

# Effectiveness Of Art Therapy On Social Interaction, Self-Esteem, And Well-Being For Older Adult Residents In Long-Term Care Institutions

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## Abstract

**Background:** Aging is a global trend, and some older adults choose to reside in long-term care institutions. However, significant life changes can lead to physiological and psychological alterations for the elderly. Therefore, this study will explore the effectiveness of art therapy in improving older adult residents' social interaction, self-esteem, and well-being in long-term care institutions.

**Materials and Methods:** This study adopted a quasi-experimental research design and recruited older adult residents from 10 long-term care institutions in northern Taiwan as participants. The experimental group (n=34) received eight weeks of art therapy, with one 90-minute session each week, while the control group (n=35) maintained their original daily routine. The Socially Supportive Activity Inventory, Rosenberg Self-Esteem, and Well-Being Scale for Elders were administered before and eight weeks after the intervention. The statistical data were processed and analyzed using IBM SPSS Statistics 22.0. Data analysis included descriptive statistics,  $\chi^2$  test, independent samples t-test, paired t-test, one-way analysis of covariance, and the Johnson-Neyman technique.

**Results:** The demographic and clinical characteristics were homogenous at baseline in both groups. Social interaction, self-esteem, and well-being improved significantly in the experimental group ( $p < .05$ ) after art therapy, whereas the control group showed no significant improvement ( $p > .05$ ).

**Conclusions:** The results demonstrate that an eight-week art therapy program could effectively improve the social interaction, self-esteem, and well-being of older adult residents in long-term care institutions. Based on the findings, long-term care institutions can apply art therapy to enhance and improve mental health in the residents' later years.

**Key Word:** Art Therapy, Long-Term Care Institutions, Social Interaction, Self-Esteem, Well-Being.

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## I. Introduction

People worldwide live longer, life expectancy has increased, and population aging has become a global phenomenon.<sup>1</sup> In 2022, adults aged 65 years and over in Taiwan accounted for 19.19% of the total population, implying that Taiwan is an aging society.<sup>2</sup> With a limited family care workforce, some older adults must be relocated to long-term care institutions. The institutionalization rate reached 1.19% in 2023.<sup>3</sup> Research shows institutionalization is a significant life change for older adults, many of whom face difficulties in adjustment due to the loss of autonomy and self-care ability, which can affect their mental health and social interaction (e.g., loss of self-esteem and social isolation, difficulty establishing meaningful interpersonal relationships).<sup>4-6</sup>

Art therapy integrates the elements of kinesthetics, perception, emotion, cognition, and creativity, primarily utilizing visual art forms as a means of expression. It emphasizes individuals' inner experiences and creative processes by employing various themes and artistic media. Art therapy facilitates non-verbal communication, creativity, and positive social engagement through the spontaneous conceptualization and sharing of artwork during the creative process and interpersonal interaction. It fosters a sense of control, choice, and autonomy, enhancing self-esteem and happiness, ultimately achieving self-affirmation, and promoting overall mental and psychological well-being.<sup>7-11</sup> Some researchers have already applied art therapy to various populations, including cancer patients, psychiatric patients, individuals with depression, dementia patients,

hospital healthcare workers, female adolescents, and university students. Research results indicate that art therapy can effectively enhance the well-being and self-esteem of diverse groups.<sup>9, 12-21</sup>

Given the current interest in older adults' participation in health promotion and disease prevention, art therapy may promote health among them. According to the American Art Therapy Association, art therapy enables engagement and the expression of ideas and emotions in a non-verbal manner through artistic creation to improve physical and mental health while fostering self-esteem and enhancing social skills.<sup>7</sup> A systematic literature review found that the participation of older adults in arts activities can promote social interaction, thereby improving their self-esteem and well-being. While some studies have confirmed the benefits of art therapy, numerous researchers have indicated the need to study its effectiveness of art therapy in promoting the mental health (such as social interaction and well-being) of long-term care residents.<sup>22-23</sup> Therefore, this study explored the effectiveness of art therapy in promoting social interaction, self-esteem, and well-being of older adult residents in long-term care institutions.

## **II. Material And Methods**

### **Study design and setting**

A quasi-experimental design is used in this study. Older adult residents from ten long-term care institutions in northern Taiwan were recruited as participants. The experimental group received eight weeks of art therapy, while the control group received no intervention and maintained their original daily routine in long-term care institutions.

**Study Duration:** October 2021 to March 2022.

### **Sample size calculation:**

This study utilized G\* power version 3.1.9.7, employing repeated measures analysis of variance (ANOVA) with an effect size of 0.30 for sample size estimation. The type I error probability ( $\alpha$ ) was set to 0.05, and the statistical power (power) was set to 0.80. The correlation among repeated measures was specified as 0.5.24. The calculated total sample size was 68 participants. Due to the intervention period lasting eight weeks and to account for potential attrition leading to inadequate sample size, an additional 20% was added. The anticipated total enrollment was 82 participants, with 41 participants in the experimental and control groups.

### **Study participant's inclusion criteria:**

1. aged 65 years or older, having lived in the same long-term care institution for more than three months;
2. able to communicate in Mandarin Chinese or Taiwanese;
3. adequate visual and auditory acuity (with glasses or hearing aids);
4. bilateral upper limb muscle power  $\geq 4$  points, ability to make autonomous movements against mild resistance, ability to use scissors safely under supervision for artistic creations, and ability to sit continuously for 90 minutes;
5. total score on the Barthel Index  $> 20$ ;
6. total score on the Mini-Mental State Examination score  $> 16$ ;
7. total score on the Geriatric Depression Scale  $\leq 9$ ;
8. Volunteer participation after being fully informed about the research process by the researcher and completing the consent form approved by the Institutional Review Board; for residents with mild cognitive impairment, informed consent must be obtained from their legal representatives.

### **Exclusion criteria:**

1. Residents currently taking antidepressants or undergoing relevant treatment
2. Residents are currently participating in art-related activities.

### **Data collection tools**

Structured questionnaires, including the introductory information form, Socially Supportive Activity Inventory Scale, Rosenberg Self-Esteem Scale, and Well-Being Scale for Elders, were employed as research instruments in this study.

The introductory information form included demographic characteristics (e.g., sex, age, duration of institutional care, religious beliefs, educational level, marital status, economic status, and activities of daily living) and clinical characteristics (e.g., depressive symptoms, cognitive function, and number of chronic illnesses).

Socially Supportive Activity Inventory Scale: developed by Hsu<sup>25</sup> and based on social support theory, literature synthesis, and Taiwanese cultural norms to assess the quantity and quality of social interactions among residents of long-term care institutions. This scale divides institutional activities into nine categories,

evaluates each category based on three dimensions (frequency, meaningfulness, and enjoyment), and is rated as follows:

1. Frequency: rated from 1 to 9, with higher scores indicating higher interaction frequency.
2. Meaningfulness: rated on a four-point Likert scale ranging from 1 to 4, with higher scores indicating adding more significant meaning to one's life.
3. Enjoyment: rated on a four-point Likert scale ranging from 1 to 4, with higher scores indicating greater enjoyment in activity participation.

The content validity index (CVI) of this scale was 0.96, the test-retest reliability of the overall scale was 0.76–1.00, and that of the three dimensions was 1.00 for frequency, 0.76–1.00 for meaningfulness, and 0.78–1.00 for enjoyment.<sup>25</sup>

Rosenberg Self-Esteem Scale: assessed self-esteem, developed by Rosenberg<sup>26</sup>, which Yeung<sup>27</sup> translated into Chinese. The scale comprises ten items rated on a four-point Likert scale (strongly agree = 4, agree = 3, disagree = 2, strongly disagree = 1), with a total score ranging from 10 to 40. Items 2, 5, 6, 8, and 9 were negatively worded and reverse-scored, and a higher total score indicated a higher level of self-esteem. Cronbach's  $\alpha$  for this scale is 0.76.<sup>26-27</sup>

Well-Being Scale for Elders: as designed by Lien and Cheng<sup>28</sup> referencing Keyes<sup>29</sup>, it comprised nine items, including psychological, emotional, and social well-being. The items are rated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), with a total score ranging from 9 to 45. A higher score indicated a greater tendency toward a higher level of well-being. Cronbach's  $\alpha$  of this scale was 0.91, and all factor loadings were  $>0.50$ , with an explained variance of 59.67%.<sup>28</sup>

### **Intervention protocol**

The experimental group received eight weeks of art therapy, with one 90-minute weekly session. Each session was divided into the following phases:

1. Warm-up phase (15 min): group games for team interaction and recapping the previous session;
2. Creative phase (60 min): theme-oriented group art therapy; each session covered one theme, and the researcher guided the participants to express their feelings, emotions, and meanings in an organized manner, and then presented them in a concrete form through artistic media;
3. Sharing phase (15 min): the participants displayed their artistic creations and shared their ideas and feelings; mutual sharing and affirmation were encouraged to promote positive interactions within the group. The control group maintained the original daily routines of their respective institutions.

### **Data analysis**

Statistical analysis was performed using the IBM SPSS Statistics software package (version 22.0), and the significance level of all the hypothesis tests was set at 0.05. Descriptive statistics were performed on the participants' demographic and clinical characteristics, and the assessment scale scores expressed the variables as number of cases, percentage, mean, standard deviation, maximum value, and minimum value. Chi-square and independent sample t-tests were performed to compare between-group demographic and clinical characteristics differences. Independent samples and paired t-tests were also performed to examine between-group and within-group differences between the pre-test and post-test scores. A one-way analysis of covariance (ANCOVA) was then conducted. The pre-test scores of the assessment scales were used as the control variables of the post-test scores to investigate the effectiveness of interventional art therapy. In the case of non-homogenous within-group regression coefficients, the analysis was performed using the Johnson-Neyman technique.

### **Ethical considerations**

The study commenced enrolment only after obtaining approval from the Institutional Review Board (IRB) and registration on ClinicalTrials.gov. Before enrolment, the research subjects were provided with an explanation of the study's objectives and procedures, and written consent was obtained.

## **III. Results**

A total of 72 older adult residents were enrolled as participants from October 12, 2021, to March 14, 2022. During the study period, one participant in the experimental group dropped out due to hospitalization and two participants in the control group withdrew due to concerns over the spread of COVID-19. Thus, 69 older adult residents (34 in the experimental group and 35 in the control group) completed the study and were included in the subsequent analyses for an attrition rate of 4.17%.

**Table 1** shows the demographic and clinical characteristics of the experimental and control groups. The participants included 69 older adult residents of long-term care institutions, with nearly equal numbers of males and females, and a mean age of  $78.47 \pm 10.05$  years. Most participants held religious beliefs, were educated to elementary school level, widowed, and had an average household income. The participants' mean scores on the

Barthel Index was  $60.43 \pm 24.77$ , that on the Geriatric Depression Scale was  $2.66 \pm 2.79$ , that on the Mini-Mental State Examination was  $22.40 \pm 3.63$ , and chronic diseases were  $2.50 \pm 1.07$ . The two groups were homogenous in terms of their demographic and clinical characteristics.

### Effectiveness of Art Therapy on Social Interaction, Self-esteem, and Well-Being for Older Adult Residents

**Table 2** compares the between-group differences before and after interventional art therapy. The results of the independent-samples t-test showed no significant differences between the experimental and control groups regarding pre-test social interaction ( $t = 1.69, p = .10$ ), self-esteem ( $t = 1.32, p = .19$ ), or well-being ( $t = 1.46, p = .23$ ), thus confirming the homogeneity of the three outcome measures between the two groups. However, in the post-test, between-group differences were statistically significant for social interaction ( $t = 4.55, p < .001$ ), self-esteem ( $t = -3.70, p < .001$ ), and well-being ( $t = 51.61, p < .001$ ). Within-group differences before and after interventional art therapy were compared between the two groups. The results of the paired t-test showed that for the experimental group, statistically significant differences were found after eight weeks of art therapy concerning social interaction ( $t = -13.13, p < .001$ ), self-esteem ( $t = 6.16, p < .001$ ), and well-being ( $t = -8.19, p < .001$ ); for the control group, no significant differences were found after eight weeks concerning social interaction ( $t = 1.82, p = .08$ ), self-esteem ( $t = 0.87, p = .39$ ), and well-being ( $t = -.44, p = .67$ ).

**Table 3** summarizes the homogeneity test for the One-way ANCOVA regression coefficients of the experimental and control groups. One-way ANCOVA was applied to determine the effectiveness of interventional art therapy in improving social interaction, self-esteem, and well-being of older adult residents in long-term care institutions. The results revealed no significant differences were observed in the pre-test scores for self-esteem ( $F = 3.13, p = .08$ ) and well-being ( $F = 1.46, p = .23$ ) between the two groups, but significant differences in the pre-test social interaction scores between the two groups ( $F = 13.66, p < .001$ ). Therefore, the Johnson-Neyman technique was employed for analysis instead.

**Table 4** shows the statistical results of social interaction using the Johnson-Neyman technique, which indicated that participants who scored  $<108.06$  and  $>212.78$  on the Socially Supportive Activity Inventory Scale showed significant improvements in social interaction after interventional art therapy.

**Table 5** shows a One-way analysis of covariance of self-esteem and well-being scores in experimental and control groups. After excluding the effects of pre-test scores, the mean post-test scores for self-esteem ( $F = 20.40, p < .001$ ) and well-being ( $F = 51.61, p < .001$ ) of the experimental group were higher than those of the control group following art therapy. These differences were statistically significant. In summary, art therapy could effectively enhance the social interaction, self-esteem, and well-being of older adult residents in long-term care institutions.

**Table 1.** Demographic and Clinical Characteristics of the Experimental and Control Groups ( $N = 69$ )

Variables	Overall ( $N = 69$ ) $n$ (%)	Experimental ( $n = 34$ ) $n$ (%)	Control ( $n = 35$ ) $n$ (%)	Between-group homogeneity	
				$t/\chi^2$	$p$
<b>Sex</b>				0.01 <sup>a</sup>	1.00 <sup>a</sup>
Female	35(50.72)	17(50.00)	18(51.43)		
Male	34(49.28)	17(50.00)	17(48.57)		
<b>Age (years)(<math>M \pm SD</math>)</b>	78.47 $\pm$ 10.05	76.32 $\pm$ 9.89	80.57 $\pm$ 9.90	-1.78 <sup>c</sup>	.08 <sup>c</sup>
<b>Duration of institutional care (years)(<math>M \pm SD</math>)</b>	3.02 $\pm$ 2.37	2.97 $\pm$ 2.47	3.09 $\pm$ 2.32	-0.20 <sup>c</sup>	.84 <sup>c</sup>
<b>Religious belief</b>				4.40 <sup>a</sup>	.06 <sup>a</sup>
Yes	56(81.16)	31(91.18)	25(71.43)		
No	13(18.84)	3(8.82)	10(28.57)		
<b>Educational level</b>				1.54 <sup>b</sup>	.95 <sup>b</sup>
Illiterate	16(23.10)	8(23.54)	8(22.86)		
Elementary school	24(34.78)	12(35.29)	12(34.29)		
Junior high school	7(10.14)	4(11.76)	3(8.57)		
Senior high school	13(18.84)	7(20.59)	6(17.14)		
University	9(13.05)	3(8.82)	6(17.14)		
<b>Marital status</b>				5.53 <sup>b</sup>	.13 <sup>b</sup>
Married	22(31.88)	10(29.41)	12(34.29)		
Divorced	12(17.39)	6(17.65)	6(17.14)		
Widowed	27(39.14)	11(32.35)	16(45.71)		
Unmarried	8(11.59)	7(20.59)	1(2.86)		
<b>Economic status</b>				0.38 <sup>b</sup>	1.00 <sup>b</sup>
Average household income	51(73.91)	25(73.53)	26(74.29)		
Lower-middle household income	5(7.25)	3(8.82)	2(5.71)		
Low household income	13(18.84)	6(17.65)	7(20.00)		
<b>Activities of daily living (<math>M \pm SD</math>)</b>	60.43 $\pm$ 24.77	56.62 $\pm$ 23.12	64.14 $\pm$ 26.08	-1.27 <sup>c</sup>	.21 <sup>c</sup>
<b>Clinical characteristics</b>					

Depressive symptoms (M±SD)	2.66± 2.79	2.79± 2.85	2.54± 2.77	0.37 <sup>c</sup>	.71 <sup>c</sup>
Cognitive function (M±SD)	22.40± 3.63	22.03± 3.72	22.77± 3.56	-0.85 <sup>c</sup>	.40 <sup>c</sup>
Number of chronic diseases (M±SD)	2.50± 1.07	2.47± 1.08	2.57± 1.09	-0.28 <sup>c</sup>	.78 <sup>c</sup>

Note: <sup>a</sup> = chi-square test; <sup>b</sup> = Fisher t-test; <sup>c</sup> = independent sample t-test; \**p* < .05, \*\**p* < .01, \*\*\**p* < .001

**Table 2.** Comparison of Pre-and Post-test Scores of the Experimental and Control Groups (N = 69)

Variables	Experimental (n = 34)			Control (n = 35)			<i>t</i>	<i>p</i>
	M±SD	<i>t</i>	<i>p</i>	M±SD	<i>t</i>	<i>p</i>		
<b>Social interaction</b>		-13.13 <sup>a</sup>	<.001 <sup>****</sup>		1.82 <sup>a</sup>	.08 <sup>a</sup>		
Pre-test	67.50±13.39			61.26±17.06			1.69 <sup>b</sup>	.10 <sup>b</sup>
Post-test	76.38±11.38			60.80±16.51			4.55 <sup>b</sup>	<.001 <sup>b****</sup>
<b>Self-esteem</b>		6.16 <sup>a</sup>	<.001 <sup>****</sup>		0.87 <sup>a</sup>	.39 <sup>a</sup>		
Pre-test	27.18±5.32			25.54±4.97			1.32 <sup>b</sup>	.19 <sup>b</sup>
Post-test	20.09±5.42			24.86±5.31			-3.70 <sup>b</sup>	<.001 <sup>b****</sup>
<b>Well-being</b>		-8.19 <sup>a</sup>	<.001 <sup>****</sup>		-0.44 <sup>b</sup>	0.67 <sup>b</sup>		
Pre-test	23.79±6.33			24.71±8.26			-.52 <sup>b</sup>	.61 <sup>b</sup>
Post-test	33.82±7.40			25.03±7.45			4.92 <sup>b</sup>	<.001 <sup>b****</sup>

Note: <sup>a</sup> = paired t-test; <sup>b</sup> = independent sample t-test; \**p* < .05, \*\**p* < .01, \*\*\**p* < .001

**Table 3.** Summary of the Homogeneity Test for the One-Way ANCOVA Regression Coefficients of the Experimental and Control Groups (N = 69)

Variables	SS	df	MS	<i>f</i>	<i>p</i>
<b>Social interaction</b>					
Regression coefficient homogeneity (group*pre-test score)	79.81	1	79.81	13.66	<.001 <sup>***</sup>
Error	379.80	65	5.84		
Total	459.61	66			
<b>Self-esteem</b>					
Regression coefficient homogeneity (group*pre-test score)	74.34	1	74.34	3.13	.08
Error	1543.27	65	23.74		
Total	1617.61	66			
<b>Well-being</b>					
Regression coefficient homogeneity (group*pre-test score)	42.99	1	42.99	1.46	.23
Error	1910.73	65	29.40		
Total	1953.72	66			

\**p* < .05, \*\**p* < .01, \*\*\**p* < .001

**Table 4.** Statistical Results of Social Interaction using the Johnson-Neyman Technique

Group	SSw(x)	SSw(y)	CPwj	df	SSw''(y)	df	bwj	awj
Experimental	5914.50	4274.03	4837.50	33	317.41	32	0.82	21.17
Control	9894.69	9271.60	9545.80	34	62.38	33	0.96	1.70
	15809.19	13545.63	14383.30	67	379.80	65		

**Table 5.** One-Way Analysis of Covariance of Self-Esteem and Well-being Score in Experimental and Control Group

Variables	SS	df	MS	<i>f</i>	<i>p</i>
<b>Self-esteem</b>					
group	499.93	1	499.93	20.40	<.001 <sup>***</sup>
pre-test score	311.41	1	311.41	12.71	<.001 <sup>***</sup>
group*pre-test score	74.34	1	74.39	3.13	.08
Error	1543.30	65	23.74		
<b>Well-being</b>					
group	1527.87	1	1527.87	51.61	<.001 <sup>***</sup>
pre-test score	1740.20	1	1740.20	58.79	<.001 <sup>***</sup>
group*pre-test score	42.99	1	42.99	1.46	.23

Error	1910.73	65	29.40		
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\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

#### IV. DISCUSSION

This study aimed to investigate the effectiveness of art therapy in improving social interaction, self-esteem, and well-being of older adult residents in long-term care institutions. The demographic and clinical characteristics of the participants enrolled in this study showed statistical distributions similar to those obtained by the Taiwanese Ministry of Health and Welfare<sup>3,30</sup> among older adult residents in long-term care institutions (except for restrictions in the scores for depressive symptoms and cognitive function, as listed in the inclusion above criteria).

Participants' pre-test scores for social interaction, self-esteem, and well-being were relatively low. During the study period, the researchers observed that the residents rarely interacted with each other, did not know or greet each other, and failed to interact during mealtimes, as shown in the same table. Furthermore, they often doubted their abilities and held negative thoughts, such as believing that they could not hold a pen or draw, were poor at self-expression, and could not participate in group activities. These situations could be attributed to the fact that most study participants were educated to the elementary school level, widowed, lacked self-care ability, and had an average of two chronic diseases. These demographic and clinical characteristics can reduce social interaction,<sup>31-33</sup> self-esteem,<sup>34-35</sup> and well-being.<sup>32, 36</sup>

Our findings demonstrate that the eight-week art therapy program effectively improved participants' social interaction, self-esteem, and well-being. The researchers observed that participants could proactively interact with others and establish interpersonal networks. Moreover, the process of artistic creation and sharing leads to self-affirmation of memories and life history, while mutual sharing, encouragement, and identification improve self-esteem and well-being. These observations are consistent with the findings of other studies related to art therapy.<sup>23</sup> Art therapy does not depend on specific abilities, such as verbal communication and artistic skills; instead, they enable residents to express their feelings in a non-verbal manner, promote their individuation, and guide them toward producing unique artistic creations. In addition, meaningful interpersonal interactions during artistic activities can generate positive feedback such as mutual sharing, encouragement, and praise, which are crucial factors for improving self-esteem and well-being.<sup>11, 23</sup>

#### Strengths and limitations

This study is the first to explore the effectiveness of art therapy in improving social interaction, self-esteem, and well-being of older adult residents in long-term care institutions in Taiwan. Our findings demonstrated the effectiveness of art therapy. This study had several limitations. First, a quasi-experimental design was used. Future randomized controlled trials should be conducted for an in-depth exploration. Second, this study was limited to long-term care institutions in northern Taiwan; thus, our findings cannot be generalized to regions beyond northern Taiwan or other long-term care institutions. Third, individuals with severe dementia or depression were excluded from this study. Hence, future studies should include older adult residents with different attributes in long-term care institutions. Finally, our study did not include follow-ups or measurements after the eight-week intervention; we suggest performing follow-ups or measurements after the intervention to determine the persistence of the effectiveness of art therapy in older adult residents.

#### V. CONCLUSION

Our findings show that an eight-week art therapy program could effectively improve social interaction, self-esteem, and well-being of older adult residents in long-term care institutions. In fact, older adult residents with or without previous experience with drawing or art therapy were keenly interested in and enjoyed such activities. Therefore, long-term care institutions should integrate art therapy into the design of their daily activities to enrich the lives of older adult residents during their sunset years.

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#### Conflict of Interest Declaration

The authors declare that they have no affiliations with or involvement in any organization or entity with any financial interests in the subject matter or materials discussed in this manuscript.

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