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Enhancing Resilience and Well-Being in Preschoolers with Mandala Art

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ABSTRACT

Objective: The aim of the study was to reveal the effect of mandala art practices on the social-emotional well-being and psychological resilience of three-five-year-old children. **Materials and Methods:** This study was conducted with an experimental research design with a pretest-posttest control group. The participants of the study consisted of 54 children between the ages of three and five attending a kindergarten. While mandala art activities were applied to the intervention group for eight weeks, no intervention was applied to the control group. For data collection, Descriptive Information Form for Children and the Social Emotional Well-Being and Psychological Resilience Scale for Preschool Children were used. SPSS 25.0 program was used to analyze the data and nonparametric tests were applied. **Results:** In the study, it was determined that mandala art practices provided a significant increase in the psychological resilience levels of children in the intervention group. An increase was also achieved in all sub-dimension scores ($p<0.05$). **Conclusion:** The results of the study revealed that mandala art practices are an effective method for strengthening the psychological resilience of children aged three to five years. These findings support the need for more use of art-based practices in fields such as pediatric nursing and early childhood education.

Keywords: Social-Emotional Well-Being, Psychological Resilience, Mandala, Children, Pediatric Nursing.

Mandala Sanatı ile Okul Öncesi Çocuklarda Dayanıklılık ve İyi Olma Halinin Geliştirilmesi

ÖZ

Amaç: Araştırmanın amacı, mandala sanat uygulamalarının üç-beş yaş grubundaki çocukların sosyal-duygusal iyi oluşları ve psikolojik sağlamlıkları üzerindeki etkisini ortaya koymaktır. **Yöntem:** Bu çalışma, ön test-son test kontrol gruplu deneysel bir araştırma tasarımıyla yürütülmüştür. Araştırmanın katılımcılarını bir anaokulda eğitim gören üç-beş yaş arası 54 çocuk oluşturmuştur. Deney grubuna sekiz hafta boyunca mandala sanat etkinlikleri uygulanırken, kontrol grubuna herhangi bir müdahalede bulunulmamıştır. Veri toplamada Çocuklar için Tanıtıcı Bilgi Formu ve Okul Öncesi Çocuklar İçin Sosyal Duygusal İyi Oluş ve Psikolojik Sağlamlık Ölçeği kullanılmıştır. Verilerin analizinde SPSS 25.0 programı kullanılmış ve nonparametrik testler uygulanmıştır. **Bulgular:** Araştırmada, mandala sanat uygulamalarının deney grubundaki çocukların psikolojik sağlamlık düzeylerinde anlamlı bir artış sağladığı belirlenmiştir. Tüm alt boyut puanlarında da artış sağlanmıştır. **Sonuç:** Araştırma sonuçları, mandala sanat uygulamalarının üç-beş yaş grubu çocukların psikolojik sağlamlıklarını güçlendirmede etkili bir yöntem olduğunu ortaya koymaktadır. Bu bulgular, çocuk hemşireliği ve erken çocukluk eğitimi gibi alanlarda sanat temelli uygulamaların daha fazla kullanılması gerektiğini desteklemektedir.

Anahtar Kelimeler: Sosyal-Duygusal İyi Oluş, Psikolojik Sağlamlık, Mandala, Çocuklar, Çocuk Hemşireliği.

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INTRODUCTION

Social-emotional well-being refers to the capacity of individuals to understand themselves and their environment, to cope with emotional difficulties, and to establish a healthy balance in social relationships. For children, this means feeling safe and able to fulfil their emotional needs in interactions with their families, teachers, health personnel and peers (Halle & Darling-Churchill, 2016; Thomson et al., 2021; Xu et al., 2024). This kind of development has a direct impact on children's overall health. Strengthening children's emotional well-being not only enables them to cope with stress in the moment but also supports the development of a healthy personality in the long term (Zins et al., 2004; Eaude, 2009).

Psychological resilience refers to the capacity of individuals to cope with stressful and challenging situations in their lives and the ability to emerge from these difficulties with strength (Masten, 2019). Children's psychological resilience affects their ability to cope with trauma or stressful events, and these abilities determine how they will cope with the challenges they face throughout their lives. In this context, psychological resilience in early childhood is critical not only to maintain emotional balance but also to lay the foundation for future psychological and social success (Bethell et al., 2016; Bingöl et al., 2025).

In the early period of children's lives when social-emotional well-being and psychological resilience skills begin to develop, these skills determine the quality of children's interactions with their environment. In this context, supporting these skills at an early age can positively affect children's long-term emotional and psychological development (Masten & Barnes, 2018).

Arts-based approaches offer powerful tools for emotional development and healing. Children can express their feelings that they may not be able to express in words through painting or other artistic activities (Sezince, 2018; Kuru, 2020; Moula, 2021; Moula et al., 2022; Khanna & Rawat, 2024; Fernando & Safitri, 2025). Mandala is one of them. Mandala is an artistic technique widely used especially to help children's emotional and mental recovery. Mandala consists of symmetrical patterns radiating outwards from the centre, and these symmetrical structures can help individuals find their mental and emotional balance (Aykaç, 2020; Kostyunina & Drozdikova-Zaripova, 2016).

Mandala practices can help children cope with stress, anxiety and negative emotional states. Such practices can be used as a therapeutic tool, especially for children who have had challenging or traumatic experiences. Through mandalas, children have the chance to express themselves, provide emotional relief and this process can accelerate their emotional healing process. In addition, mandalas also allow children to focus their attention and find inner peace, which can help increase their psychological resilience (Aykaç, 2020; Ergür et al., 2021).

The use of techniques such as mandala in art-based therapies not only helps children feel better and achieve emotional balance, but also allows them to develop their emotional intelligence. When children's psychological and emotional development is supported by creative activities, their ability to express themselves and empathise with others is strengthened (Markman, 2020; Wong et al., 2024).

Pediatric nursing, as a field with the task of protecting and improving both physical and psychological health of children, requires nurses not only to perform medical interventions but also to support emotional healing processes (Teksöz & Ocakçı, 2014). Children struggle with emotional distress as well as physical pain during illness processes; therefore, it is important for nurses to use alternative methods such as art-based approaches to support children's emotional recovery (Ding et al., 2021; Buser et al., 2023).

Mandala practices can play an important role in strengthening psychological resilience and emotional healing processes in pediatric nursing. Through mandala activities with children, nurses can better understand the emotional states of children and help them develop skills such as relaxation and coping with stress (Stinley et al., 2015). In addition, art practices such as mandala can reduce the anxiety and fear that children experience while receiving health services and enable them to approach the treatment process more positively (Özsavran & Seval, 2020; Stinley et al., 2015).

The aim of this study is to examine the effect of mandala art practices on social-emotional well-being and psychological resilience among children aged three to five years. It aims to contribute to pediatric nursing practice by revealing how mandala practices have an impact on the emotional and psychological development of children in this age group. In addition, this study aims to emphasise the importance of art-based practices in pediatric nursing and how such practices can be effectively integrated in clinical settings.

In line with this general purpose, the hypotheses of the research are as follows:

H_0= Mandala art practices have no effect on strengthening social-emotional well-being and psychological resilience of three-five-year-old children.

H_1= Mandala art practices have an effect on strengthening the social-emotional well-being and psychological resilience of three-five-year-old children.

The unique value of the study is that it aims to contribute to the literature with the limited number of studies on emotional and psychological development, especially in early childhood, and innovative findings on how art-based therapies can be used more effectively in pediatric nursing practice. By revealing

the potential of mandala practices in strengthening children's psychological resilience, it is expected to contribute to nurses and other health professionals to adopt a broader therapeutic approach in their care processes.

MATERIALS AND METHODS

Study type

The research was carried out as an experimental study with pre-test, post-test control group.

Study time and place

The research was conducted between 11 September 2023 and 1 March 2024. The research was conducted in a university-affiliated kindergarten in a province in the Western Black Sea region of Türkiye. There is one class for each age group. Full-day education service is provided.

Participants

The population of the study consisted of children attending a university-affiliated kindergarten in a city located in the Western Black Sea region of Türkiye. There were a total of 60 children receiving education from this kindergarten. The parents of all students in the kindergarten gave consent for participation in the study. The parents of all the children gave their consent for participation in the study through both verbal and written approval.

In this research, by using G. Power-3.1.9.2 program the sample size of the study was calculated before the data collection phase with 80% theoretical power. For the research, the effect size of 0.55 was calculated based on the study belonging to the sample group "Turkish Music Supported Psychological Resilience Programme: The Effect of Preschool Children on Psychological Resilience Levels" and used as the research effect size. Accordingly, with 95% confidence level, 0.05 alpha value and 0.55 effect size, the minimum number required for a single group in the study was calculated as 23. It was found that 46 participants, 23 in the experimental group and 23 in the control group, would be sufficient.

Since it was thought that there might be participants who might drop out of the study, 30 participants were included in the experimental group and 30 participants were included in the control group. Before starting the study, 2 children from the experimental group and 1 child from the control group got sick. They left before starting the study. One week after the study started, the parents of 1 child in the experimental group and 2 children in the control group reported that their children had given up participating in the study. Therefore, this study was completed with 27 participants in the experimental group and 27 participants in the control group.

At the end of this study, the power of the study was calculated using G. Power-3.1.9.2 program. Accordingly, the difference between the groups in the social emotional well-being and psychological resilience scale for preschool children in the study was examined. Using the effect size of 2.88, 95% confidence level, 0.05 alpha value, the power of the study was found to be 99%.

The criteria for the inclusion of children in the study are as follows: Being between the ages of 3-5 years, receiving education in kindergarten, the child's parent's acceptance to participate in the study, and the child not having speech, visual and physical disabilities.

Data collection tools

The research data were collected using the Descriptive Information Form for Children and the Social Emotional Well-Being and Psychological Resilience Scale for Preschool Children.

Descriptive information form for children: It is a form that includes questions about demographic information of children such as age, gender, age of parents, educational status, etc.

Social emotional well-being and psychological resilience scale for preschool children : The validity and reliability study of the Social Emotional Well-Being and Psychological Resilience Scale, developed by Mayr and Ulich (2009), was conducted in Türkiye by Özbey (2019). The scale is filled out for each child by his/her teacher on behalf of the child. The scale is a 5-point Likert-type scale and consists of 6 subscales: Communication /Social Performance, Self-Control/Thoughtfulness, Assertiveness, Emotional Stability/Coping with Stress, Task Orientation, Enjoying Exploration. No total score is obtained from the scale. The scores obtained from each of the subscales are evaluated separately. In the Communication/Social Performance subscale of the scale; positive communication, self-expression, making friends, Self-Control/Thoughtfulness subscale; self-control, following rules, respect, courtesy, empathy, thoughtfulness, Assertiveness subscale; assertiveness, self-expression, self-confidence, problem solving, Emotional Stability/Coping with Stress subscale; In the Task Orientation subscale, there are items related to orientation towards the task, fulfilling the given task, concentrating attention, responsibility, and in the Enjoyment of Exploration subscale, there are items related to enjoyment of innovation and exploration, curiosity, optimism, self-confidence, courage and patience. The Pearson Correlation Coefficient between the English and Turkish forms of the scale was found to be between 0.96 and 0.99. The alpha reliability coefficient of the scale is between 0.72 and 0.96 in 36-48-month-old children, between 0.88 and 0.95 in 49-60-month-old children, and between 0.87 and 0.96 in 61-72-month-old children (Özbey, 2019). For this study, reliability analyses were conducted for the subdimensions as follows: Communication/Social Performance (Pre-test: 0.945, Post-test: 0.962, Retention test: 0.955), Self-Control/Thoughtfulness (Pre-test: 0.903, Post-test: 0.913, Retention test: 0.903), Assertiveness (Pre-test: 0.942, Post-test: 0.953, Retention test: 0.954), Emotional

Stability/Coping with Stress (Pre-test: 0.728, Post-test: 0.857, Retention test: 0.835), Task Orientation (Pre-test: 0.874, Post-test: 0.894, Retention test: 0.881), and Enjoyment of Exploration (Pre-test: 0.910, Post-test: 0.936, Retention test: 0.939). The reliability coefficients ranged between 0.728 and 0.962, indicating acceptable to excellent reliability.

Data collection

The mandala art education practices carried out in the kindergarten were given to the children in the experimental group (Figure 1). Questionnaire and scale forms were applied beforehand (Table 1). The scales and questionnaire were filled in by the teachers of the children in the kindergarten. Then, mandala art application training modules were applied (Table 2). Finally, questionnaire and scale forms were applied. One month later, the questionnaire and scale forms were applied again for the retention test.

Data analysis

The data obtained in the study were analysed using SPSS (Statistical Package for Social Sciences) for Windows 25.0 software. Descriptive statistics were used for the information collected from the experimental and control groups. The differences in the descriptive characteristics of the experimental and control groups were determined by Chi-square analysis.

Whether the data used showed normal distribution was tested with Shapiro-Wilk test for groups ($n<50$) and Kolmogorov-Smirnov test for the whole variable ($n>50$). Accordingly, it was seen that the scales did not show normal distribution and nonparametric tests were used.

Mann Whitney U test was used to test whether the scores obtained from two unrelated samples of quantitative variables differed significantly from each other. To test whether more than two dependent groups of quantitative variables differed from each other, Friedman test for repeated measures and Bonferroni multiple comparison test to see from which group the difference originated were applied. Correlation analysis was performed to test the relationship between variables. In the study, p values below 0.05 were considered significant.

Ethical approval

Before starting the study, written permission was obtained from a University Human Research Ethics Committee (Date: 28.03.2023/Number: 099) and the institution where the project would be conducted. Then, an instruction was prepared that the data to be collected before and after the training would be used for scientific purposes within the scope of the research and that the identity information would be kept confidential, and informed consent was obtained from the parents of the children.

Table 1. Study implementation plan.

Stage 1	Creating and finalising training modules and contents	Obtaining expert opinions for the content of the training modules and finalising them (expert opinions were obtained from Child Development Specialist, Art Therapist, Pediatric Nurse, Preschool Education Teacher), training of the researchers on the training content and then the researchers being ready to provide training,
Stage 2	Introduction of the project and invitation to participate in the project	Explanation of the educational aims and objectives, explanation of the educational programme, determination of the expectations of the students and their parents,
Stage 3	Pre-training Measurement	Determination of sociodemographic characteristics and social emotional well-being and psychological resilience levels of all experimental and control group students before the training,
Stage 4	Implementation of training modules	Mandala painting and drawing or different mandala application activities were planned. Trainings were given in one session per week and the training programme ended after eight weeks. At the end of the training, the mandalas made by the children were hung in their classrooms to ensure permanence.
Stage 5	Post-Training Measurement	Determination of social emotional well-being and psychological resilience level of all students after the training,
Stage 6	Retention test	Determination of social emotional well-being and psychological resilience level of all students one month after the training,
Stage 7	Analysing the data	Analysing the data and revealing the findings,

Table 2. Education module.

	Mandala Activity and Description
Week 1	Mandala- Colouring-Game (Children are asked to paint the structured mandala visual in the colours they want).
Week 2	Mandala- Cut and Paste (The pieces of the structured mandala visual are coloured by the children and the children are asked to place them on A4 paper to form a regular visual).
Week 3	Mandala- Show Make (The shapes to be drawn are shown in a way to create a mandala visual and the children are asked to draw them. In this way, the visual is completed).
Week 4	Mandala- Expression of Emotions-Game (Images such as smiley faces, etc., which are expressions of emotions, are placed on the table before drawing. Children are asked to draw and colour the image they want into mandala rings).
Week 5	Mandala - An Icon from Nature (It is possible to see mandala rings or mandala visuals in nature. These are daisies, tree trunks, etc. Children are asked to draw/paint any image that reminds them of the mandala they see in nature).
Week 6	Mandala - The Game (There is an A4 paper in front of each child and the children stand up. The child chooses the one he/she wants from the cut and paste templates they have prepared before and pastes it. In the next stage, they slide to the side and paste the desired shape in front of them on the paper of another friend. This sequence continues until the mandala is completed and there are no more images to paste. Music can be added if desired).
Week 7	Mandala- Dot Connecting (The mandala shapes previously created in the form of dots are created by the children by connecting / drawing / passing over the dots by following the dots).
Week 8	Mandala- Music-Game (It is an activity to be done in the form of transferring what the children feel at that moment in the form of a mandala on paper accompanied by music).

RESULTS

The distribution of the groups participating in the study according to the characteristics is given in Table 3. It was found that 45.5% of the participants in the experimental group were 5 years old, 51.9% were male, 81.5% had siblings, 96.3% of the mother's education was university, 85.2% of the father's education was university, 37.0% of the daily time spent with the mother and father was 2 hours, the average age of the mother was 36.52, and the average age of the father was 38.15.

In the control group, 51.9% of the participants were 3 years old, 51.9% were girls, 74.1% had siblings, 96.3% had a university education, 81.5% had a university education, 44.4% spent 2 hours a day with their mother and father, the average age of the mother was 31.48, and the average age of the father was 33.70.

Table 3. Distribution of the groups according to descriptive characteristics.

Variables		**Experimental group (n=27)**		**Control group (n=27)**			
		n	**%**	**n**	**%**	**X^2**	**p**
Age	3,00	6	22.2	14	51.9	5.116	0.088
	4,00	9	33.3	6	22.2		
	5,00	12	44.5	7	25.9		
Gender	Girl	13	48.1	14	51.9	0.074	1.000
	Boy	14	51.9	13	48.1		
Sibling presence	Yes	22	81.5	20	74.1	0.429	0.745
	No	5	18.5	7	25.9		
Mother's education level	High School	1	3.7	1	3.7	0.000	1.000
	University	26	96.3	26	96.3		
Fatther's education level	High School	4	14.8	5	18.5	0.133	1.000
	University	23	85.2	22	81.5		
Daily time spent by the mother and father with the child	1,00	5	18.5	5	18.5	0.588	0.956
	2,00	10	37.0	12	44.4		
	3,00	9	33.3	8	29.6		
	4,00	3	11.1	2	7.4		
		$\bar{X}$ ± SD	**Median (min-max)**	**$\bar{X}$ ± SD**	**Median (min-max)**	**Z**	**p**
Age of mother		36.52±2.44	36 (32-46)	31.48±1.50	32 (29-35)	-6.154	**0.000***
Age of father		38.15±2.88	38 (34-48)	33.70±1.68	34 (31-37)	-5.657	**0.000***

*p<0.05; X^2: Chi-square test; Z:Mann-Whitney

Table 4. Distribution of the groups according to the characteristics related to their artistic activities.

Variables		Experimental group (n=27)		Control group (n=27)			
		n	%	n	%	X^2	p
Interested in art activities	Yes	21	77.8	22	81.5	0.114	1.000
	No	6	22.2	5	18.5		
Applying art activity methods with the child	Yes	24	88.9	20	74.1	1.964	0.293
	No	3	11.1	7	25.9		
Painting	Yes	22	81.5	24	88.9	0.587	0.704
	No	5	18.5	3	11.1		
Dance and movement	Yes	17	63.0	6	22.2	9.164	0.005*
	No	10	37.0	21	77.8		
Music	Yes	18	66.7	12	44.4	2.700	0.170
	No	9	33.3	15	55.6		
Drawing and colouring	Yes	11	40.7	6	22.2	2.146	0.241
	No	16	59.3	21	77.8		
Play game	Yes	18	66.7	13	48.1	1.893	0.271
	No	9	33.3	14	51.9		
Cinema	Yes	4	14.8	2	7.4	0.750	0.669
	No	23	85.2	25	92.6		
Film	Yes	2	7.4	0	0.0	2.077	0.491
	No	25	92.6	27	100.0		
Theatre	Yes	7	25.9	2	7.4	3.333	0.142
	No	20	74.1	25	92.6		
Rhythm practice	Yes	6	22.2	6	22.2	0.000	1.000
	No	21	77.8	21	77.8		
Colouring studies	Yes	13	48.1	8	29.6	1.948	0.264
	No	14	51.9	19	70.4		
Handicraft knitting	Yes	1	3.7	0	0.0	1.019	1.000
	No	26	96.3	27	100.0		
Various other hobbies	Yes	2	7.4	0	0.0	2.077	0.491
	No	25	92.6	27	100.0		
Relaxation through art	Yes	22	81.5	22	81.5	0.000	1.000
	No	5	18.5	5	18.5		

*p<0,05; X^2: Chi-square test

Table 4 presents the distribution of the experimental and control groups in terms of their engagement with artistic activities. In both groups, a high percentage of participants reported interest in art and used art activities with children (experimental: 77.8% and 88.9%; control: 81.5% and 74.1%, respectively). Painting was the most common activity in both groups. The experimental group showed higher engagement in dance/movement (63.0% vs. 22.2%), music (66.7% vs. 44.4%), and mandala activities (11.1% vs. 0%). The control group, on the other hand, reported more frequent participation in play activities (48.1% vs. 7%). While theatre, rhythm, and coloring activities were present in both groups to varying degrees, handicraft and other hobbies were scarcely practiced. Notably, 81.5% of participants in both groups reported using art as a way to relax.

The distribution of the social emotional well-being and psychological resilience scale scores of the participants according to the groups and measurements is detailed in Table 5.

It was determined that the pre-test, post-test and retention test communication/social performance dimension scores of the participants in the experimental and control groups showed a statistically significant difference according to the groups ($p<0.05$). Accordingly, it was seen that the experimental group's pre-test, post-test and retention test communication / social performance score was greater than the control group. It was determined that there was a statistically significant difference between the measurements of the experimental group's communicating/social performance dimension ($p<0.05$). Accordingly, the experimental group retention test communication / social performance score is greater than the other measurements. According to multiple comparison, the experimental retention test and post-test communication/ social performance score is greater than the pre-test. It was determined that the post-test and retention test self-control/thoughtfulness dimension score of the participants in the experimental and control groups showed a statistically significant difference according to the groups ($p<0.05$). Accordingly, it was seen that the experimental group's post-test and retention test self-control/thoughtfulness score was higher than the control group. It was determined that there was a statistically significant difference between the experimental group self-control/thoughtfulness dimension measurements ($p<0.05$). Accordingly, the experimental group post-test self-control/thoughtfulness score is greater than the other measurements. According to multiple comparison, the experiment retention test and post-test self-control/thoughtfulness score is greater than the pre-

test. It was determined that the post-test and retention test assertiveness dimension scores of the participants in the experimental and control groups showed a statistically significant difference according to the groups ($p<0.05$). Accordingly, it was seen that the experimental group post-test and retention test assertiveness score was greater than the control group. It was determined that there was a statistically significant difference between the experimental and control group assertiveness dimension measurements ($p<0,05$). Accordingly, the post-test assertiveness score of the experimental group is greater than the other measurements. Control group pre-test assertiveness score is greater than other measurements. According to multiple comparison, the experimental retention test and post-test assertiveness score is greater than the pretest. Control pre-test assertiveness score is greater than the retention test. It was determined that the pre-test, post-test and retention test emotional stability / coping with stress dimension scores of the participants in the experimental and control groups showed a statistically significant difference according to the groups ($p<0.05$). According to this, it was seen that the experimental group pre-test, post-test and retention test emotional stability / coping with stress score was greater than the control group. It was determined that there was a statistically significant difference between the experimental group emotional stability/coping with stress dimension measurements ($p<0,05$). According to this, the post-test emotional stability/coping with stress score of the experimental group is greater than the other measurements. According to multiple comparisons, the post-test and retention test emotional stability/coping with stress scores are higher than the pre-test scores.

It was determined that the pre-test, post-test and retention test task orientation dimension scores of the participants in the experimental and control groups showed a statistically significant difference according to the groups ($p<0.05$). Accordingly, it was seen that the experimental group pre-test, post-test and retention test task orientation score was greater than the control group. It was determined that there was a statistically significant difference between the experimental group task orientation dimension measurements ($p<0,05$). Accordingly, the experimental group post-test task orientation score is greater than the other measurements. According to the multiple comparison, the experimental retention test and post-test task orientation score is greater than the pretest. It was determined that the participants in the experimental and control groups showed a statistically significant difference in the pre-test, post-test and retention test enjoyment of discovery dimension score according to the groups ($p<0.05$). Accordingly, it was seen that the pre-test, post-test and retention test enjoyment of discovery score of the experimental group was greater than the control group. It was determined that there was a statistically significant difference between the experimental group's enjoyment of discovery dimension measurements ($p<0.05$). According to this, the experimental group post-test enjoyment of discovery score is greater than the other measurements. According to the multiple comparison, the experimental retention test and post-test enjoyment of discovery score is greater than the pre-test.

The effect of the groups on communication/social performance was found to be medium in the pre-test (0.70), large in the post-test (1.89), and large in the retention test (2.05). The effect of the groups on self-control/thoughtfulness was found to have a large effect on the post-test (1,47) and a large effect on the retention test (1,70). The effect of the groups on assertiveness was found to have a large effect on the post-test (1,07) and a large effect on the retention test (1,10). The effect of the groups on emotional stability/coping with stress was found to have a large effect on pre-test (0,84), a large effect on post-test (1,79), and a large effect on retention test (1,77). The effect of groups on task orientation was found to have a large pre-test (1.33), a large post-test (2.88), and a large retention test (2.61) effect. The effect of the groups on enjoyment of exploring was found to have a large effect on pre-test (0.98), a large effect on post-test (2.13), and a large effect on retention test (2.04).

DISCUSSION

This study aimed to examine the effects of mandala art activities on strengthening the social-emotional well-being and psychological resilience of three-five-year-old children. The findings show that art-based practices play an important role in children's social-emotional development and are effective in increasing their psychological resilience.

One of the remarkable findings of this study was that mandala art activities increased children's communication and social performance levels. When the pre-test, post-test and retention test scores of the children in the experimental group were analysed, a significant improvement was observed compared to the control group. It is also emphasised by previous studies that art activities help children express their emotions and increase their social interactions (Masten & Barnes, 2018; Oades-Sese et al., 2014). It is seen that mandala art offers children the opportunity to express themselves, contributes to their easier communication in social environments, and thus supports their psychological resilience.

The findings obtained in the dimension of self-control and thoughtfulness are also noteworthy. The significant development of the children in the experimental group in the post-test and retention test shows that mandala art activities support self-regulation skills in children. Jung (2016) stated that mandala art enables individuals to get in touch with unconscious emotions and contributes to the self-regulation process (Jung, 2016).

Table 5. Distribution of participants according to groups and measurements of social emotional well-being and psychological resilience scale.

Variables		Experimental group (n=27)		Control group (n=27)		Test value** and p value	Effect size d
		$\bar{x}$ ± SD	Median (min-max)	$\bar{x}$ ± SD	Median (min-max)		
Communicating/ social performance	Pre-test (1)	22.67±3.46	24 (12-29)	19.37±5.7	21 (9-27)	Z=-2.587 p=0.010*	0.70
	Post-test (2)	27.89±2.68	29 (21-30)	19.48±5.69	21 (8-27)	Z=-5.521 p=0.000*	1.89
	Retention test (3)	27.78±2.79	29 (21-30)	19.37±5.1	20 (10-28)	Z=-5.539 p=0.000*	2.05
	Test Values***	X^2=37.913		X^2=0.519			
	p	0.000*		0.772			
	Bonferroni	1<2,3		-			
Self-control/thoughtfulness	Pre-test (1)	24.07±3.5	24 (16-30)	23±4.43	22 (14-29)	Z=-1.017 p=0.309	
	Post-test (2)	28.11±2.29	29 (20-30)	22.78±3.75	22 (15-28)	Z=-5.134 p=0.000*	1.47
	Retention test (3)	27.93±2.38	29 (20-30)	22.81±3.53	22 (15-28)	Z=-5.036 p=0.000*	1.70
	Test Values***	X^2=45.532		X^2=1.231			
	p	0.000*		0,540			
	Bonferroni	1<2,3		-			
Assertiveness	Pre-test (1)	23.85±3.06	24 (18-30)	23.37±6,66	25 (9-30)	Z=-1.134 p=0.257	
	Post-test (2)	28.26±1.93	29 (23-30)	23.04±6,6	24 (9-30)	Z=-3.878 p=0.000*	1.07
	Retention test (3)	28.15±2.03	29 (23-30)	22.81±6,59	24 (9-29)	Z=-3.999 p=0.000*	1.10
	Test Values***	X^2=44.617		X^2=8.400			
	p	0.000*		0.015*			
	Bonferroni	1<2,3		3<1			
Emotional stability/coping with stress	Pre-test (1)	21.52±2.06	22 (17-24)	19.11±3.5	20 (10-24)	Z=-2.830 p=0.005*	0.84
	Post-test (2)	24.93±2.37	25 (18-29)	19.3±3.75	20 (10-24)	Z=-5.253 p=0.000*	1.79
	Retention test (3)	24.7±2.33	25 (18-28)	19.11±3.8	20 (10-24)	Z=-5.280 p=0.000*	1.77
	Test Values***	X^2=45.023		X^2=0.036			
	p	0.000*		0.982			
	Bonferroni	1<2,3		-			
Task orientation	Pre-test (1)	22.19±2.77	23 (14-27)	17.19±4.53	17 (6-24)	Z=-4.427 p=0.000*	1.33
	Post-test (2)	26.15±2.14	27 (22-29)	16.96±3.97	17 (8-21)	Z=-6.331 p=0.000*	2.88
	Retention test (3)	25.67±2.42	26 (22-29)	16.96±4.06	17 (8-22)	Z=-6.257 p=0.000*	2.61
	Test Values***	X^2=36.286		X^2=2.000			
	p	0.000*		0.368			
	Bonferroni	1<2,3		-			
Enjoyment of discovery	Pre-test (1)	23.89±1.48	24 (21-28)	20.48±4.69	22 (11-27)	Z=-3.192 p=0.001*	0.98
	Post-test (2)	27.63±2	28 (22-30)	20.26±4.46	21 (12-27)	Z=-5.785 p=0.000*	2.13
	Retention test (3)	27.59±2.08	28 (22-30)	20.3±4.61	21 (12-28)	Z=-5.527 p=0.000*	2.04
	Test Values***	X^2=42.691		X^2=2.107			
	p	0.000*		0.349			
	Bonferroni	1<2,3		-			

*p<0.05; **Z:Mann-Whitney; *** X^2 :Friedman

Figure 1. Mandalas made by children

Mandala studies can reduce children's stress and anxiety levels and encourage them to act by thinking instead of reacting instantly. The development of self-control skills, especially in early childhood, is seen as one of the foundations of academic and social success in later ages (Masten, 2019).

The results obtained in the assertiveness dimension show that mandala art activities increase children's self-expression skills and assertiveness. In the study, it was determined that the assertiveness scores of the children in the experimental group increased significantly. Art-based activities offer an environment where children have the opportunity to express themselves, develop their creativity and gain self-confidence. Studies have also indicated that art therapy and creative art activities increase children's self-confidence and strengthen their social courage (Kostyunina & Drozdikova-Zaripova, 2016). Mandala art activities are thought to encourage children to be more active in social environments and reinforce their self-confidence.

When evaluated in terms of emotional stability and coping with stress, it is seen that mandala art activities reduce children's stress levels and increase their emotional stability. In the study, it was determined that the experimental group showed a significant improvement in this dimension. In the literature, there are findings that art activities provide individuals to relax mentally by creating meditation-like effects (Ergür et al., 2021). The repetitive, rhythmic and focused structure of mandala works can support children's coping skills with stress and increase their emotional resilience. In this context, it is thought that participation in art activities at an early age may contribute to children to be more resilient against stress factors that they may encounter in later ages.

The findings in the task orientation dimension show that art activities are effective in increasing children's attention span and task orientation. In the study, it was found that the task orientation scores of the children in the experimental group increased significantly compared to the control group. Previous research shows that art activities improve children's attention skills and prolong their focusing time (Cömert & Özbey, 2021). Mandala art activities can improve children's task awareness and responsibility taking skills by enabling them to focus on a task for a long time.

The findings obtained in the dimension of enjoyment of discovery show that art activities increase children's sense of curiosity and desire to explore. It was observed that the enjoyment of discovery scores of the children in the experimental group increased significantly. Art activities support children to be open to trying new things and develop their creative thinking skills (Masten, Gewirtz & Sapienza, 2024). It is thought that art-based practices such as mandala activities encourage children to be open to new experiences and increase their interest in learning.

This research also has important implications for nursing care. Child health nursing is not only limited to physical health but also aims to support the psychosocial development of children (Teksöz & Ocakçı, 2014). Art-based interventions increase children's ability to cope with stress, strengthen their emotional well-being and support their psychological resilience. In this context, it is recommended that creative art therapies such as mandala art activities should be integrated into psychosocial support programmes for children in hospitals and health centres. The use of art-based activities for children receiving long-term treatment in the hospital can

contribute positively to their treatment processes by increasing their emotional well-being (Özsavran & Seval, 2020). In addition, training nurses in art therapy and including these practices in child care processes can offer a more holistic approach in the field of health.

The study has some limitations. The study was conducted in a kindergarten in a specific region and the findings obtained cannot be generalised to a wider population. In addition, the possibility of subjective bias should be taken into consideration since the scales are based on teacher evaluations. In future studies, it is recommended to conduct similar research with larger samples and different age groups. In addition, a comparative study of different arts-based interventions (e.g., music and dance therapy) with mandala may reveal the effects of arts activities on psychological resilience in a more comprehensive manner.

CONCLUSION

In conclusion, this study reveals that mandala art activities are an effective method to strengthen preschool children's social-emotional well-being and psychological resilience. Mandala art activities supported children's social-emotional development and contributed to the development of skills such as coping with stress, self-control, communication, discovery and task orientation. It also emphasises the importance of art-based practices in the field of child health nursing. Therefore, it is recommended to integrate arts-based practices into education and health programmes in early childhood. Strengthening children's psychological resilience at an early age can help them better cope with the challenges they will face in the future.

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Conflict of Interest

The authors declare no conflict of interest.

Author Contributions

Plan, design: MÖ, EH; Material, methods and data collection: MÖ, EH, PO, TK, SY; Data analysis and comments: MÖ, EH; Writing and corrections: MÖ, EH.

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Ethical Approval

Institution: Zonguldak Bulent Ecevit University Human Research Ethics Committee
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