

# Evaluation of coloring therapy as an anxiety reduction strategy in the older adults in the community area

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**Abstract.** The phenomenon of an increasing older adult population requires attention to various health problems, especially mental health issues such as anxiety, which is often overlooked. Anxiety in older adults can significantly impact their quality of life. One promising approach to managing anxiety is art therapy. This study aims to evaluate the effectiveness of art therapy in reducing anxiety in older adults within the community. This research used a pre-experimental design with a one-group pre-post-test model. The sample consisted of 35 participants aged 60 years and older who met the inclusion criteria, namely the ability to use their upper extremities for activities and no physical or mental disorders that would prevent participation in art therapy. Participants were selected through accidental sampling. Participants' anxiety was measured using the Geriatric Anxiety Scale (GAS), which consists of 25 items, before and after four weeks of intervention. The art therapy intervention was conducted in two sessions per week for four weeks, totaling eight sessions. Each session involved expressive arts activities designed to help participants express themselves and alleviate anxiety. The results of the descriptive analysis showed that 25.7% of participants experienced mild anxiety, 65.7% moderate anxiety, and 8.6% severe anxiety before the intervention. After therapy, analysis using the Wilcoxon test showed a significant reduction in anxiety ( $p=0.000$ ). This research demonstrates that art therapy is effective in reducing anxiety in older adults. Therefore, art therapy can be integrated as a non-pharmacological intervention that is beneficial in improving the quality of life of older adults and can be applied by health professionals and community workers.

## 1 Introduction

As the older adult population increases worldwide, the importance of paying attention to the mental health challenges they face has become increasingly urgent. One of the mental health issues that often occurs in the older adult is anxiety related to the emergence of various degenerative diseases, decline in physical condition and even the loss of loved ones [1]. Death

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anxiety is also a common worry among older adults that can have a significant impact on their psychological health and the quality of care they receive. Uncertainty about the future can exacerbate these feelings of anxiety, disrupt mental well-being and interactions with health care providers, and reduce motivation to undertake important self-care [2].

Anxiety can be defined as a psychological disorder characterized by prolonged feelings of fear, worry and sadness. This disorder often involves emotional instability and deep feelings of hopelessness, resulting in discomfort for older adults and impairing their ability to concentrate [3]. Older adults who experience anxiety tend to lose self-confidence and feel weak, which impacts their ability to function optimally in daily life [4]. This inability can make older people avoid social activities and reduce interactions with people around them, thereby exacerbating feelings of loneliness and isolation. The long-term impact of this situation not only affects mental health, but also has the potential to reduce the function of the body's immune system [5]. This decrease in immunity can increase the vulnerability of older adults to various health problems, both mental and physical, such as delirium, cardiovascular disease, osteoporosis, hypertension and diabetes mellitus [6]. The high prevalence of anxiety has been shown to significantly impact various aspects of human life, with individuals experiencing anxiety disorders often facing complex challenges in maintaining healthy interpersonal relationships, alongside a high risk of reduced self-esteem and social isolation [7]. One of the main mechanisms involved in the body's response to stress is the release of stress hormones, such as cortisol and adrenaline. When stress lasts for a long time, increased cortisol levels can damage brain structures, such as the hippocampus, which plays an important role in memory and emotional control, as well as enhancing the immune system, thereby increasing its vulnerability to infections and chronic diseases. This has an impact on reducing the quality of life of the older adults, which ultimately results in feelings of anxiety and physical discomfort, so that over time, reducing the motivation of the older adult to maintain a healthy lifestyle [3].

Data from the World Health Organization (WHO) show that around 14% of older adults aged 60 years and over experience mental disorders [8]. The prevalence of anxiety in older adults varies across different studies. Community samples show that 15% of seniors experience anxiety, while clinical studies report higher figures, as high as 28%. This prevalence varies between 15% and 52.3% in broader anxiety contexts and between 15% and 56% in population samples [9]. A study in the Bangetayu Community Health Center working area in Semarang found that almost half of older adults diagnosed with hypertension had moderate levels of anxiety (47.3%), with 23.8% experiencing severe anxiety and 16.3% classified as having panic-level anxiety [10]. Another study found that 32.7% of older adults experienced mild anxiety, while 67.3% experienced moderate anxiety [11]. In addition, anxiety was detected in 72.8% of seniors aged 50 to 74 years, with 64.1% categorized as having mild anxiety. This anxiety is often caused by the loss of activities, social roles, and connections with family, which contribute to feelings of uncertainty and isolation [12].

Art therapy is an innovative therapeutic approach that has the potential to overcome anxiety in the older adult. Art therapy has also been proven to improve the cognitive function of the older adult if done consistently over a long time [13]. This activity gives a person the opportunity to be creative, diverts attention from negative thoughts, improves stress coping management and strengthens self-confidence [14]. Art therapy helps older adult overcome feelings of loneliness and isolation that are often felt [15]. Previous research shows that providing art therapy for 6 weeks can reduce the level of anxiety that occurs in the older adult [16]. Art therapy also helps older adults reduce stress levels and express their feelings, so they don't feel tense about the problems they are facing [17]. Although art therapy has been shown to be effective for seniors, its success is influenced by a number of individual factors, including physical, mental, and social conditions. Seniors with mild to moderate cognitive impairment tend to respond better to art therapy than those with severe dementia, who may

have difficulty participating. Additionally, the success of art therapy depends greatly on the open attitude and motivation of older adults to engage. Those who view art as a fun and stress-free activity tend to gain greater benefits [18].

In this context, it is essential that healthcare professionals and community organizations consider the integration and implementation of art therapy programs as a targeted intervention for supporting older adults in managing anxiety. This approach holds significant promise for enhancing the quality of life of older adults and fostering sustained mental health improvements. The primary aim of this study is to rigorously evaluate the effectiveness of art therapy in reducing anxiety levels among older adults in the community, thereby providing empirical evidence that can support the adoption of similar programs in future health interventions.

## **2 Methods**

This research involved 35 older adults selected from the older adult population in the Posyandu Mugi Sehat Ledug area. The inclusion criteria included individuals aged 60 years or older, who could communicate well, showed symptoms of anxiety, and were able to use their upper extremities to carry out activities. The sampling technique used was accidental sampling. This research employed quantitative methods with a pre-experimental design, specifically a one-group pre-post test model. Data collection was carried out through interviews using an older adult identity questionnaire and the Geriatric Anxiety Scale (GAS) questionnaire. The GAS questionnaire consists of 25 items covering three subvariables: somatic symptoms, cognitive symptoms, and affective symptoms. The validity results for each statement item showed a valid value ( $> t$ -table 0.413), while the overall reliability value of the questionnaire was  $r$ -alpha 0.923, indicating that the questionnaire is very reliable.

The study was conducted over a period of 4 weeks, with two structured sessions each week, resulting in a total of 8 sessions. Each session began with the older adults completing the Geriatric Anxiety Scale (GAS) questionnaire, administered before the coloring therapy intervention (pre-test) and repeated after the final intervention in the fourth week (post-test). Following the completion of the questionnaire, the participants were instructed to engage in coloring activities using image patterns that had been prepared by the researcher. They were given 60 minutes to participate in creative activities involving color, allowing them the autonomy to select and combine colors based on their individual preferences.

This research received approval from the Ethics Committee of the Faculty of Health, Harapan Bangsa University, under approval number B. LPPM-UHB/888/09/2024. Data analysis was performed using univariate tests and the Wilcoxon test, with a significance threshold of  $p < 0.005$ , and was analyzed using computer software.

## **3 Results and Discussion**

### **3.1 Results**

The findings from the univariate data analysis presented in Table 1 indicate that the majority of respondents in this study were older adults aged 60 to 74 years (77.1%), predominantly female (85.7%), and residing with family members (65.7%).

**Table 1.** Characteristic of Respondents Table (n=35)

The Characteristic	f	%
<b>Age (Years)</b>		
Seniors (60-74)	27	77,1
Older Adults (75-90)	8	22,9
<b>Gender</b>		
Male	5	14,3
Female	30	85,7
<b>Live Together With</b>		
With your partner	9	25,7
With family members	23	65,7
Alone	3	8,6

**Table 2.** Description of Anxiety Levels in Older Adults (n = 35)

Anxiety Level	Pre-Intervention		Post Intervention	
	f	%	f	%
Mild anxiety	9	25,7	20	57,1
Moderate anxiety	23	65,7	14	40
Severe anxiety	3	8,6	1	2,9

Based on the data presented in Table 2, it can be concluded that before the art therapy intervention, the majority of older adults experienced moderate anxiety (65.7%), followed by mild anxiety (25.7%) and severe anxiety (8.6%). After the implementation of art therapy, a significant change occurred: the proportion of older adults with mild anxiety increased to 57.1%, while moderate anxiety decreased to 40%, and severe anxiety dropped to 2.9%. These results indicate that art therapy has a positive impact on reducing anxiety levels among older adults.

**Table 3.** Wilcoxon Rank Test Results fo Coloring Therapy

Anxiety Older Adult	Average	Z-Score	P-value
Pre-Intervention	22,4	-20.19	0,000
Post Intervention	12,1		

Table 3 presents the results of the Wilcoxon test calculation with a Z-Score value of -20.19, which shows a very significant difference between the pretest and post-test scores on anxiety levels. The p-value obtained was 0.000 ( $p < 0.005$ ), which supports the acceptance of the hypothesis that art therapy has a significant effect on reducing anxiety levels in the older adult in the community. The average anxiety score before the intervention was recorded at 22.4, while after the intervention, the average score decreased to 12.1. This difference of 10.3 indicates a significant reduction in anxiety levels after applying art therapy.

The results of this study indicate that art therapy is effective in reducing anxiety levels in the older adult in the community. The significant reduction in anxiety scores after the intervention emphasizes the importance of art therapy as a non-pharmacological approach in mental health management in the older adult’s population. In this study, art therapy can be effectively integrated as part of mental health interventions in the older adult, providing significant benefits to their emotional, social and cognitive aspects. Creative activities, such as painting or colouring, provide opportunities for older adults to express feelings that are difficult to express verbally, which can reduce anxiety and stimulate relaxation. In addition, implementing art therapy in groups can reduce feelings of loneliness and increase social interaction between the older adult. This activity can also stimulate cognitive function, helping to slow down the decline in cognitive abilities that often occurs in the older adult. By

combining art therapy with other approaches, such as cognitive behavioral therapy, this method provides a more comprehensive approach to improving the quality of life for seniors and reducing anxiety symptoms.

### **3.2 Discussion**

The results of univariate data analysis related to the characteristics of the older adult, as shown in Table 1, provide in-depth insight into the respondent population in this study. The majority of respondents were in the age group 60 to 74 years (77.1%). This age group is very vulnerable to various health problems, both physical and mental. Research shows that the risk of anxiety and depression tends to increase with age [18]. The aging process is often accompanied by changes that impact mental health, where factors such as social isolation and loss of social roles can be key triggers for the onset of anxiety and depression among the older adults [19]. Around 30% of older adults experience symptoms of anxiety, while the prevalence of depression is recorded at 25%. These findings indicate that these mental health disorders are becoming increasingly widespread among the older population [20].

The type of anxiety experienced by older adults is often related to concerns about physical well-being, death, and the loss of meaningful social relationships. Older adults tend to experience anxiety regarding the potential for developing disease or disability that could reduce their quality of life [21]. Apart from that, anxiety in this age group is also influenced by external factors, such as feelings of loneliness, lack of social support, and major changes in life, including retirement, loss of a partner, or moving [6]. Hormonal changes that occur with increasing age also play an important role in increasing anxiety in the elderly. Decreased estrogen levels in postmenopausal women, for example, have been shown to increase the risk of anxiety disorders. These fluctuations in estrogen levels influence the modulation of neurotransmitters in the brain, including serotonin and dopamine, which play a role in regulating mood and stress responses. When estrogen levels decrease, an imbalance in these neurotransmitters can trigger increased anxiety and other mood disorders [3]. Similarly, decreased testosterone levels in elderly men are associated with increased prevalence of anxiety, depression, and overall decreased quality of life. Testosterone plays a role in mood regulation and stress response, and a decrease in this hormone in aging men can exacerbate significant psychological symptoms [9].

Apart from hormonal factors, poor sleep quality also affects the mental health of the older adult. Research shows that individuals over 65 years of age often experience sleep disorders, such as insomnia, which have a direct impact on their psychological condition. Sleep disturbances can increase the secretion of cortisol, a major stress hormone, which in turn worsens anxiety symptoms [18]. Another factor that plays a role is the presence of chronic diseases, such as hypertension, diabetes mellitus and heart disease, which are often reported to be associated with increased levels of anxiety in the older adult. Concerns regarding long-term health and uncertainty regarding the prognosis of these diseases further exacerbate anxiety symptoms in older adult [4].

The gender demographics of the respondents are also noteworthy, with 85.7% of them being female. This aligns with previous research showing that women have a higher life expectancy than men, and as a result, more women are in the older age group [21]. The mental health of older women is frequently influenced by factors such as the loss of a partner, caregiving responsibilities, and an increased risk of poor mental health outcomes [22]. Elderly women tend to experience anxiety twice as high as men. This is due to differences in how to respond to anxiety and stress. Men often respond to anxiety in more active and exploratory ways, such as participating in social or physical activities, which can reduce feelings of anxiety. Meanwhile, women are more likely to harbor feelings, isolate themselves or ruminate, and develop maladaptive coping and increase anxiety [23]. In addition, social

norms that pressure women not to express their anxiety also exacerbate this condition [18]. This highlights the need for interventions that specifically address the unique challenges faced by older women in managing anxiety.

Based on the data presented in Table 2, it can be concluded that before the coloring therapy intervention, the majority of older adults experienced anxiety in the moderate category (65.7%), followed by mild anxiety (25.7%) and severe anxiety (8.6%). After implementing art therapy, there was a significant change: the proportion of older adults with mild anxiety increased to 57.1%, while moderate anxiety decreased to 40%, and severe anxiety dropped to 2.9%. These results indicate that art therapy contributes positively to reducing anxiety levels among older adults. The results of this research show that art therapy can improve the psychological well-being of the elderly by reducing anxiety, increasing relaxation, and improving their mood. In addition, art therapy also helps seniors express feelings that are difficult to put into words, which contributes to improved mental health. These creative activities also play a role in reducing social isolation, especially when carried out in groups, which in turn strengthens social relationships and supports the emotional well-being of older adults.

Following the administration of coloring therapy, a significant change was observed in the anxiety levels of the older adults. The proportion of participants with mild anxiety rose to 57.1%, while those experiencing moderate anxiety decreased to 40%, and severe anxiety declined to 2.9%. This is in line with research showing that art therapy can serve as an effective intervention in reducing anxiety symptoms and improving mental well-being in older adults [23]. Participation in art therapy can reduce anxiety symptoms by up to 50% in the older adult population. They found that creative activities provide opportunities for individuals to explore their emotions, thereby reducing feelings of depression and anxiety [24]. Participation in arts activities has been demonstrated to enhance emotional well-being and alleviate anxiety symptoms in older adults [25].

Art therapy can boost the levels of positive hormones, such as endorphins and serotonin, which are known to improve mood and promote feelings of well-being, thereby helping to reduce anxiety. In this regard, art therapy not only provides immediate stress relief but also offers long-term positive effects on the mental health of older adults [30]. Art activities that involve social interaction can also increase the production of oxytocin, a hormone that contributes to feelings of mutual trust and attachment. This increase in oxytocin levels can reduce anxiety and increase feelings of safety in social environments, which is especially important for older adults who often experience isolation [31]. This activity can increase blood flow to certain areas of the brain that play a role in fine motor coordination and concentration. This increase in blood flow is associated with increased production of neurotransmitters involved in mood regulation, such as serotonin and dopamine. These two neurotransmitters play an important role in maintaining emotional balance, which in turn can reduce symptoms of anxiety and mood disorders in the elderly [32]. In addition, coloring therapy provides an opportunity for seniors to practice concentration, which has a positive effect on improving sleep quality. Because anxiety and sleep disorders are often interrelated, coloring therapy may help reduce insomnia and other sleep disorders that are common in the elderly [28]. Apart from psychological benefits, coloring therapy also has a positive impact on the physical well-being of the elderly. These activities can increase focus and calm, which contributes to lower levels of stress hormones, such as cortisol, which is associated with anxiety. This reduction in cortisol levels reduces the negative impact of chronic stress, which often affects the overall health of older adults [33].

This study has several limitations that need to be noted. First, the limited sample size (35 respondents) may affect the ability to generalize the results to a wider population. Additionally, the absence of a control group in this study design limits the ability to compare the effectiveness of art therapy to a no-intervention condition. The duration of the study,

which only lasted 4 weeks with 8 structured meetings, also measured observations of the long-term impact of therapy. Variations in the respondent's physical and mental condition, such as cognitive impairment, can influence the response to art therapy. Finally, measurements that only focus on anxiety do not fully cover all aspects of older adults' mental health, so the results may not reflect the full impact of therapy.

## 4 Conclusion

Art therapy has been shown to significantly reduce anxiety levels in older adults and improve mental well-being by strengthening social support and fostering positive interactions. Based on these findings, it is recommended that art therapy be integrated into mental health care for older adults to enhance their quality of life and overall well-being. Further research is needed to explore the mechanisms behind these effects and evaluate the long-term benefits of art therapy.

## References

1. Ausrianti, R. Andayani, Gambaran tingkat ansietas lansia yang mengalami penyakit degeneratif di Puskesmas Nanggalo Padang. *J. Kesehatan Tambusai* **4**, 900–906 (2023)
2. K. A. Jannah, E. Widiani, D. Widodo, Respon kecemasan pada lansia yang diberikan terapi relaksasi nafas dalam. *J. Keperawatan Widya Gantari* **8**, 31–44 (2024). <https://doi.org/10.52020/jkwgi.v8i1.7503>
3. R. P. Suwal, B. Upadhyay, H. N. Chalise, Factors associated with anxiety and depression among elderly living in old age homes. *KMC J.* **6**, 280–299 (2024). <https://doi.org/10.3126/kmcj.v6i1.62348>
4. L. Lu, H. Shen, L. Tan et al., Prevalence and factors associated with anxiety and depression among community-dwelling older adults in Hunan, China: a cross-sectional study. *BMC Psychiatry* **23**, 107 (2023). <https://doi.org/10.1186/s12888-023-04583-5>
5. Savitri, H. Trustisari, Dampak kecemasan terhadap kemandirian lansia: deskriptif literature review. *J. Multidisiplin Ilmu Akademik* **1**, 734–743 (2024)
6. G. Sharma, S. K. Morishetty, Common mental and physical health issues with elderly: a narrative review. *ASEAN J. Psychiatry* **23**, 1–11 (2022)
7. R. Raziansyah, M. Sayuti, Penerapan relaksasi otot progresif pada pasien hipertensi yang mengalami kecemasan Di Puskesmas Martapura 2. *J. Ilmu Kesehatan Insan Sehat* **10**, 93–99 (2022). <https://doi.org/10.54004/jikis.v10i2.96>
8. World Health Organization, Mental health of older adults. WHO Fact Sheet (2023)
9. Andreescu, S. Lee, Anxiety disorders in the elderly. *Adv. Exp. Med. Biol.* **1191**, 561–576 (2020). [https://doi.org/10.1007/978-981-32-9705-0\\_28](https://doi.org/10.1007/978-981-32-9705-0_28)
10. A. U. Kulsum, P. Priyo, N. Purborini, Aplikasi terapi spiritual emosional freedom technique (SEFT) pada lansia dengan hipertensi di keluarga. *Indonesian J. Health Res.* **5**, 63–79 (2022)
11. P. Asda, J. Wawo, kemandirian lansia dengan kecemasan dalam pemenuhan aktivitas sehari-hari. *J. Cendekia Utama* **13**, 44–53 (2024)
12. M. M. Lestar, I. N. Wirakhmi, N. Y. Triana, Gambaran tingkat kecemasan pada lansia. *J. Keperawatan dan Kesehatan* **14**, 95–100 (2023)

13. N. R. T. P. Ida Ayu, R. D. Setyaningsih, W. Sukmaningtyas, Pemberian terapi warna mandala dan peningkatan fungsi kognitif pada lansia dengan demensia. *Med. Kesehatan Poltekkes Makassar* **14**, 127–134 (2019). <https://doi.org/10.32382/medkes.v14i2.891>
14. I. Herawati, K. K. Wardani, Art Therapy to improve the well being of the elderly at Embun Kehidupan Bangsa Nation. *Int. J. Educ. Psychol. Couns.* **9**, 32–39 (2024)
15. R. Roswiyani, C. H. Hiew, C. L. M. Witteman et al., Art activities and qigong exercise for the well-being of older adults in nursing homes in Indonesia: a randomized controlled trial. *Aging & Mental Health* **24**, 1569–1578 (2019). <https://doi.org/10.1080/13607863.2019.1617239>
16. E. Riyanti, P. Pudjiati, E. Hidayat et al., Terapi Seni (Mewarnai dan Menggambar) membantu lansia mengatasi kecemasan. *JKEP* **8**, 252–260 (2023). <https://doi.org/10.32668/jkep.v8i2.1349>
17. N. R. Ruriyanty, M. Basit, A. Andi et al., Terapi aktivitas kelompok terapan “terapi seni mewarnai pada lansia”. *J. Suaka Insan Mengabdi* **5**, 18–24 (2023). <https://doi.org/10.51143/jsim.v5i2.525>
18. S. Y. Kim, H. J. Lee, S. H. Kim, Motivational factors influencing the effectiveness of art therapy in older adults. *Aging & Mental Health* **25**, 896–905 (2021)
19. S. A. Kirkland, L. E. Griffith, U. E. Oz et al., Increased prevalence of loneliness and associated risk factors during the COVID-19 pandemic: findings from the Canadian Longitudinal Study on Aging (CLSA). *BMC Public Health* **23**, 872 (2023). <https://doi.org/10.1186/s12889-023-15807-4>
20. Y. Zhou, X. Wang, Age-Related Changes in Mental Health: Implications for the Elderly. *Int. J. Geriatr. Psychiatry* **38**, 569–577 (2023)
21. R. N. Jones, J. Fogel, Mental Health Trends in Aging: Understanding Anxiety and Depression in Older Populations. *Am. J. Geriatr. Psychiatry* **31**, 545–558 (2023)
22. World Health Organization, Ageing and Health. WHO Fact Sheet (2022). Retrieved from WHO website.
23. A. C. Gonzalez et al., Gender differences in mental health among older adults: the role of caregiving and social support. *J. Gerontol. Psychol. Sci.* **78**, 234–245 (2023)
24. L. M. Sullivan et al., Family dynamics and mental health in older adults: implications for intervention. *Gerontol. Soc. Work* **66**, 45–60 (2023)
25. K. L. Chou, I. Chi, Social support and mental health among older adults in Hong Kong: A structural equation modeling approach. *Int. J. Geriatr. Psychiatry* **38**, 512–520 (2023)
26. R. L. Utz et al., Social support and mental health among older adults: A longitudinal study. *Gerontologist* **62**, 942–952 (2022)
27. R. Smith et al., Anxiety and its relationship with aging: A focus on elderly populations. *Aging & Mental Health* **27**, 145–152 (2023)
28. A. Johnson, M. Lee, The impact of art therapy on anxiety and well-being in older adults: A systematic review. *J. Geriatr. Psychiatry Neurol.* **36**, 35–45 (2023)
29. R. N. Jones, J. Fogel, Mental Health Trends in Aging: Understanding Anxiety and Depression in Older Populations. *Am. J. Geriatr. Psychiatry* **31**, 545–558 (2023)
30. D'Arcy et al., The impact of arts engagement on mental health and well-being among older adults: A review of the literature. *Arts & Health* **14**, 1–15 (2022)
31. M. Teychenne et al., Creative arts therapies and their impact on mental health: A review of physiological and psychological outcomes. *Arts & Health* **15**, 1–15 (2023)

32. M. Lee et al., The impact of social art therapy on oxytocin levels and social connectedness in older adults. *Aging & Mental Health* **26**, 433–441 (2022)
33. L. Sari, S. T. Hidayati, R. Prasetyo, The effect of art therapy on anxiety and social isolation in older adults: A randomized controlled trial. *J. Mental Health* **30**, 573–580 (2023). <https://doi.org/10.1080/09638237.2022.1900150>