KMAN PUBLISHING INSTITUTE
Journal Website

Article history:
Received 19 December 2025
Revised 01 April 2026
Accepted 06 April 2026
Initial Published 21 April 2026
Final Publication 26 April 2026

KMAN Counseling & Psychology Nexus

Volume 4, pp 1-13

E-ISSN: 3041-9026

Comparing the Effectiveness of Art Therapy and Cognitive Behavioral Play Therapy on Anxiety and Assertiveness in Preschool Children

Sudabeh. Emami Mehr[1], Mojtaba. Amiri Majd[1*], Mohammad. Ghamari[1], Saeideh. Bazzazian[2]

[1] Department of Psychology, Ab.C., Islamic Azad University, Abhar, Iran
[2] Department of Psychology, WT.C., Islamic Azad University, Tehran, Iran

*** Corresponding author email address**: mo.amiri@iau.ac.ir

A r t i c l e I n f o

Article type:
Original Research
Section:
Rehabilitation Counseling

How to cite this article:
Emami Mehr, S., Amiri Majd, M., Ghamari, M., & Bazzazian, S. (2026). Comparing the Effectiveness of Art Therapy and Cognitive Behavioral Play Therapy on Anxiety and Assertiveness in Preschool Children. *KMAN Conseling and Psychology Nexus*, *4*, 1-13.
http://doi.org/10.61838/kman.rc.psynexus.5223

A B S T R A C T

Anxiety and assertiveness issues are among the most important challenges among preschool children. This study examines the effectiveness of art therapy and cognitive-behavioral play therapy in reducing anxiety and improving assertiveness in preschool children. The study employed a quasi-experimental pretest-posttest design with a control group. The statistical population included all 5–6-year-old children referred to the Nedaye Aramesh Ravan Counseling Clinic in Tehran. Using Cochran's formula, 45 eligible children were selected and randomly assigned to two experimental groups and one control group (n = 15 per group). The first experimental group received 10 weekly sessions of art therapy, and the second received 12 weekly sessions of cognitive-behavioral play therapy. The control group did not receive any intervention during the study period. Data were collected using the Preschool Anxiety Scale (PAS) and the Social Skills Rating System (SSRS). Data analysis was performed using multivariate analysis of covariance (MANCOVA) in SPSS-23. Both art therapy and cognitive-behavioral play therapy led to significant reductions in anxiety and increases in assertiveness compared with the control group after the intervention ($P < 0.001$). However, the difference in effectiveness between the two therapeutic approaches was not statistically significant ($P > 0.05$). Both art therapy and cognitive-behavioral play therapy were effective in reducing anxiety and enhancing assertiveness in preschool children. Although each approach relies on different therapeutic mechanisms, their outcomes were comparable, indicating similar therapeutic value. These findings suggest that either intervention can be appropriately selected based on the child's needs and treatment context.

Keywords: *Anxiety, Art Therapy, Assertiveness, Play Therapy, Preschool Children*

1. Introduction

Early childhood represents a critical developmental window during which emotional, social, and cognitive foundations are established, shaping trajectories of mental health across the lifespan. During the preschool years, children undergo rapid maturation in affect regulation, social interaction, and cognitive processing, yet these capacities remain highly vulnerable to disruption by internalizing difficulties such as anxiety. Empirical evidence consistently indicates that anxiety symptoms can emerge as early as the preschool period and are not merely transient developmental phenomena but clinically meaningful conditions with measurable behavioral and physiological correlates (E, 2025; Smith & Monga, 2024; Zhou, 2024; Zhou et al., 2024). Contemporary epidemiological and longitudinal studies demonstrate that early anxiety is associated with persistent emotional dysregulation, heightened stress reactivity, and impairments in daily functioning, underscoring the necessity of early identification and intervention (Alacha et al., 2024; Navarro et al., 2024; Warne et al., 2024). Furthermore, anxiety in young children is often linked to maladaptive cognitive biases, such as threat overestimation and attentional vigilance toward negative stimuli, which can consolidate into enduring patterns of psychopathology if left untreated (Moses et al., 2025; Rapee et al., 2023).

The developmental implications of early anxiety extend beyond internal emotional distress to broader domains of functioning, including social competence and behavioral adjustment. Children experiencing anxiety frequently exhibit avoidance behaviors, withdrawal from peer interactions, and difficulties in communication, all of which impede the acquisition of essential social-emotional skills (Ogelman & Kahveci, 2024; Varalakshmi & Varun, 2025). Among these skills, assertiveness plays a particularly pivotal role, as it reflects a child's ability to express needs, set interpersonal boundaries, and engage confidently in social contexts. The developmental interplay between anxiety and assertiveness is complex, with evidence suggesting that heightened anxiety often suppresses assertive behavior, leading to passive or avoidant interaction styles (Yang et al., 2025). This dynamic not only compromises immediate social functioning but also increases vulnerability to later psychosocial difficulties, including peer rejection, low self-esteem, and maladaptive coping strategies (Hosokawa et al., 2025; Stoyanova, 2024).

Theoretical frameworks in developmental psychology emphasize that early childhood is a sensitive period for shaping both emotional regulation and social competence through environmental input and experiential learning. Constructivist and socio-cultural perspectives highlight the central role of play and interaction in fostering cognitive and emotional development, suggesting that therapeutic interventions during this stage must align with children's developmental capacities and modes of expression (Andersen & Kiverstein, 2024; Fletcher et al., 2024). In this context, play-based and creative interventions have gained increasing attention as developmentally appropriate approaches for addressing emotional and behavioral difficulties in young children. Structured and unstructured play activities have been shown to enhance executive functioning, social understanding, and emotional regulation, thereby providing a naturalistic platform for therapeutic engagement (Etokabeka, 2024; Jaggy et al., 2023; Nat et al., 2024).

Among the most widely utilized interventions for childhood anxiety are cognitive-behavioral play therapy (CBPT) and art therapy, both of which integrate therapeutic principles with developmentally appropriate modalities. CBPT is grounded in cognitive-behavioral theory and seeks to modify maladaptive thought patterns and behaviors through structured play activities that facilitate learning and skill acquisition. Techniques such as cognitive restructuring, exposure, modeling, and reinforcement are embedded within play contexts, enabling children to engage with therapeutic content in an accessible and engaging manner (Alemdar et al., 2024; Dastjerdi et al., 2024). A growing body of empirical evidence supports the efficacy of CBPT in reducing anxiety symptoms and improving behavioral outcomes in children, with meta-analytic findings indicating robust and sustained treatment effects (Alemdar & Karaca, 2025; Shayganfard et al., 2024). Additionally, CBPT has been shown to enhance executive functioning, emotional expression, and social competence, further underscoring its utility as a comprehensive intervention approach (Nazerieh & Niknam, 2024; Raudenská et al., 2023).

In contrast, art therapy operates through a fundamentally different mechanism, emphasizing non-verbal expression, creativity, and symbolic processing as pathways for emotional exploration and healing. Through activities such as drawing, painting, and sculpting, children are able to externalize internal experiences that may be difficult to articulate verbally, thereby facilitating emotional awareness and regulation (Alisherovna, 2024; Fernando et al., 2025). Neurobiological research suggests that engagement in artistic processes activates neural circuits associated with

E-ISSN: 3041-9026

emotion regulation, reward processing, and sensory integration, contributing to reductions in physiological arousal and anxiety (Barnett & Vasiu, 2024; Bellaiche et al., 2025). Empirical studies have demonstrated the effectiveness of art therapy in reducing anxiety, enhancing self-esteem, and improving emotional well-being across diverse child populations, including those with chronic illness and developmental disorders (Yohannan et al., 2025; Zhang et al., 2024; Zhou et al., 2025). Furthermore, art-based interventions have been shown to promote emotional regulation and adaptive coping by providing a safe and flexible medium for self-expression (An, 2025; Liu et al., 2023).

Despite the demonstrated efficacy of both CBPT and art therapy, the literature reveals a notable gap in direct comparative studies examining their relative effectiveness, particularly in preschool-aged populations. Most existing research has focused on evaluating each intervention independently, thereby limiting the ability to draw conclusions regarding their comparative advantages or differential mechanisms of action. This gap is particularly significant given the developmental specificity of early childhood, where cognitive, linguistic, and emotional capacities differ markedly from those of older children and adolescents. As such, interventions that are effective in one developmental stage may not necessarily generalize to another, highlighting the need for age-specific comparative research (Saskia et al., 2025; Xu et al., 2025).

Moreover, the integration of social-emotional skill development within therapeutic interventions has emerged as a critical consideration in contemporary child psychology. Research indicates that interventions targeting both emotional regulation and social competence yield more comprehensive and enduring outcomes than those focusing solely on symptom reduction (Varalakshmi & Varun, 2025). In this regard, both CBPT and art therapy offer unique contributions: CBPT emphasizes cognitive and behavioral skill acquisition, while art therapy fosters emotional expression and self-awareness. However, the extent to which these approaches differentially impact assertiveness—a key component of social competence—remains underexplored. Given that assertiveness is closely linked to resilience, peer relationships, and adaptive functioning, understanding how different therapeutic modalities influence this construct is of considerable practical importance (Hosokawa et al., 2025; Yang et al., 2025).

In addition to their individual strengths, there is emerging evidence suggesting that multimodal interventions combining elements of cognitive-behavioral and creative therapies may produce synergistic effects. For example, studies integrating CBT with art and music therapies have demonstrated enhanced outcomes in reducing anxiety and improving psychosocial well-being, indicating that these approaches may address complementary aspects of emotional functioning (Xu et al., 2025). Nevertheless, the feasibility and effectiveness of such integrated approaches in preschool populations require further investigation, particularly in comparison to standalone interventions.

The increasing prevalence of anxiety symptoms in early childhood, coupled with their long-term developmental consequences, underscores the urgency of identifying effective, developmentally appropriate interventions. Early intervention not only alleviates immediate distress but also prevents the consolidation of maladaptive patterns, thereby promoting healthier developmental trajectories (Navarro et al., 2024; Warne et al., 2024). Within this context, the selection of therapeutic approaches must be informed by empirical evidence regarding their effectiveness, mechanisms of action, and suitability for specific developmental stages. While both CBPT and art therapy are widely used in clinical and educational settings, the lack of direct comparative evidence limits the ability of practitioners to make informed decisions tailored to individual child needs.

Therefore, the present study aims to compare the effectiveness of art therapy and cognitive-behavioral play therapy in reducing anxiety and enhancing assertiveness in preschool children.

2. Methods and Materials

2.1. Study Design and Participants

The present study employed a quasi-experimental pretest-posttest design with a control group. The statistical population consisted of children aged 5–6 years who were referred to the Nedaye Aramesh Ravan Counseling Clinic in District 2 of Tehran between mid-October and mid-February 2012. The sample size was determined using Cochran's formula with parameters including a standard deviation of 0.5, an error margin of 0.05, Z = 1.96, and q = p = 0.05. The study adhered to specific inclusion and exclusion criteria to ensure participant suitability. Inclusion criteria required that children did not present with concurrent clinical disorders, such as attention-deficit/hyperactivity disorder, or biological and physical conditions that could influence the disorder. Participants were also excluded if they were taking

KMAN-CPN KMAN-Counseling & Psychology Nexus
E-ISSN: 3041-9026

medication, receiving other psychological treatments concurrently, missed more than one session, or if the child or parent withdrew their willingness to continue participating. Additionally, children needed to score above the average threshold which is 56 on the parent form of the Children's Anxiety Scale, and their parents had to provide informed consent. Based on these criteria and sample size calculation, 45 children who met the inclusion criteria were selected and randomly assigned to two experimental groups and a control group, with each group comprising 15 participants.

The children in the first experimental group received art therapy, while those in the second group underwent cognitive-behavioral play therapy. Both interventions were conducted in individual counseling sessions on a weekly basis, with art therapy spanning 10 sessions and cognitive-behavioral play therapy lasting 12 sessions. During this period, the control group did not receive any form of intervention. At the conclusion of the intervention sessions, the mothers of the participating children completed post-test questionnaires to evaluate the outcomes.

2.2. Measures

The **Preschool Anxiety Scale (PAS)** (Parent Form) was developed based on the criteria for anxiety disorders outlined in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition *(DSM-IV*) (Spence et al., 2001). The scale comprises 28 items divided into five subscales: separation anxiety disorder (5 items), generalized anxiety disorder (5 items), social anxiety disorder (6 items), specific phobia (7 items), and obsessive-compulsive disorder (5 items). Responses are recorded on a Likert scale ranging from 1 (never) to 5 (always), with higher scores indicating greater anxiety levels in children. Psychometric evaluations of the PAS demonstrate strong reliability and validity. The subscales (except for the obsessive-compulsive subscale) exhibit moderate to high internal consistency, with a Cronbach's alpha of 0.70. Inter-informant reliability shows correlations exceeding 0.60 between mother- and father-reported scores, while test-retest correlations over a 12-month interval also exceed 0.60. Evidence supporting the scale's validity includes significant positive correlations between all subscales and internalizing problems in the Child Behavior Inventory, with correlations higher than 0.42 (Spence et al., 2001). In Iran, the PAS was further validated, demonstrating convergent validity with the Connors Anxiety Scale, with correlations ranging from 0.41 to 0.67. Test-retest reliability over 12 months reported correlations exceeding 0.60, while Cronbach's alpha for the entire test was 0.88 in one study and 0.78 in another for the present study, the total Cronbach's alpha for the PAS was calculated as 0.85 (Behzadpoor et al., 2020; Zeighami et al., 2021).

The **Social Skills Rating System (SSRS)** was developed by Gresham and Elliott (Gresham & Elliot, 1990) and includes forms tailored for parents, teachers, and students across three educational levels: preschool, elementary, and secondary school. In this study, the parent form assertiveness scale was utilized to measure children's assertiveness. The SSRS parent form consists of 52 items divided into two sections: social skills (40 items, questions 1–40) and behavioral problems (12 items, questions 41–52). Responses are scored on a three-point Likert scale, where 0 indicates "never," 1 indicates "sometimes," and 2 indicates "most of the time." The SSRS demonstrates robust reliability, with a Cronbach's alpha of 0.94 reported by (Gresham & Elliot, 1990). In Iran, the questionnaire was standardized on 304 children aged 6–12, and its validity was confirmed through factor analysis (36). Factor analysis, performed using the principal components method with Varimax rotation, yielded a satisfactory coefficient of 0.863. Further studies reported Cronbach's alpha values of 0.93 for the social skills scale and 0.87 for the behavioral problems scale (Eslami et al., 2014). In the current study, Cronbach's alpha for the assertiveness scale was determined to be 0.72.

2.3. Interventions

The art therapy intervention consisted of 10 weekly sessions, each lasting 80 minutes, and was structured progressively to facilitate emotional expression, symbolic processing, and self-awareness. The first session focused on establishing rapport, introducing the therapist and materials such as colored pencils, watercolor, crayons, and clay, and implementing warm-up exercises like scribbling with closed eyes to encourage spontaneous expression. The second session introduced the concept of emotions through visual representations and guided discussions, followed by drawing emotions on balloons to externalize affective states. The third session employed storytelling in which characters experienced specific emotions, enabling children to identify and depict emotional experiences through drawing. In the fourth session, children engaged in story discussion and created clay figures to construct symbolic personal spaces. The fifth session emphasized emotional differentiation through the creation of a "feelings box," using colors

KMAN-CPN KMAN-Counseling & Psychology Nexus
E-ISSN: 3041-9026

associated with positive and negative emotions. The sixth session involved symbolic emotional release by placing disliked emotions inside a clay ball and discarding it, followed by expressive scribbling and drawing a self-portrait to reinforce identity. The seventh session integrated drawing, collage-making, clay manipulation, and mask creation to express sadness and subsequently transform it into a smiling face, supporting emotional restructuring. The eighth session involved creating four clay plaques representing seasons, discussing their meanings, and painting them to explore emotional associations. The ninth session focused on identity and somatic awareness through symbol creation, clay engraving, and identifying body areas associated with emotional discomfort. The tenth and final session emphasized future orientation by drawing fears and hopes, constructing a clay "safe space," and placing a self-portrait within it to enhance emotional security and self-concept.

The cognitive-behavioral play therapy intervention comprised 12 weekly sessions, each lasting 65 minutes, and was designed to enhance cognitive, emotional, and behavioral regulation through structured play activities. The first and second sessions focused on rapport-building and familiarization with the therapeutic process using engaging activities such as watching cartoons, drawing, and interacting with tools like crayons, mirrors, blackboards, and dominoes to promote comfort and cooperation. The third and fourth sessions aimed to increase awareness through individual and group tasks including playing with yarn, beads, and play dough, solving puzzles, creating sand sculptures, and constructing with wooden cubes to stimulate cognitive engagement. The fifth and sixth sessions emphasized sensory perception and self-awareness through auditory activities, music-based play, and interactive tasks using Lego, puppets, balls, and storytelling exercises to enhance emotional recognition. The seventh and eighth sessions targeted imitative skills and adaptive responses through role-playing, sound imitation games, crafts, darts, and cognitive tasks such as identifying shapes and hidden objects, thereby reinforcing learning through modeling. The ninth and tenth sessions focused on developing self-monitoring skills through structured group activities such as bubble play, educational card games, puzzles, dominoes, balloon play, bead threading, and sequential storytelling to improve attention and behavioral regulation. The eleventh and twelfth sessions were designed to strengthen problem-solving abilities, reduce dependency, and enhance communication through activities including finger painting, narrative construction, ball play, patterned Lego tasks, and musical play, thereby consolidating cognitive-behavioral competencies and promoting adaptive functioning.

2.4. Data analysis

In the present study, the research questionnaires were distributed among participants, and after completion and collection, the data were entered into SPSS version 23 and SmartPLS version 3.1.1 for analysis. In the data analysis phase, descriptive statistical methods such as frequency distribution tables and means were used to examine and describe the general characteristics of the respondents. Additionally, inferential statistical methods including the Kolmogorov–Smirnov test were used to assess the normality of data distribution, and structural equation modeling along with the Sobel test were applied for data analysis. All statistical analyses in the present study were conducted at a significance level of 0.05.

3. Findings and Results

The sample group comprised 45 preschool children with anxiety, divided into three groups: experimental group 1 (art therapy), experimental group 2 (cognitive-behavioral play therapy), and a control group. Experimental group 1 included 40% girls and 60% boys, while experimental group 2 comprised an equal distribution of 50% girls and 50% boys. The control group had 55% girls and 45% boys.

In terms of maternal and child demographics, the mean age of mothers in experimental group 1 was 32.6 years, with a mean child age of 5.62 years. In experimental group 2, the mean age of mothers was 34.53 years, and the mean child age was 5.34 years. For the control group, the mean maternal age was 32.33 years, and the mean child age was 5.8 years.

Educational attainment among mothers was high across all groups. In experimental group 1. 72% of mothers held a bachelor's degree or higher, compared to 78% in experimental group 2 and 80% in the control group.

Table 1

Descriptive Indices of Study Variables

Variable	Test Phase	Art Therapy (Exp 1) M (SD)	Play Therapy (Exp 2) M (SD)	Control Group M (SD)
Assertiveness	Pre-test	33.6 (8.94)	32.6 (8.94)	32.6 (8.90)
	Post-test	41.46 (5.84)	44.06 (9.66)	34.00 (8.90)
Anxiety	Pre-test	78.66 (11.16)	78.60 (11.16)	82.80 (12.48)
	Post-test	58.53 (13.17)	52.80 (13.17)	76.90 (12.91)
Sample size		n = 15	n = 15	n = 15

Table 2 displays the descriptive indices for assertiveness and anxiety across the three study groups at pre-test and post-test. At pre-test, assertiveness scores were similar across groups, with means of 33.60 (SD = 8.94) in the art therapy group, 32.60 (SD = 8.94) in the play therapy group, and 32.60 (SD = 8.90) in the control group. At post-test, assertiveness increased to 41.46 (SD = 5.84) in the art therapy group and 44.06 (SD = 9.66) in the play therapy group, while the control group showed a smaller change to 34.00 (SD = 8.90).

For anxiety, pre-test means were 78.66 (SD = 11.16) for art therapy, 78.60 (SD = 11.16) for play therapy, and 82.80 (SD = 12.48) for the control group. At post-test, anxiety scores decreased to 58.53 (SD = 13.17) in the art therapy group and 52.80 (SD = 13.17) in the play therapy group, whereas the control group showed a smaller reduction to 76.90 (SD = 12.91). All groups had equal sample sizes (n = 15 per group).

To examine differences in mean anxiety scores among the experimental and control groups across the pretest and posttest stages, multivariate analysis of covariance (MANCOVA) and independent t-tests were performed. These analyses assessed group differences over time and the interaction effect of time within groups.

To verify the statistical assumptions, the Shapiro–Wilk test was used to assess the normality of the anxiety and assertiveness variables, as it is more appropriate than the Kolmogorov–Smirnov test for samples smaller than 50. The results indicated that the distributions of all variables in the experimental and control groups at both the pretest and posttest stages were normal ($p > .05$), satisfying the assumption of normality.

Similarly, the Levene test results indicated that variances for anxiety and assertiveness scores were homogeneous ($P > 0.05$), meeting the assumption of similar variances across the experimental and control groups. To test the null hypothesis of equal covariance in the groups, the Box's M test was conducted. The results confirmed that the observed covariance matrices for the anxiety and assertiveness variables were equivalent in the first experimental group (art therapy) ($F = 1.011$, $P < 0.05$) and the second experimental group (CBPT) ($F = 0.346$, $P < 0.05$).

The results of the multivariate analysis of covariance, summarized in Table 2, support the effectiveness of both intervention methods in reducing anxiety and increasing assertiveness in preschool children.

Table 2

Multivariate Analysis Results for Comparing Dependent Variable Composition Between Experimental and Control Groups

Group	Test	Value	F	df	p	Effect Size
Art Therapy (Exp. 1)	Wilks' Lambda Effect	0.475	13.843	2	< .001	0.525
Play Therapy (Exp. 2)	Wilks' Lambda Effect	0.453	15.101	2	< .001	0.547

Table 3 presents the pre-test and post-test means and standard deviations for each anxiety subscale across the three groups. For specific phobia, pre-test scores were 15.60 (SD = 4.26) in the art therapy group, 16.47 (SD = 3.81) in the CBT group, and 16.53 (SD = 4.24) in the control group. At post-test, scores decreased to 10.33 (SD = 2.87) in the art therapy group and 9.67 (SD = 3.02) in the CBT group, while the control group showed a smaller change to 15.73 (SD = 3.47).

For social anxiety, pre-test means were 17.73 (SD = 3.81) for art therapy, 18.60 (SD = 3.48) for CBT, and 19.00 (SD = 3.96) for the control group. At post-test, scores declined to 12.40 (SD = 3.83) and 10.53 (SD = 3.44) in the art therapy

KMAN-CPN KMAN-Counseling & Psychology Nexus
E-ISSN: 3041-9026

and CBT groups, respectively, compared to 18.07 (SD = 4.06) in the control group.

Regarding generalized anxiety, pre-test values were 16.80 (SD = 3.80) in the art therapy group, 16.33 (SD = 3.75) in the CBT group, and 16.73 (SD = 3.95) in the control group. Post-test means were 11.87 (SD = 3.25) for art therapy, 10.20 (SD = 3.08) for CBT, and 15.60 (SD = 4.26) for the control group.

For separation anxiety, pre-test scores were 17.20 (SD = 3.05) in the art therapy group, 16.40 (SD = 3.22) in the CBT group, and 18.33 (SD = 3.46) in the control group. At post-test, scores were 12.20 (SD = 4.06) in the art therapy group and 10.07 (SD = 2.84) in the CBT group, compared with 17.13 (SD = 3.48) in the control group.

For the obsessive–compulsive subscale, pre-test means were 13.00 (SD = 4.36) for art therapy, 12.40 (SD = 4.17) for CBT, and 13.33 (SD = 4.88) for the control group. At post-test, scores decreased to 9.53 (SD = 2.64) in the art therapy group and 8.33 (SD = 2.38) in the CBT group, whereas the control group showed a smaller decrease to 12.40 (SD = 4.17).

Table 3

Pre-test and Post-test Means and Standard Deviations for Each Anxiety Subscale (by Group)

Subscale	Time	Art Therapy M (SD)	CBT M (SD)	Control M (SD)
Specific Phobia	Pre-test	15.60 (4.25)	16.46 (3.81)	16.53 (4.24)
	Post-test	10.33 (2.87)	9.66 (3.01)	15.73 (3.47)
Social Anxiety	Pre-test	17.73 (3.80)	18.60 (3.48)	19.00 (3.96)
	Post-test	12.40 (3.83)	10.53 (3.44)	18.06 (4.06)
Generalized Anxiety (GAD)	Pre-test	16.80 (3.80)	16.33 (3.75)	16.73 (3.95)
	Post-test	11.86 (3.24)	10.20 (3.07)	15.60 (4.25)
Separation Anxiety	Pre-test	17.20 (3.05)	16.40 (3.22)	18.33 (3.45)
	Post-test	12.20 (4.05)	10.06 (2.84)	17.13 (3.48)
Obsessive–Compulsive	Pre-test	13.00 (4.35)	12.40 (4.17)	13.33 (4.87)
	Post-test	9.53 (2.64)	8.33 (2.38)	12.40 (4.17)

A multivariate analysis of covariance (MANCOVA) was conducted to examine group differences across the five anxiety subscales at post-test while controlling for pre-test scores (see Table 6). The multivariate tests indicated a statistically significant effect of group on the combined dependent variables. Pillai's Trace was 0.793, $F(20, 68) = 2.24$, $p = .007$. Similarly, Wilks' Lambda was 0.247, $F(20, 66) = 3.34$, $p < .001$; Hotelling's Trace was 2.883, $F(20, 64) = 4.61$, $p < .001$; and Roy's Largest Root was 2.825, $F(10, 34) = 9.61$, $p < .001$. Collectively, these indices show that the groups differed significantly on the combined set of anxiety subscale outcomes.

Table 4

MANCOVA Results for Anxiety Subscales

Effect	Test	Value	F	Hypothesis df	Error df	Sig.
Group	Pillai's Trace	.793	2.235	20.000	68.000	.007
	Wilks' Lambda	.247	3.338	20.000	66.000	.000
	Hotelling's Trace	2.883	4.613	20.000	64.000	.000
	Roy's Largest Root	2.825	9.606	10.000	34.000	.000

Tests of between-subjects effects showed no significant group differences on any subscale at pre-test, including specific phobia, $F(2, 42) = 0.241$, $p = .787$; social anxiety, $F(2, 42) = 0.446$, $p = .643$; generalized anxiety, $F(2, 42) = 0.065$, $p = .937$; separation anxiety, $F(2, 42) = 1.341$, $p = .273$; and obsessive–compulsive symptoms, $F(2, 42) = 0.167$, $p = .847$ (see Table 5).

After controlling for pre-test scores, significant group differences emerged at post-test for all anxiety subscales. Specific phobia showed a significant group effect, $F(2, 42) = 16.94$, $p < .001$. Group effects were also significant for social anxiety, $F(2, 42) = 16.10$, $p < .001$; generalized anxiety, $F(2, 42) = 9.03$, $p = .001$; separation anxiety, $F(2, 42) = 16.13$, $p < .001$; and obsessive–compulsive symptoms, $F(2, 42) = 6.54$, $p = .003$.

KMAN-CPN KMAN-Counseling & Psychology Nexus
E-ISSN: 3041-9026

Table 5

Tests of Between-Subjects Effects (ANCOVA for Each Subscale)

Subscale	F	df	Sig.
Specific Phobia – Pre-test	0.241	(2, 42)	.787
Specific Phobia – Post-test	16.941	(2, 42)	.000
Social Anxiety – Pre-test	0.446	(2, 42)	.643
Social Anxiety – Post-test	16.100	(2, 42)	.000
GAD – Pre-test	0.065	(2, 42)	.937
GAD – Post-test	9.025	(2, 42)	.001
Separation Anxiety – Pre-test	1.341	(2, 42)	.273
Separation Anxiety – Post-test	16.132	(2, 42)	.000
Obsessive–Compulsive – Pre-test	0.167	(2, 42)	.847
Obsessive–Compulsive – Post-test	6.539	(2, 42)	.003

According to the findings presented in Table 5, the composite variable entered into the multivariate analysis of covariance (MANCOVA) model demonstrated statistically significant differences between the experimental and control groups. In the first experimental group (art therapy), the results showed an effect size of Eta = 0.525 (P < 0.01, F = 843.13), indicating that approximately 52% of the variance in the dependent variables (anxiety and assertiveness) was attributable to the art therapy intervention.

Similarly, in the second experimental group (cognitive-behavioral play therapy), the results yielded an effect size of Eta = 0.547 (P < 0.01, F = 15.101), suggesting that about 55% of the variance between the experimental and control groups was due to the CBPT intervention. The significance of these results is corroborated by the Wilks' Lambda test, which confirms the statistical power of the model and the robustness of the intervention effects.

These finding suggests that both art therapy and CBPT were effective in promoting assertiveness and alleviating anxiety in elementary school children. The Bonferroni post-hoc test (multiple comparisons), summarized in Table 6, further supports these findings by providing detailed comparisons of group means and highlighting the significance of differences between groups. As shown, both the Art and Play interventions produced significant improvements in assertiveness and reductions in anxiety compared to the Control group.

For assertiveness, participants in the Art group scored significantly higher than the Control group (Mean Difference = 7.66, SE = 1.99, p < .001), while those in the Play group showed an even greater increase in assertiveness compared to the Control group (Mean Difference = 11.13, SE = 2.88, p < .001).

Regarding anxiety, both intervention groups experienced notable reductions. The Art group reported significantly lower anxiety levels than the Control group (Mean Difference = -16.68, SE = 4.61, p < .001), and the Play group demonstrated an even larger decrease (Mean Difference = -22.61, SE = 4.63, p < .001).

These results indicate that both Art and Play interventions are effective in enhancing assertiveness and reducing anxiety, with the Play intervention producing the most pronounced effects across both variables.

Table 6

Means and Standard Deviations for Group Factor in Anxiety and Assertiveness Variables

Variable	Comparison	Mean Difference	SE	p
Assertiveness	Art vs. Control	7.655	1.991	< .001
Assertiveness	Play vs. Control	11.126	2.884	< .001
Anxiety	Art vs. Control	-16.676	4.612	< .001
Anxiety	Play vs. Control	-22.614	4.629	< .001

An independent t-test was used to investigate the difference between the effectiveness of art therapy and cognitive-behavioral play therapy on children's anxiety and assertiveness. The findings are presented in Table 7.

KMAN-CPN KMAN-Counseling & Psychology Nexus
E-ISSN: 3041-9026

Table 7

Independent t-Test Results for Comparing Art and Play Therapy Groups on Assertiveness and Anxiety

Variable	Group	M	SD	F	p	t(df = 28)	p
Anxiety	Art Therapy	58.53	13.17	1	.326	1.053	.301
	Play Therapy	52.86	16.14				
Assertiveness	Art Therapy	41.46	5.84	3.436	.074	-0.892	.380
	Play Therapy	44.06	9.66				

The findings in Table 7 show that, given the assumption of homogeneity of variances and the fact that the calculated t for the anxiety variable (t=1.053, 28df) and assertiveness (t=-0.892, 28df) is not significant at the 0.05 level, there is no significant difference between the effectiveness of art therapy and cognitive-behavioral play therapy on children's anxiety and assertiveness.

4. Discussion

The present study aimed to compare the effectiveness of art therapy and cognitive-behavioral play therapy (CBPT) in reducing anxiety and enhancing assertiveness among preschool children, and the findings provide clear empirical support for the efficacy of both interventions. The results demonstrated that both art therapy and CBPT significantly reduced anxiety levels and increased assertiveness compared with the control group, as evidenced by statistically significant multivariate and univariate effects. The magnitude of change across both dependent variables indicates that structured psychological interventions tailored to developmental capacities can effectively modify emotional and behavioral outcomes in early childhood. These findings are consistent with the broader literature emphasizing that early intervention in preschool years can substantially mitigate internalizing symptoms and improve adaptive functioning (Navarro et al., 2024; Warne et al., 2024). Importantly, the absence of statistically significant differences between the two experimental groups suggests that both therapeutic modalities yield comparable outcomes, despite their distinct theoretical foundations and mechanisms of action.

The observed reduction in anxiety across both intervention groups aligns strongly with prior empirical and meta-analytic evidence. Cognitive-behavioral play therapy has been widely recognized as an effective intervention for childhood anxiety, as it integrates evidence-based cognitive-behavioral techniques within a developmentally appropriate play framework. Studies have consistently demonstrated that CBPT reduces maladaptive cognitions, enhances coping strategies, and decreases avoidance behaviors in young children (Alemdar et al., 2024; Shayganfard et al., 2024). Similarly, meta-analytic findings confirm that cognitive-behavioral interventions yield substantial reductions in anxiety symptoms, with durable effects over time (Alemdar & Karaca, 2025). The present findings corroborate these results, as children in the CBPT group showed significant decreases in overall anxiety and across all subscales, including social anxiety, separation anxiety, and generalized anxiety. These improvements can be attributed to the structured nature of CBPT, which facilitates gradual exposure, cognitive restructuring, and behavioral rehearsal within a safe and engaging context.

At the same time, the effectiveness of art therapy in reducing anxiety is equally supported by the current findings and previous research. Art therapy enables children to externalize internal emotional experiences through symbolic and non-verbal expression, which is particularly critical in preschool populations with limited verbal and cognitive capacities. Empirical studies and systematic reviews have demonstrated that art-based interventions significantly reduce anxiety and improve emotional well-being in children across clinical and non-clinical settings (Zhang et al., 2024; Zhou et al., 2025). Furthermore, neurobiological evidence suggests that creative engagement activates neural pathways associated with emotional regulation and stress reduction, contributing to decreased physiological arousal and improved affective stability (Barnett & Vasiu, 2024; Bellaiche et al., 2025). The significant reduction in anxiety observed in the art therapy group in the present study is therefore consistent with these theoretical and empirical perspectives, highlighting the therapeutic potential of creative modalities in early childhood mental health.

In addition to anxiety reduction, both interventions were found to significantly enhance assertiveness, which is a critical social-emotional skill in early development. The increase in assertiveness observed in both experimental

KMAN-CPN KMAN-Counseling & Psychology Nexus
E-ISSN: 3041-9026

groups reflects improvements in children's ability to express needs, communicate effectively, and engage confidently in social interactions. These findings are consistent with developmental research indicating that social-emotional competencies, including assertiveness, can be strengthened through structured interventions that provide opportunities for practice and reinforcement (Hosokawa et al., 2025; Ogelman & Kahveci, 2024). In the case of CBPT, assertiveness gains can be explained by the emphasis on skill acquisition, role-playing, and behavioral rehearsal, which directly target communication and interpersonal competencies. Previous studies have shown that play-based cognitive-behavioral interventions enhance social skills and adaptive behaviors, thereby improving assertiveness and reducing social withdrawal (Dastjerdi et al., 2024; Nazerieh & Niknam, 2024).

Similarly, the enhancement of assertiveness in the art therapy group can be understood through the lens of emotional expression and self-awareness. Art therapy provides a safe and supportive environment in which children can explore and communicate their internal experiences without the constraints of verbal language. This process fosters emotional clarity, self-confidence, and a sense of agency, all of which contribute to more assertive behavior. Empirical evidence supports the role of art therapy in improving self-esteem, emotional expression, and interpersonal functioning in children (Stoyanova, 2024; Yohannan et al., 2025). Additionally, studies have shown that creative activities promote emotional regulation and self-acceptance, which are foundational for assertive communication (An, 2025; Liu et al., 2023). The present findings therefore reinforce the notion that art-based interventions can effectively enhance social-emotional competencies in early childhood.

A key finding of this study is the lack of significant difference between the effectiveness of art therapy and CBPT in both reducing anxiety and increasing assertiveness. This result suggests that, although the two interventions operate through different mechanisms, they ultimately converge in producing similar therapeutic outcomes. This convergence can be explained by the shared underlying processes that both interventions target, such as emotional regulation, cognitive processing, and behavioral adaptation. While CBPT emphasizes cognitive restructuring and skill acquisition, and art therapy focuses on emotional expression and symbolic processing, both approaches facilitate the development of adaptive coping strategies and reduce maladaptive responses to stress. This interpretation is consistent with emerging research suggesting that different therapeutic modalities may achieve comparable outcomes by engaging complementary aspects of psychological functioning (Saskia et al., 2025; Xu et al., 2025).

From a developmental perspective, the comparable effectiveness of these interventions underscores the importance of aligning therapeutic approaches with the unique needs and capacities of preschool children. Young children often lack the verbal and abstract reasoning skills required for traditional cognitive-behavioral interventions, making play-based and creative modalities particularly suitable. The effectiveness of both CBPT and art therapy observed in this study supports theoretical models emphasizing the role of play and creativity in cognitive and emotional development (Andersen & Kiverstein, 2024; Fletcher et al., 2024). Structured play and creative expression provide naturalistic contexts for learning, allowing children to experiment with new behaviors, process emotions, and develop social skills in a developmentally appropriate manner. Furthermore, research on pretend play and social interaction highlights the role of these activities in enhancing social competence and emotional understanding, which are closely related to both anxiety reduction and assertiveness (Jaggy et al., 2023; Nat et al., 2024).

5. Conclusion

The findings of this study also contribute to the growing body of literature advocating for early, preventive interventions in childhood mental health. Given the established link between early anxiety and later psychopathology, effective interventions during the preschool years can have long-term benefits in reducing the risk of chronic mental health problems (Moses et al., 2025; Rapee et al., 2023). By demonstrating that both art therapy and CBPT are effective in addressing anxiety and enhancing assertiveness, the present study provides valuable evidence for clinicians, educators, and policymakers seeking to implement evidence-based interventions in early childhood settings. The comparable effectiveness of the two approaches also suggests that intervention selection can be guided by practical considerations, such as available resources, therapist expertise, and individual child preferences, rather than concerns about differential efficacy.

Despite the strengths of the present study, several limitations should be acknowledged. The sample size was relatively small and drawn from a single clinical setting, which may limit the generalizability of the findings to

broader populations. The absence of a follow-up assessment restricts the ability to evaluate the long-term sustainability of the observed treatment effects. Additionally, reliance on parent-reported measures may introduce reporting bias, and the study did not account for potential moderating variables such as temperament, family environment, or baseline severity of symptoms. Furthermore, the quasi-experimental design, although robust, does not fully control for all potential confounding factors.

Future research should aim to address these limitations by employing larger and more diverse samples, incorporating randomized controlled trial designs, and including longitudinal follow-up assessments to examine the durability of treatment effects. Studies exploring potential moderators and mediators of treatment outcomes, such as child temperament, parental involvement, and therapeutic alliance, would provide deeper insights into the mechanisms underlying intervention effectiveness. Additionally, comparative studies examining integrated or hybrid interventions that combine elements of art therapy and CBPT may reveal synergistic effects and inform the development of more comprehensive treatment models.

From a practical standpoint, the findings of this study highlight the importance of implementing developmentally appropriate, play-based interventions in early childhood settings to address anxiety and promote social-emotional skills. Clinicians and educators should consider incorporating both structured play and creative expression into therapeutic programs, tailoring interventions to the individual needs and preferences of each child. Training programs for practitioners should emphasize the integration of cognitive-behavioral and expressive techniques, and educational policies should support the inclusion of mental health interventions within preschool curricula. Early identification and intervention remain critical, and collaboration among parents, teachers, and mental health professionals is essential for maximizing the effectiveness of these approaches.

Authors' Contributions

Authors equally contributed to this article.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

Acknowledgments

We would like to express our gratitude to all individuals helped us to do the project.

Declaration of Interest

The authors report no conflict of interest.

Funding

According to the authors, this article has no financial support.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

References

Alacha, H., Isaac, A., Gemmell, N., Dougherty, L., Olino, T., & Bufferd, S. (2024). Comparison of Global and Daily Ratings of Associations Between Anxiety and Depressive Behaviors and Impairment in Preschool-Aged Children. *Child Psychiatry & Human Development*, 1-12. https://doi.org/10.1007/s10578-024-01697-z

Alemdar, H., & Karaca, A. (2025). The Effect of Cognitive Behavioral Interventions Applied to Children with Anxiety Disorders on Their Anxiety Level: A Meta-Analysis Study. *Journal of Pediatric Nursing*, *80*, e246-e254. https://doi.org/10.1016/j.pedn.2024.12.020

Alemdar, H., Karaca, A., Şener, D., & Halmatov, S. (2024). The Impact of Cognitive-Behavioral Play Therapy on Children's Anxiety Levels: A Systematic Review. *Balikesir Health Sciences Journal*, *13*(1), 184-191. https://doi.org/10.53424/balikesirsbd.1349116

Alisherovna, A. G. (2024). Psychocorrection of Psychological Traumas in Children Through Art Therapy. *American Journal of Advanced Scientific Research*, *1*(1), 41-44.

An, Q. (2025). The Impact of Art-Based Interventions on Emotional Regulation in Chinese Children with Autism: A Drawing Therapy Approach. *Journal of Autism and Developmental Disorders*, 1-8. https://doi.org/10.1007/s10803-025-06727-w

Andersen, M., & Kiverstein, J. (2024). Play in Cognitive Development: From Rational Constructivism to Predictive Processing. *Topics in Cognitive Science*. https://doi.org/10.1111/tops.12752

Barnett, K., & Vasiu, F. (2024). How the Arts Heal: A Review of the Neural Mechanisms Behind the Therapeutic Effects of Creative Arts on Mental and Physical Health. *Frontiers in Behavioral Neuroscience*, *18*, 1422361. https://doi.org/10.3389/fnbeh.2024.1422361

KMAN-CPN KMAN-Counseling & Psychology Nexus E-ISSN: 3041-9026

Behzadpoor, S., Pouretemad, H., & zardkhaneh, S. A. (2020). Predictors of Anxiety in a Sample of Preschoolers with ASD. *medRxiv*, 2020.2010. 2022.20217711.

Bellaiche, L., Lihardo, K., Williams, C., Chaffee, J., LaBar, K., & Seli, P. (2025). Selective Emotion Regulation in Creative Art Production: Psychophysiological Reactivity During Painting Reduces Anxiety. *Iscience*, *28*(6). https://doi.org/10.1016/j.isci.2025.112543

Dastjerdi, S., Ali, A., Azmoudeh, M., & Molavi, E. (2024). Comparing the Effectiveness of Cognitive-Behavioral Play Therapy and Resilience-Based Play Therapy on Anxiety, Executive Functioning Behaviors, and Emotional Expression in Children Undergoing Dental Treatment. *Applied Family Therapy Journal*, *5*(3), 1-13. https://doi.org/10.61838/kman.aftj.5.3.1

E, T. (2025). Early Diagnosis of Anxiety in Children of Primary School Age. *International Journal of Clinical Case Reports and Reviews*.

Eslami, A. A., Mazaheri, M. A., Mostafavi, F., Abbasi, M. H., & Noroozi, E. (2014). Farsi version of social skills rating system-secondary student form: Cultural adaptation, reliability and construct validity. *Iranian journal of psychiatry and behavioral sciences*, *8*(2), 97.

Etokabeka, E. (2024). Supporting the Development of Executive Function Skills Through Structured Play: A Qualitative Study of South African Preschool Teachers. *Early Childhood Education Journal*, 1-10. https://doi.org/10.1007/s10643-024-01827-1

Fernando, F., T, T., & Safitri, I. (2025). *Art Therapy for Early Childhood: Enhancing Emotional Well-Being Through Creativity* Proceedings of the Al-Ghazali International Conference, https://doi.org/10.52802/aicp.v1i1.1220

Fletcher, K., Wright, C., Pesch, A., Abdurokhmonova, G., & Hirsh-Pasek, K. (2024). Active Playful Learning as a Robust, Adaptable, Culturally Relevant Pedagogy to Foster Children's 21st Century Skills. *Journal of Children and Media*, *18*, 309-321. https://doi.org/10.1080/17482798.2024.2356956

Gresham, F. M., & Elliot, S. N. (1990). Social skills rating system. *PsycTESTS Dataset*.

Hosokawa, R., Tomozawa, R., & Fujimoto, M. (2025). Effectiveness of Second Step Program in Fostering Social-Emotional Skills in Young Children: A Study in Japan. *BMC pediatrics*, *25*(1), 276. https://doi.org/10.1186/s12887-025-05624-6

Jaggy, A., Kalkusch, I., Bossi, C., Weiss, B., Sticca, F., & Perren, S. (2023). The Impact of Social Pretend Play on Preschoolers' Social Development: Results of an Experimental Study. *Early Childhood Research Quarterly*, *64*, 13-25. https://doi.org/10.1016/j.ecresq.2023.01.012

Liu, X., Sun, L., Du, X., Zhang, C., Zhang, Y., & Xu, X. (2023). Reducing Anxiety and Improving Self-Acceptance in Children and Adolescents with Osteosarcoma Through Group Drawing Art Therapy. *Frontiers in psychology*, *14*, 1166419. https://doi.org/10.3389/fpsyg.2023.1166419

Moses, J., Lehrfield, A., Lupo, A., Fraczek, N., & Wagner, J. (2025). Attention to Threat-Related Faces in Preschool-Aged Children and Associations with Fearful Temperament. *Social Development*, *34*(3), e12810. https://doi.org/10.1111/sode.12810

Nat, M., Van Der Wilt, F., Meeter, M., & Van Der Veen, C. (2024). The Value of Pretend Play for Social Competence in Early Childhood: A Meta-Analysis. *Educational psychology review*, *36*(2), 46. https://doi.org/10.1007/s10648-024-09884-z

Navarro, E., Davis, M., Martin, S., Butler, L., Egger, H., & Carpenter, K. (2024). Pathways to Health: A Longitudinal Examination of Protective Factors in Children with and without Preschool Anxiety. *Development and Psychopathology*, *37*(3), 1584-1592. https://doi.org/10.1017/S0954579424001652

Nazerieh, N., & Niknam, M. (2024). The Effectiveness of Computer Games Rehabilitation and Cognitive Play Therapy Rehabilitation on the Risk-Taking of Children with Attention Deficit Hyperactivity Disorder. *International Journal of Applied Behavioral Sciences*, *11*(2), 1-7. https://doi.org/10.61838/kman.jarac.7.1.17

Ogelman, H., & Kahveci, D. (2024). Coping with Peer Pressure and Social Emotional Well-Being in Preschool Children. *International Journal of Educational Spectrum*, *6*(2), 191-203. https://doi.org/10.47806/ijesacademic.1409535

Rapee, R., Creswell, C., Kendall, P., Pine, D., & Waters, A. (2023). Anxiety Disorders in Children and Adolescents: A Summary and Overview of the Literature. *Behaviour Research and Therapy*, *168*, 104376. https://doi.org/10.1016/j.brat.2023.104376

Raudenská, J., Gumančík, J., Raudenský, M., Pasqualucci, A., Moka, E., & Varrassi, G. (2023). Cognitive-Behavioral Play Therapy and COVID-19 Pandemic Trauma in Preschool Children. *Cureus*, *15*(8). https://doi.org/10.7759/cureus.44249

Saskia, B., Jannati, Z., Putra, B., & Pietrzyk, I. (2025). The Effectiveness of Group Counseling with Art Therapy Methods in Reducing Social Anxiety in Children with Tunagrahita. *Al-Ihath Journal Bimbingan Konseling Islam*, *5*(2), 81-90. https://doi.org/10.53915/jbki.v5i2.632

Shayganfard, M., Kaboudi, B., Arabsheibani, K., Shakiba, E., & Cheshmekaboudi, S. (2024). Effectiveness of Cognitive-Behavioral Group Play Therapy on Anxiety-Based School Refusal and Behavioral Problems in Elementary School Boys: A Preliminary Randomized Controlled Trial. *Archives of Psychiatric Nursing*, *50*, 108-114. https://doi.org/10.1016/j.apnu.2024.03.019

Smith, S., & Monga, S. (2024). Approaching Big Fears in Little Kids: Understanding and Managing Anxiety Disorders in Preschoolers. *Child and Adolescent Psychiatric Clinics of North America*, *34*(2), 279-289. https://doi.org/10.1016/j.chc.2024.08.004

Spence, S. H., Rapee, R., McDonald, C., & Ingram, M. (2001). The structure of anxiety symptoms among preschoolers. *Behaviour research and therapy*, *39*(11), 1293-1316.

Stoyanova, D. (2024). Art as Self-Expression Therapy and a Method for Developing Emotional Intelligence in Preschool Children. *Educational Technology Journal*.

Varalakshmi, V., & Varun, P. (2025). The Contribution of Social and Emotional Skills to Children's Mental Health Development. *Shanlax International Journal of Arts, Science and Humanities*, *12*(2), 145-151. https://doi.org/10.34293/sijash.v12iS2-Jan.8901

Warne, N., Heron, J., von Gontard, A., & Joinson, C. (2024). Mental Health Problems, Stressful Life Events and New-Onset Urinary Incontinence in Primary School-Age Children: A Prospective Cohort Study. *European Child & Adolescent Psychiatry*, *33*(3), 871-879. https://doi.org/10.1007/s00787-023-02211-x

Xu, J., Akhter, S., & Apuke, O. (2025). The Effectiveness of Combining Interactive Media-Based Cognitive Behaviour Therapy with Art and Music Therapies for Ameliorating Generalized Anxiety Disorder of Children Exposed to Abduction. *Psychiatry research*, *349*, 116498. https://doi.org/10.1016/j.psychres.2025.116498

Yang, X., Yang, P., Li, D., Zhou, J., Liu, M., & Han, X. (2025). Joint Developmental Trajectories of Social Assertiveness and

Prosociality: A Parallel Process Latent Class Growth Analysis. *Journal of youth and adolescence*, 1-16.

Yohannan, S., Pathrose, S., & Devassy, S. (2025). The Effectiveness of Art Therapy in Addressing Emotional and Behavioral Issues and Enhancing Self-Esteem of Children Living in Residential Childcare Institutions: A Feasibility Study in Kerala, India. *Arts & Health*, 1-17. https://doi.org/10.1080/17533015.2025.2527185

Zeighami, R., Sarichloo, M. E., Hosseinkhani, Z., & Zeynalzad, S. (2021). Anxiety disorder of 3-6 year-old children. *Journal of Nursing and Midwifery Sciences*, *8*(2), 79-79.

Zhang, B., Wang, J., & Abdullah, A. (2024). The Effects of Art Therapy Interventions on Anxiety in Children and Adolescents: A Meta-Analysis. *Clinics*, *79*, 100404. https://doi.org/10.1016/j.clinsp.2024.100404

Zhou, M. (2024). Application and Influence of Children's Painting Psychotherapy on Early Childhood Education. *Transactions on Economics, Business and Management Research*. https://doi.org/10.62051/2rz4ga11

Zhou, S., Creswell, C., Spence, S. H., & Reardon, T. (2024). Measurement Invariance of the Higher-Order Model of Preschool Anxiety Scale Across Child Age, Gender, Parental Anxiety, and Pandemic Period in England. *Psychological assessment*, *36*(9), 526-537. https://doi.org/10.1037/pas0001325

Zhou, S., Li, H., Yang, Y., Qi, Y., Liu, W., & Mo, L. (2025). Effects of Art Therapy on Psychological Outcomes Among Children and Adolescents with Cancer: A Systematic Review and Meta-Analysis. *BMC Complementary Medicine and Therapies*, *25*(1), 149. https://doi.org/10.1186/s12906-025-04866-2