

KESIMPULAN

Based on the results of a case report conducted on an older adult with cognitive impairment at Griya Lansia Garut, non-pharmacological intervention through origami folding art therapy demonstrated a notable improvement in cognitive function. This improvement was evidenced b y an increase in the Mini Mental State Examination (MMSE) score, as well as enhanced ability to recall origami folding steps, recognize the identity of the researcher, and exhibit better orientation to reality. MMSE assessments conducted twice during the ten-day professional practice period further reinforced that the cognitive improvements extended beyond orientation, including the ability to follow simple commands and recall three objects—both of which are indicators of enhanced attention and memory.

References

Akbar, F., Darmiati, Arfan, F., & Putri, A. A. Z. (2021). Pelatihan dan Pendampingan Kader Posyandu Lansia di Kecamatan Wonomulyo. Jurnal Abdidas, 2(2), 392–397.

Birks, J. S., & Harvey, R. J. (2018). Donepezil for dementia due to Alzheimer's disease. Cochrane *Database of Systematic Reviews*, 2018(6). https://doi.org/10.1002/14651858.CD001190.pub3

Camic, P. M., Tischler, V., & Pearman, C. H. (2014). Viewing and making art together: a multi-session art-gallery-based intervention for people with dementia and their carers. *Aging & Mental Health*, 18(2), 161–168. https://doi.org/10.1080/13607863.2013.818101

Samarth Community. (2020). *How is origami beneficial for seniors?* https://samarth.community/inspiration/how-origami-beneficial-for-seniors/

Creech, A., Hallam, S., Varvarigou, M., McQueen, H., & Gaunt, H. (2013). Active music making: a route to enhanced subjective well-being among older people. *Perspectives in Public Health*, 133(1), 36–43. https://doi.org/10.1177/1757913912466950

Dewi MPP, M. P. P. (2020). Art Therapy on the Cognitive Function of Elderly with Dementia. *Jurnal Ners Dan Kebidanan Indonesia*, 7(2), 60. https://doi.org/10.21927/jnki.2019.7(2).60-67

Harianti, W. S., Syani, N. K., Purnawan, S. D. P., Syafitri, N., Eksiareh, C. H. P., Maulana, M. H., Megahputri, A. W., & Qudsyi, H. (2021). The Effect of Color Perception on Short-Term Memory. *JPPP - Jurnal Penelitian Dan Pengukuran Psikologi*, 10(2), 75–84. https://doi.org/10.21009/JPPP.102.02

Huimin, Y., & Li, L. (2023). Study On The Creative Origami Training on Mild Cognitive Impairment in Elderly Individuals. Chinise Clinical Nursing, 15(11), 675–678. https://doi.org/10.3969/j.issn.1674-3768.2023.11.004

Izquierdo, D. (2020). Origami – A help to Alzheimer's patients. *Origami Spirit*. https://www.origamispirit.com/2020/11/origami-a-help-to-alzheimers-patients/

Kim, D. (2017). The effects of a combined physical activity, recreation, and art and craft program on ADL, cognition, and depression in the elderly. *Journal of Physical Therapy Science*, 29(4), 744–747. https://doi.org/10.1589/jpts.29.744

Liu, J., & Shi, H. (2023). Finger exercise effects on cognitive functions in older adults with MCI/AD/dementia: A systematic review and meta-analysis of randomized controlled trials. *Brain Behavior and Immunity Integrative*, 4, 100034. https://doi.org/10.1016/j.bbii.2023.100034

Livingstone, G., Huntley, J., Sommerlad, A., Ames, D., Ballard, C., Banerjee, S., Brayne, C., Burns, A., & Cohen-Mansfield, J. (2020).

Dementia Prevention, Intervention, and Care: 2020 Report of The Lancet Commission. *The Lancet Commissions*, 396(10248), 413–446. https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30367-6/fulltext

Villanova University M. Louise Fitzpatrick College of Nursing. (2019). *Origami: More than Folding Paper*. https://www1.villanova.edu/villanova/nursing/newsevents/archives/Origami.html

PPNI, T. P. S. D. (2017). *Standar Diagnosis Keperawatan Indonesia (SDKI)* (Edisi 1 (C). Persatuan Perawat Nasional Indonesia (PPNI).

PPNI, T. P. S. D. (2018a). *Standar Intervensi Keperawatan Indonesia (SIKI).* Persatuan Perawat Nasional Indonesia (PPNI) (Edisi 1 (C).

PPNI, T. P. S. D. (2018). *Standar Luaran Keperawatan Indonesia Definisi dan Indikator Diagnostik*. Dewan Pengurus PPNI.

PR Indonesia. (1998). *Undang-Undang Republik Indonesia Nomor 13 Tahun 1998 Tentang Kesejahteraan Lanjut Usia.* Badan Pembinaan Hukum Nasional. https://bphn.go.id/data/documents/98uu013.pdf

Pragholapati, A., Ardiana, F., & Nurlianawati, L. (2021). Gambaran Fungsi Kognitif Pada Lanjut Usia (Lansia). *Jurnal Mutiara Ners,* 4(1), 14–23. https://doi.org/10.51544/jmn.v4i1.1269

Ryanis, G. M., Wulandari, I. S., & Susilaningsih, E. Z. (2023). *Pengaruh Terapi Seni Origami Terhadap Tingkat Kecemasan pada Lansia di Panti Wreda Dharma Bhakti Surakarta*. Universitas Kusuma Husada Surakarta.

Sahathevan, R. (2015). D*ementia: An Overview of Risk Factors.* Kuala Lumpur Universiti Kebanggaan Malaysia Medical Centre (UKMMC).

Sakariah, D. S., Jamari, Nugroho, A., & Agustin, I. (2018). Pemanfaatan Seni Kertas Lipat sebagai Bentuk Antisipasi Demensia pada Masyarakat Lanjut Usia di Desa Sekarjalak. *Jurnal "HARMONI*," 2.

Shokhifah, H. (2019). *Pengaruh Memory Games (Terapi Permainan Mencocokan Gambar) Terhadap Fungsi Kognitif Pada Lansia di UPTD Griya Werdha Jambangan Surabaya.* Sekolah Tinggi Ilmu Kesehatan Hang Tuah Surabaya.

Silva, T. B. L. da, Bratkauskas, J. S., Barbosa, M. E. de C., Silva, G. A. da, Zumkeller, M. G., Moraes, L. C. de, Lessa, P. P., Cardoso, N. P., Ordonez, T. N., & Brucki, S. M. D. (2022). Long-term studies in cognitive training for older adults: a systematic review. *Dementia & Neuropsychologia*, 16(2), 135–152. https://doi.org/10.1590/1980-5764-dn-2021-0064

Statistik, B. P. (2024). *Statistik Penduduk Lanjut Usia* 2024.

Suangga, F., Handayani, W., Agustina, P., Lisandari, Y., & Kurniawan, R. (2024). Kegiatan Keterampilan Melipat Kertas (Origami) Pada Lansia Di Rumah Bahagia Bintan. *Prima Portal Riset Dan Inovasi Pengabdian Masyarakat*, 3(2), 73–77. https://doi.org/10.55047/prima.v3i2.1090

Tenbrink, T., & Taylor, H. A. (2015). Conceptual Transformation and Cognitive Processes in Origami Paper Folding. *Journal of Problem Solving,* 8.

Toh, H. M., Ghazali, S. E., & Subramaniam, P. (2016). The Acceptability and Usefulness of Cognitive Stimulation Therapy for Older Adults with Dementia: A Narrative Review. *International Journal of Alzheimer's Disease*, 2016, 1–11. https://doi.org/10.1155/2016/5131570

Woods, B., O'Philbin, L., Farrell, E. M., Spector, A. E., & Orrell, M. (2018). Reminiscence therapy for dementia. Cochrane *Database of Systematic Reviews,* 2018(3). https://doi.org/10.1002/14651858.CD001120.pub3

Wulandari, S. R., Winarsih, W., & Istichomah. (2023). *Peningkatan Derajat Kesehatan Lansia Melalui Penyuluhan dan*

Pemeriksaan Kesehatan Lansia di Dusun Mrisi Yogyakarta. Pengabdian Masyarakat Cendekia, 2.