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Comparing the Effectiveness of Emotional Disclosure with Drawing and Floortime Play Therapy (Family-Based) on Social Performance and Executive Functions in Children with Anxiety Symptoms

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A B S T R A C T

Objective: This study aimed to compare the effectiveness of emotional disclosure through drawing and Floortime play therapy (family-based) on social performance and executive functions in children with anxiety symptoms.

Methods and Materials: In this quasi-experimental study, with a pretest-posttest control group design, 45 children aged 8 to 10 with anxiety symptoms were purposefully selected from the population of children in the city of Birjand and were randomly assigned to three experimental and control groups. The research tools included the Spence Children's Anxiety Scale, the Matson Social Skills Scale, and the Barkley Executive Functioning Scale.

Findings: Findings indicated that both interventions—emotional disclosure with drawing and Floortime play therapy—significantly improved social performance and reduced poor executive functioning in children with anxiety symptoms ($P < 0.01$).

Conclusion: These results suggest that art- and play-based interventions may be effective approaches in improving social skills and cognitive functioning in anxious children.

Keywords: *Emotional Disclosure, Floortime Play Therapy, Social Performance, Executive Functions, Anxiety Symptoms, Children.*

1. Introduction

Anxiety and depression are the most common and debilitating mental health disorders in children and adolescents. Cognitive-behavioral therapy (CBT) is an evidence-based treatment for both disorders; however, up to 50% of children do not experience diagnostic remission (James et al., 2020). Access to evidence-based care is also problematic, with only 19% of children and adolescents affected by these disorders receiving such care. Anxiety disorders are biopsychosocial conditions associated with generalized or situation-specific responses to perceived threats (Racine et al., 2021). The prevalence of anxiety has historically garnered significant research interest, as anxiety disorders are among the most common mental disorders. They typically manifest early in life and are associated with other mental disorders, a chronic progression, and a strong functional impact. The rising global prevalence of anxiety poses a significant threat to population well-being and quality of life (Racine et al., 2021).

Anxiety disorders exhibit varied clinical manifestations. For some, anxiety relates to specific environmental stimuli, resulting in phobias (Johns et al., 2022). Others may experience intense episodic distress, such as in panic disorder. When perceived as a threat in the prefrontal cortex and amygdala, these experiences trigger a fight-or-flight response, which can manifest as a psychophysiological response like dizziness, increased heart rate, and sweating (Santomauro et al., 2021). Without treatment, chronic anxiety can lead to many other health issues, such as hypertension, cardiovascular diseases, and dementia.

Current treatments for anxiety usually involve a combination of medication and psychotherapy (Stuart, 2023). While the physiological responses associated with anxiety can be treated pharmacologically, the psychological memories and triggers that cause anxiety require a psychological solution. A broad body of evidence shows that psychotherapies such as cognitive-behavioral therapy offer longitudinal benefits for individuals with anxiety disorders. Researchers must understand the epidemiological nature of anxiety to identify trends related to demographic factors and better target preventive and management efforts across populations (Whiteside et al., 2020).

Executive functions are neurocognitive structures responsible for monitoring awareness and goal-directed thinking. Executive functions contribute to complex operations by overseeing lower levels of functioning in tasks like goal setting, skills acquisition, multifaceted abilities, and a set of activities aimed at goal attainment (Tennant et al., 2022).

Some theories, such as the Processing Efficiency Theory (PET), propose that anxiety disrupts working memory (WM) operations. Research on WM, considered a limited-capacity cognitive system that temporarily holds information, has led to a body of empirical evidence indicating that anxious students perform worse than their non-anxious peers on WM capacity tasks (Pelegrina et al., 2024).

Although several psychological treatments have been developed for childhood anxiety disorder and have demonstrated acceptable efficacy, in most cases, these treatments fail to eliminate symptoms entirely, and patients continue to grapple with multiple fear-related issues. Group play therapy training based on drawing is a non-pharmacological method for treating childhood anxiety that combines play therapy and drawing therapy. Children enjoy and engage in play and drawing, which enhance their socialization process and boost their autonomy and self-concept. Play therapy, in addressing children's developmental needs, has been recognized as an appropriate method for treating behavioral and emotional problems in children (Asmeri Noubari et al., 2023; Cochran et al., 2023; Godino-Iáñez et al., 2020; Gupta Gupta et al., 2023).

Another therapeutic approach used for treating childhood disorders is art therapy through drawing. According to Scaife & Hewitt (1998), group drawing can help avoid individual differences and offers a way for the group to work with shared emotions, both unconsciously and consciously, on a common (Mohammadi Keshka et al., 2023). The basis of drawing therapy involves engaging individuals in the structured process of art to indirectly express their emotions and thoughts. Through projecting their inner lives onto the canvas, individuals can manage their emotions and foster personality dynamism. Additionally, spontaneous image creation in drawing provides opportunities for nonverbal communication and expression (Lima, 2023; Mohammadi Keshka et al., 2023; Woolf, 2003).

In summary, family-based Floortime play therapy training and drawing therapy aimed at emotional disclosure for children with anxiety symptoms may help children confront their anxiety. Integrating these two treatments can be a safe and beneficial approach for promoting mental health and improving children's emotional skills. Therefore, this study aims to determine the effectiveness of emotional disclosure through drawing and family-based Floortime play therapy on social performance and executive functions in children with anxiety symptoms.

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2. Methods and Materials

2.1. Study Design and Participants

The present study is a quasi-experimental design with pre-test, post-test, and follow-up phases, including a control group. The statistical population will consist of all children aged 8-10 years in South Khorasan, Qaen city, in 2024. Children with anxiety symptoms are defined as those who, in addition to meeting inclusion criteria, score more than one standard deviation above the mean on the Spence Children's Anxiety Scale for Parents (SCAS-P). According to Cohen's table, to assess and compare three groups while considering the minimum necessary test power, a medium effect size, and an error probability of 0.05, 15 participants are included in each group. Random assignment is conducted for both group allocation and intervention type. Thus, a total sample size of 45 (15 for each experimental and control group) is selected purposefully after meeting the study's entry criteria.

In this study, data were collected in two research phases: Phase One (screening and selection based on inclusion criteria): Initially, for sample selection, purposeful sampling is employed, wherein 200 children aged 8-12 in 2024 who meet the inclusion criteria respond to the Spence Children's Anxiety Scale for Parents (SCAS-P). Phase Two: Among those meeting the inclusion criteria, 60 children who score more than one standard deviation above the mean on the anxiety questionnaire are selected, and then 45 participants are randomly chosen from this group and assigned randomly to three groups, with each group randomly assigned an intervention. Inclusion criteria include the absence of specific physical illnesses, an age range of 8 to 10 years, male gender, and identification of children with anxiety symptoms (high SCAS-P scores). Exclusion criteria include more than two session absences and failure to complete the consent form.

2.2. Measures

2.2.1. Social Anxiety

This questionnaire, developed by Spence (1999), assesses anxiety symptoms in children within the general population. The items are closely aligned with the Spence Children's Anxiety Scale (SCAS) and were adapted for the parental form by rewriting items that refer to internal states (e.g., "I am scared") as observable behaviors for parents (e.g., "My child complains of feeling scared"). This scale includes 38 items rated on a Likert scale (Never, Sometimes, Often, Always), with scores ranging from 5 (Never) to 3 (Always). The questionnaire categorizes anxiety according to DSM-IV into separate disorders. It has six subscales, including Separation Anxiety (e.g., "My child worries that something bad will happen to one of our family members," 6 items); Generalized Anxiety (e.g., "My child is often worried," 6 items); Social Anxiety (e.g., "My child fears doing something foolish in front of others," 6 items); Panic and Agoraphobia (e.g., "My child suddenly feels really scared for no reason," 9 items); Obsessive-Compulsive Disorder (e.g., "My child feels compelled to think about certain things like numbers or words," 6 items); and Fear of Physical Harm (e.g., "My child is afraid of the dark," 5 items). Cronbach's alpha and Spearman-Brown correlation coefficients (in parentheses) for the anxiety group are as follows: Separation Anxiety 0.76 (0.91), Social Anxiety 0.77 (0.92), Generalized Anxiety 0.75 (0.91), Panic and Agoraphobia 0.81 (0.92), Obsessive-Compulsive 0.78 (0.92), and Physical Harm 0.61 (0.83). For the control (normal) group, reliability was similarly high: Separation Anxiety 0.74 (0.90), Social Anxiety 0.74 (0.90), Generalized Anxiety 0.65 (0.85), Panic and Agoraphobia 0.61 (0.80), Obsessive-Compulsive 0.74 (0.90), and Physical Harm 0.58 (0.81). Internal consistency for the subscales was significant in both groups and excellent for most subscales. In Mousavi's (2004) study, Cronbach's alpha for Social Fear was 0.67, Separation Anxiety 0.69, Generalized Anxiety 0.72, Agoraphobia 0.75, Physical Harm Fear 0.65, Obsessive-Compulsive 0.62, and overall Anxiety 0.89) Mousavi, 2023(.

2.2.2. Social Skills

The Matson Social Skills Assessment for Children was developed by Matson et al. in 1983 to measure social skills in individuals aged 4 to 18 years. The scale uses a 5-point Likert scale, ranging from 1 (Never) to 5 (Always). This scale contains 56 items assessing factors such as Appropriate Social Skills (e.g., eye contact, politeness, using names, eagerness to interact effectively), Inappropriate Social Behaviors (e.g., lying, fighting, criticizing others, making disturbing noises, breaking promises), Aggression and Impulsivity (e.g., easily angered, stubbornness, bullying), Dominance and Overconfidence (e.g., boasting, showing off, feeling superior), and Peer Relations (e.g., loneliness, jealousy, friendships). In Iran, Yusefi and Kheir (2002) validated the Matson Social Skills Scale with 562 male and female students from Shiraz, reporting satisfactory validity

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and a Cronbach's alpha reliability of 0.86 (Asmeri Noubari et al., 2023).

2.2.3. *Executive Functioning*

The long form of the Barkley Deficits in Executive Functioning Scale (2012) was developed by Barkley to assess executive functions in clinical and non-clinical populations, particularly children and adolescents. This scale includes 70 items scored on a 4-point Likert scale ranging from Never to Always. It consists of five subscales measuring executive functions: Self-Management to Time (questions 1-13), Self-Organization/Problem Solving (questions 14-27), Self-Restraint (questions 28-40), Self-Motivation (questions 41-54), and Self-Regulation of Emotions (questions 55-70). Seven scores are derived from this tool: five subscale scores, an overall score, and a score from 11 questions representing executive function deficits. For example, scores between 70 and 105 indicate weak executive functioning deficits, scores between 140 and 175 indicate moderate deficits, and scores above 175 indicate strong executive function deficits. Barkley reported Cronbach's alpha for the entire scale at 0.99, with subscale reliabilities ranging from 0.74 to 0.83, indicating high reliability for executive function measurements. Validity results for all subscales reached 0.79 (Khatri, 2024).

2.3. *Intervention*

2.3.1. *Floortime*

After conducting the pre-test, participants in the Floortime therapeutic program received eight sessions (two sessions per week) of 45 minutes. In the Floortime play therapy model, the child, mother, and therapist attended all therapeutic sessions (Asmeri Noubari et al., 2023; Emamian & Taher, 2021; Kohansal, 2021).

Session 1

This session focuses on group formation, introductions, and establishing rapport. The therapist introduces the goals of therapy, motivates and gains the trust of mothers, explains the principles of Floortime therapy, and discusses session rules. The mother's perspective on the therapy's objectives is explored, along with the individual characteristics of each child, emphasizing individual differences in interaction. Mothers are guided on how to respond to these differences. The mother and child familiarize themselves with the Floortime playroom, observing and engaging in play principles. Mothers are encouraged to interact and share emotional experiences with their children.

Session 2

This session involves educating mothers on understanding their child's behaviors, interests, and abilities. Attention is drawn to the child through play and preferred stimuli, with a focus on sensory and emotional performance during mother-child interactions. Activities, such as symbolic play and traditional games, are introduced to enrich relationships, foster group cohesion, and improve children's persistence and tolerance in tasks.

Session 3

A review of Floortime techniques is conducted, encouraging the child to build adaptive self-talk and apply it in play. The child leads the activities, with the therapist's support, while the mother encourages exploration and learning. Activities are centered around response inhibition, teaching children to pause before reacting to stimuli, including a writing exercise without punctuation. The children are also asked to write a sentence omitting the letter "B" to practice working memory and planning.

Session 4

This session focuses on sensory processing games that engage the child's sensory system within the child-mother-therapist triad, directed by the child's interests and emotions. Memory-enhancing activities, such as hiding and moving objects for guessing changes, are used. To strengthen memory further, the "Mnemonics Helper" technique is introduced to help children retain information.

Session 5

Games are introduced to build emotional responses and strengthen communicative loops between mother and child. Activities target working memory and visual information retention, including mental arithmetic with researcher-prepared cards. The session ends with a traditional family game to develop emotional connections.

Session 6

This session emphasizes goal-oriented organization skills within problem-solving tasks, focusing on the child's leadership, interests, and emotions. Symbolic play, imaginative thinking, and visual imagery are practiced. The therapist assists mothers in forming communicative, emotional, and verbal connections with their children, facilitating mutual interaction. Exercises such as paper wars, creative role-play, and recounting personal problem-solving experiences using the "Cloud Thought" technique allow active involvement of both mother and child.

Session 7

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Floortime exercises focus on fostering reciprocal emotional signals between mother and child, helping the child distinguish between perception and action. Through structured play activities, children learn effective problem-solving and organization skills. The therapist guides children in addressing prominent challenges and teaches them how to create structured plans to overcome obstacles.

Session 8

This final session reviews the child's progress in forming interactive loops within Floortime play therapy, with a focus on linking ideas and establishing connections based on the child's interests. A comprehensive review of therapy goals and principles is conducted, and the session concludes with a token of appreciation for the children. The post-test assessment is administered to evaluate outcomes.

2.3.2. Emotional Disclosure

After conducting the pre-test, participants in the emotional disclosure through drawing program received eight sessions (two sessions per week) of 45 minutes (Anjam & Dortaj, 2020; Yousefi Afrashteh & Ayar, 2023).

Session 1

In this session, the group is introduced, and group rules are explained in simple terms. The therapist establishes a therapeutic connection and introduces emotional disclosure through drawing. Participants are asked to illustrate their deepest thoughts and feelings about painful and distressing memories. Children are encouraged to verbalize their emotions depicted in the drawing.

Session 2

Session 2 begins with a review of the previous session's concepts and objectives. Participants are invited to continue expressing their emotions related to the previous topic by adding additional feelings to their initial drawing, without needing to explain the exact events.

Session 3

Communication skills are taught, and participants are asked to externalize their learning in a drawing, using color to represent relationships. They select colors to depict how they perceive different social connections, with the variation in colors reflecting children's perspectives on social relationships.

Session 4

Participants are introduced to kindness, friendliness, and establishing warm connections by drawing various emotive faces (happy, sad, angry, calm). They are then asked to draw their own and their family members' faces, explaining their drawings to the therapist.

Session 5

The concept of thoughtful reflection on events, avoiding quick judgments, and the impact of rushed decisions on relationships is discussed. Children illustrate their understanding through emotive faces, showing expressions they would have if others judged them hastily. They then draw another face representing a calmer response, with the therapist guiding them in comparing these responses.

Session 6

A review of previous assignments is conducted. Participants learn about the consequences of aggressive behaviors and anger management, drawing an angry and a calm animal. They choose which animal they would prefer to be and explain their choice.

Session 7

Participants are presented with emotionally charged words (negative: guilt, sadness, hate; positive: joy, goodness, love) and are asked to create mental images for each, translating these into drawings of people, animals, or objects. The therapist discusses each drawing with the participant to better understand their emotional state.

Session 8

In the final session, participants reflect on their strengths and areas for growth through a discussion with the therapist, drawing emotive faces to express both positive and negative emotions. They share their drawings with the group, explaining the outcomes of each emotion they portrayed.

2.4. Data analysis

The first intervention group received emotional disclosure through drawing in eight 45-minute sessions, and the second intervention group received family-based Floortime play therapy in eight 45-minute sessions, while the control group remained on the waitlist. Ethical considerations included voluntary participation and confidentiality, with informed consent signed by the parents. Although the control group did not receive an intervention, a two-session free educational intervention was provided after the follow-up period to maintain ethical standards. The research obtained both a clinical trial registration and ethical approval code. Research data are analyzed in two sections: descriptive (demographic data; age, gender) and inferential (mean and standard deviation in pre-test, post-test, and follow-up). Additionally, the Chi-square and ANOVA tests are used to examine group homogeneity. Data analysis is

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conducted in SPSS 26 using covariance analysis, with the assumptions for ANCOVA and Levene's test being examined and reported before analysis.

3. Findings and Results

The results indicate that 26.6% of participants were 8 years old, 40% were 9 years old, and 33.4% were 10 years old. Descriptive indices for the social performance variable, including mean and standard deviation for the three study groups at pre-test, post-test, and follow-up stages, are presented in Table 1.

Table 1

Descriptive Indices of Social Performance and Executive Functions Variables

Variable	Stage	Emotional Disclosure with Drawing	Floortime Play Therapy	Control
Social Performance	Pre-test	100.53 (6.8)	98.86 (6.32)	102.6 (6.18)
	Post-test	153.93 (3.67)	183.73 (5.34)	111.87 (7.12)
	Follow-up	168.33 (5.98)	177.2 (4.92)	111.65 (6.57)
Executive Functions	Pre-test	178.53 (3.14)	172.4 (4.1)	173.13 (3.89)
	Post-test	114.02 (5.56)	111.3 (5.52)	166.8 (3.06)
	Follow-up	113.07 (4.57)	118.4 (4.52)	152.6 (3.5)

Table 1 shows that, in the post-test and follow-up stages, the mean scores for social performance and executive functions in the two experimental groups increased significantly compared to the pre-test stage. To ensure the normality of the data, the Shapiro-Wilk test was employed. The Shapiro-Wilk test significance level for all three groups exceeded 0.05, supporting the null hypothesis of normality for the social performance and executive function data across the experimental and control groups in all stages.

The Levene's test results for assessing error variance equality indicate a significance level of 0.053 for social performance, which is greater than 0.05, confirming error variance homogeneity and meeting the assumption. The significance level for the interaction effect of group versus pre-test was 0.546, exceeding 0.05, so the homogeneity of regression slope assumption is accepted. Table 2 is crucial for interpreting ANCOVA results and shows the significance or non-significance of the independent variable's (group's) effect.

Table 2

ANCOVA Analysis and Linearity of Educational Group Effects on Social Performance and Executive Functions

Variable	Effect	Sum of Squares	df	Mean Squares	F	p-value	Eta Squared
Social Performance	Pre-test	1891.053	1	1891.053	4.408	0.042	0.097
	Group	40047.59	2	20023.795	46.671	0.000	0.695
	Error	17590.547	41	429.038			
Executive Functions	Pre-test	449.59	1	449.59	1.281	0.264	0.030
	Group	11423.457	2	5711.728	16.274	0.000	0.443
	Error	14389.476	41	350.963			

Table 2 shows that the significance level for the group variable on social performance is reported as 0.001, which is less than 0.05, indicating a significant impact of these two variables on mean social performance scores. This suggests that, after controlling for pre-test effects, mean social performance scores differed significantly between the experimental and control groups in the post-test. In other words, emotional disclosure with drawing and family-based Floortime play therapy significantly improved social performance in children with anxiety symptoms. The effect size for the group variable is reported as 0.695, showing that emotional disclosure with drawing and Floortime play therapy explain 69.5% of the variance in social performance for children with anxiety symptoms.

Mean executive function scores in the experimental groups also differed significantly from the control group in the post-test after controlling for pre-test effects. This indicates that emotional disclosure with drawing and family-based Floortime play therapy significantly reduced executive dysfunction in children with anxiety symptoms. The effect size for the group variable is 0.443, showing that these interventions explain 44.3% of the variance in

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executive functions for children with anxiety symptoms. To further explore the nature of differences between the study groups, pairwise comparisons using the Bonferroni post hoc test for both post-test and follow-up stages were conducted, as shown in Table 3.

Table 3

Bonferroni Test Results for Social Performance

Dependent Variable	Group (I)	Group (J)	Standard Error	Significance
Post-test	Emotional Disclosure with Drawing	Floortime Play Therapy	7.86424	1
		Control	7.86424	0.000
	Floortime Play Therapy	Emotional Disclosure with Drawing	7.86424	1
		Control	7.86424	0.000
	Control	Emotional Disclosure with Drawing	7.86424	0.000
		Floortime Play Therapy	7.86424	0.000
Follow-up	Emotional Disclosure with Drawing	Floortime Play Therapy	8.29955	1
		Control	8.29955	0.000
	Floortime Play Therapy	Emotional Disclosure with Drawing	8.29955	1
		Control	8.29955	0.000
	Control	Emotional Disclosure with Drawing	8.29955	0.000
		Floortime Play Therapy	8.29955	0.000

Bonferroni test results in Table 3 show that mean social performance in the emotional disclosure with drawing and Floortime play therapy groups is significantly higher than the control group. However, the difference in mean social performance between the emotional disclosure with drawing and Floortime play therapy groups was not significant, indicating that both interventions similarly improved social performance compared to the control group.

Table 4

Bonferroni Test Results for Executive Functions

Stage	Group (I)	Group (J)	Standard Error	Significance
Post-test	Emotional Disclosure with Drawing	Floortime Play Therapy	6.86354	1
		Control	6.86354	0.000
	Floortime Play Therapy	Emotional Disclosure with Drawing	6.86354	1
		Control	6.86354	0.000
	Control	Emotional Disclosure with Drawing	6.86354	0.000
		Floortime Play Therapy	6.86354	0.000
Follow-up	Emotional Disclosure with Drawing	Floortime Play Therapy	5.991	1
		Control	5.991	0.000
	Floortime Play Therapy	Emotional Disclosure with Drawing	5.991	1
		Control	5.991	0.000
	Control	Emotional Disclosure with Drawing	5.991	0.000
		Floortime Play Therapy	5.991	0.000

Bonferroni test results in Table 4 reveal that mean executive function scores in the emotional disclosure with drawing and Floortime play therapy groups are significantly lower than those in the control group. However, the difference in mean executive function scores between the emotional disclosure with drawing and Floortime play therapy groups was not significant. This indicates that both interventions effectively reduced executive dysfunction compared to the control group, with no significant difference between the two experimental groups.

4. Discussion and Conclusion

This study aimed to compare the effectiveness of emotional disclosure through drawing and family-based Floortime play therapy on social performance, executive functions, emotion regulation difficulties, and reducing internalizing and externalizing symptoms in children with anxiety symptoms. The findings across study hypotheses are

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summarized as follows. Repeated measures ANOVA indicated that emotional disclosure through drawing and Floortime play therapy had a significant effect on the social performance of children with anxiety symptoms, with the intervention effect sustained at follow-up. No prior research has specifically compared the effectiveness of emotional disclosure through drawing versus family-based Floortime play therapy on social performance in anxious children. However, individually, this study aligns with prior studies (Anjam & Dortaj, 2020; Asmeri Noubari et al., 2023; Emamian & Taher, 2021; Kohansal, 2021; Yousefi Afrashteh & Ayar, 2023) regarding the efficacy of each approach on related variables.

The results are consistent with findings by Asmari Noubari et al. (2023), who demonstrated that Floortime is a type of play therapy involving parents, teachers, and therapists in play activities that interest the child, allowing them to learn social skills in an engaging manner (Asmeri Noubari et al., 2023). This aligns with Goker-Ozdemir (2023), who showed significant differences between pre-test and post-test scores in subscales of social competence, anger aggression, and anxiety withdrawal (Göker-Özdemir & Sertelin-Mercan, 2023), as well as Kohansal (2021), who found that participation in Floortime sessions increased social skills in preschool children (Kohansal, 2021).

Art, specifically drawing, is a valuable tool for communicating with children, helping improve social skills and prevent later issues in adulthood. Previous research indicates that anxious children are at higher risk of psychological harm, suggesting deficits in emotion regulation. Emotional disclosure through drawing aims to improve control over negative emotions in anxious children and can be effectively combined with other treatments. Artistic activities offer healthy engagement, facilitate emotional regulation, and foster brain integration, reducing the likelihood of behavioral and emotional issues. The engaging nature of artistic activities increases children's willingness to participate in such interventions (Lima, 2023; Mohammadi Keshka et al., 2023; Snir, 2022). Additionally, art therapy enhances emotional perception and anger management by promoting adaptive responses, problem-solving skills, and non-aggressive methods for complex emotional expression. As a medium, visual arts like drawing facilitate the projection and expression of thoughts and feelings. Through drawing, children experience and construct their understanding of life, which, when conducted in a group setting, provides additional benefits. Group environments allow children to receive peer feedback, especially for those who may feel less comfortable around adults. Art creation also has inherent therapeutic potential, emphasizing the cathartic role of defensive mechanisms (Mohammadi Keshka et al., 2023).

The effect of emotional disclosure through drawing on social skills can be attributed to the facilitation of communication among children, increasing intimacy, self-disclosure, and open expression within a therapeutic relationship focused on drawing. When conducted in a group format, the impact is enhanced, improving children's social interactions. Shared goals influence personal domains such as interaction with others.

It can also be posited that children observe and learn appropriate behaviors by watching their peers in a social environment, which is essential for social skill development. Group activities provide valuable information about social behavior, fostering social skills through interaction, cooperation, and social learning.

Effective social skills and communication are vital for successful life performance. Social skills encompass learned behaviors that enable children to engage effectively with others and avoid irrational social responses. Floortime therapy involves the active participation of parents, teachers, and therapists in child-centered activities, such as play, to teach social skills (Asmeri Noubari et al., 2023).

Floortime play therapy is particularly effective in reducing social anxiety in children by providing a supportive, enjoyable environment for practicing empathy and understanding others' emotions, thereby improving social performance. It emphasizes not only individual skill development but also the strengthening of family and social relationships.

Repeated measures ANOVA indicated that both emotional disclosure through drawing and Floortime play therapy had a significant effect on executive functions in children with anxiety symptoms, with the intervention effect sustained at follow-up. Although no studies have compared the two methods specifically for executive functions in anxious children, this study aligns with prior findings (Emamian & Taher, 2021; Qiu & Zhang, 2023; Wong & Chang, 2023) on the effectiveness of each method individually. Qiu and Liang (2023) demonstrated that non-pharmacological interventions are effective for executive functions in children and adolescents with ADHD, Wong and Chang (2023) showed that ADHD groups had poorer neuropsychological performance than typically developing groups (Wong & Chang, 2023), and Emamian et al. (2021) reported the combined effectiveness of Floortime play

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therapy and neurofeedback with cognitive exercises for children with ADHD (Emamian & Taher, 2021).

Emotional disclosure is a process of expressing and processing emotions, which can have a profound impact on improving executive functions. Drawing as an emotional disclosure technique provides a space for expressing emotions, especially for those who may struggle with verbal expression. The left hemisphere of the brain, responsible for analytical activities, and the right hemisphere, which processes sensory and integrative activities, are both engaged through art therapy, supporting improvement in executive functions (Pelegrina et al., 2024; Wong & Chang, 2023).

Art-based emotional disclosure can be particularly effective for teaching cognitive concepts like problem-solving, attention, and planning to anxious children, while non-verbal art expression enables children with limited vocabulary to communicate their intense emotions. This allows teachers and parents to understand experiences that children cannot verbally describe. Emotional disclosure has intrinsic therapeutic potential, emphasizing the key role of cathartic defense mechanisms. Drawing activities require planning, organization, focus, and resource-sharing, making emotional disclosure through drawing a useful method for observing and assessing children with anxiety. It helps individuals recognize their emotions, developing positive mental patterns and promoting mental well-being. Family-based Floortime play therapy is an interactive approach that helps anxious children develop social, emotional, and cognitive skills through natural, child-centered interactions and games (Kohansal, 2021).

Floortime therapy enhances children's self-confidence, promoting executive functioning. Through play, children experience autonomy, organizing activities based on their strengths and alleviating internal barriers, which fosters emotional calm. This relaxation, combined with the release of negative emotions that hinder children's potential, enables them to focus on essential cognitive and executive tasks. By building self-confidence and social interaction skills, children develop the foundation for using skills such as attention, planning, organization, problem-solving, and creativity.

5. Limitations & Suggestions

This study was conducted with 8-10-year-old children with anxiety in Birjand, so generalizing the results to other populations should be done cautiously. Another limitation was using self-report questionnaires, which may introduce response bias. Some children may have given inaccurate answers due to impatience, fatigue, or attentional difficulties, which could impact the study's findings. Since emotional disclosure through drawing and Floortime play therapy were found to improve the social performance of anxious children, it is recommended that clinics incorporate these methods alongside pharmacological treatments to enhance treatment outcomes and mental well-being in children with anxiety.

As the effectiveness of emotional disclosure through drawing and family-based Floortime play therapy in improving executive functions and emotion regulation was demonstrated, therapeutic clinics should consider these methods to improve treatment outcomes. Due to the importance of emotional disclosure through drawing and family-based Floortime play therapy, it is suggested that these methods be studied alongside variables such as creativity and communication skills. Using other methods, such as interviews with psychology experts and clinic administrators, may also enhance data collection due to potential bias in self-reported questionnaires.

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Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

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

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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Authors' Contributions

All authors equally contributed in this article.

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