

# Comparing the Effectiveness of Cognitive-Behavioral Play Therapy and Resilience-Based Play Therapy on Anxiety, Executive Functioning Behaviors, and Emotional Expression in 6 to 8-Year-Old Children Undergoing Dental Treatment

Seyed Hasan. Hosseini Dastjerdi<sup>1</sup>, Amir. Panah Ali<sup>2\*</sup>, Masoumeh. Azmoudeh<sup>3</sup>, Elaheh. Molavi<sup>4</sup>

<sup>1</sup> PhD student in Counseling, Department of Counseling, Tabriz Branch, Islamic Azad University, Tabriz, Iran

<sup>2</sup> Assistant Professor, Department of Psychology and Counseling, Tabriz Branch, Islamic Azad University, Tabriz, Iran

<sup>3</sup> Assistant Professor, Department of Psychology, Tabriz Branch, Islamic Azad University, Tabriz, Iran

<sup>4</sup> Assistant Professor, Department of Children and Adolescent Dentistry, Tabriz University of Medical Sciences, Tabriz, Iran

\* Corresponding author email address: panahali@iaut.ac.ir

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### ABSTRACT

**Objective:** This study aimed to compare the effectiveness of cognitive-behavioral play therapy and resilience-based play therapy on anxiety, executive functioning behaviors, and emotional expression in children aged 6 to 8 years undergoing dental treatment.

**Methods:** The current research was a quasi-experimental study with a pre-test, post-test design, including a control group and a two-month follow-up period. All children aged 6 to 8 visiting specialty dental clinics in Isfahan during the first six months of 2021 constituted the research population. Forty-five children were selected using purposive sampling based on inclusion criteria and were randomly assigned to three equal groups of fifteen. Data collection was carried out using the Revised Children's Anxiety Scale - Short Form (Ahlen et al., 2018), the Emotion Expression Questionnaire - Child Form (Penza-Clyve & Zeman, 2002), and the Executive Functioning Questionnaire (Gioia et al., 2000). Cognitive-behavioral play therapy sessions were conducted based on the protocol by Hall, Kaduson, and Schaefer (2002), and resilience-based play therapy sessions followed the protocol by Nikneshan et al. (2019), each lasting for eight weekly sessions of 60 minutes. However, the control group did not receive these interventions. Data analysis was performed using descriptive statistics and mixed ANOVA with SPSS software, version 26.

**Findings:** Results indicated that the mean scores of executive functioning behaviors and their dimensions significantly improved in the experimental groups at post-test compared to the control group, and these improvements remained stable at follow-up ( $p < 0.05$ ). Moreover, therapeutic interventions (both cognitive-behavioral and resilience-based play therapy) significantly improved scores on anxiety and emotional expressiveness compared to the control group. Additionally,

post hoc Bonferroni tests showed that cognitive-behavioral play therapy was more effective than resilience-based play therapy in reducing anxiety scores and increasing skills in emotional expression and executive functioning in children undergoing dental treatment ( $p < 0.05$ ).

**Conclusion:** These findings further clarify the role of play therapy in children undergoing dental treatment and highlight the necessity of using therapeutic approaches derived from the cognitive-behavioral model to modulate symptoms in these children.

**Keywords:** *Cognitive-behavioral play therapy, Resilience-based play therapy, Anxiety, Emotional expression, Executive functioning, Children*

## 1. Introduction

Anxiety, as a negative emotion, can impact various aspects of children's lives and leave detrimental effects on their psychosocial issues. Anxious children tend to avoid confronting objects or stressful situations, leading to a perceived lack of control over their psychophysical responses to stressors (Egbe et al., 2023; Farnam et al., 2020). It is important to understand that anxiety problems and disorders in children rarely occur in isolation; typically, many children who meet the diagnostic criteria for one type of anxiety disorder also exhibit symptoms of other anxiety disorders and face significant emotional and behavioral challenges (Akbari et al., 2017; Amiralsadat Hafshejani et al., 2021; Ramadhan & Yuliza, 2022).

Another variable examined in this study, which can be observed in children visiting dental centers, is executive functioning behaviors. Clinical specialists are keen to assist parents, teachers, and clients in various settings such as clinics, schools, and homes by understanding the elements and components of executive actions to treat children's executive dysfunctions. Like other psychological constructs, the term "executive functioning" is used differently depending on the knowledge and objectives of the specialists and refers to the capacities that involve an individual in perceptions, emotions, thoughts, and organized, strategic, and self-regulated actions, which are dependent on the brain, particularly the function of the prefrontal cortex, and comprise a set of processes and higher brain activities that independently, yet coordinately, take responsibility for controlling, regulating, and directing individual behavior (Bardeen et al., 2022).

Given that the presence of fear, anxiety, and psychological issues in children can hinder the care and follow-up of treatment (Ahlen et al., 2018; Egbe et al., 2023), attention to therapeutic methods, especially in pre-school ages, becomes crucial for reducing psychological problems in children. Psychotherapists use various

treatments for anxiety and psychological problems in children, including cognitive-behavioral therapy, family therapy, and play therapy (Davis & Barnes, 2021). The cognitive-behavioral approach is based on three assumptions: an individual's behavior is influenced by thoughts, imaginations, perceptions, and other cognitive events; individuals play an active role in their learning and create some of their environment; and for cognitive constructs to be useful in individual efforts to change behavior, cognitive and behavioral involvement must be realized practically (Murray, 2015). In this treatment, the focus is on objectivity, evaluation, and assessment from one side and incorporating the role of memory and cognition in reconstructing and interpreting information from the other (Knell, 2015; Knell & Dasari, 2016). On the other hand, a child needs to play in every situation. Play has many benefits and values for children (Muchiri, 2021; Murray, 2015). Through it, they understand phenomena, comprehend relationships, and feel comfortable, using it as a tool for creating connections, exchanges, and experimenting and mastering external realities (Laidlaw, 2021).

However, beyond cognitive-behavioral intervention in the form of play for children, it is necessary to sufficiently consider other aspects of the impact and effects of psychological variables (Masten & Barnes, 2018). Research has shown that issues such as anxiety, emotions, and executive functioning behaviors affect the resilience levels of children and adolescents (Muchiri, 2021). These problems can reduce resilience and consequently increase confusing behaviors, potentially predisposing individuals to psychological pathology (Dudek et al., 2021). Theoretically, it seems that the loss of resilience and the occurrence of psychological problems have similar behavioral consequences (Chang et al., 2021). It is possible that reduced resilience is linked to other psychological issues and thus predisposes individuals to emotional and behavioral problems (Pentón Herrera, 2021). Moreover, learning and

memory logically link to resilience, as resilience requires adaptation (Dudek et al., 2021).

Based on the stated information and considering the evidence and research support presented regarding the relationship between anxiety, executive functioning behaviors, and emotional expression with resilience and cognitive-behavioral skills, it was necessary to utilize resilience-based play therapy and cognitive-behavioral play therapy in this study to examine their effects on anxiety, executive functioning behaviors, and emotional expression in 6 to 8-year-old children undergoing dental treatment. This approach aims to accelerate modern scientific studies to assist children with psychological problems and their families. Furthermore, as the researcher has reviewed, most foreign studies have predominantly used cognitive-behavioral therapy to treat this condition. While play therapy has significant suitability for children and assisting them in the areas they struggle with, this study seeks to address the existing gaps in this field by answering the question, "Are cognitive-behavioral play therapy and resilience-based play therapy effective in reducing anxiety, enhancing executive functioning behaviors, and improving emotional expression in 6 to 8-year-old children undergoing dental treatment?" and "Is there a difference in the effectiveness of cognitive-behavioral play therapy and resilience-based play therapy on anxiety, executive functioning behaviors, and emotional expression in these children?".

## 2. Methods

### 2.1. Study design and Participant

This study was applied in nature and employed a quasi-experimental design with a pre-test, post-test, and follow-up (2 months) with a control group. The study population included children aged 6 to 8 years undergoing dental treatment and their mothers, who visited medical centers in Isfahan during the first six months of 2021. Among the visitors to the medical centers in Isfahan, 45 individuals were selected using purposive sampling based on the inclusion criteria and were randomly assigned into three groups (two experimental and one control group), each consisting of 15 participants. Inclusion criteria for the study included parental consent and cooperation for their children's participation in intervention sessions, children's willingness to participate in the study, children's healthy physical condition to attend play therapy sessions, completion of self-report tools with parental assistance, and exclusion criteria included absence from more than one intervention session, presence of

psychological disorders or illness in the child, suffering from any chronic medical conditions such as heart disease and epilepsy, receiving other psychological treatments concurrently with or within the last six months of the current study, and failure to perform the pre-test or post-test.

Ethical considerations of the research included informed and voluntary consent for participation, the right to withdraw from the study, confidentiality of information, privacy protection, avoidance of any potential harm (psychological, physical, social, economic, and legal) to participants, non-discrimination, and thorough explanation to participants on how to complete the research tools.

### 2.2. Measures

#### 2.2.1. Anxiety

In this study, the parental version of the Children's Anxiety Questionnaire, developed by Ahlen et al. (2018), was used to assess the children's anxiety levels. This version was designed to develop a specific form of Spence's Children's Anxiety Scale while maintaining the content, convergent, and divergent validity of the original scale and includes 19 questions assessing five components of anxiety: separation anxiety (questions 3, 5, 19), social anxiety (questions 4, 6, 7), panic-agoraphobia (questions 9, 11, 14, 16, 17), specific phobia (questions 2, 13, 15, 18), and generalized anxiety (questions 1, 8, 10, 12). The questionnaire uses a 4-point Likert scale for scoring: never=0, sometimes=1, often=2, always=3. This questionnaire was administered to 371 children by Åhlin and colleagues, demonstrating a Cronbach's alpha reliability of 0.89 for the entire questionnaire, with the components respectively showing 0.62 for separation anxiety, 0.70 for social anxiety, 0.78 for panic-agoraphobia, 0.65 for specific phobia, and 0.76 for generalized anxiety (Ahlen et al., 2018). In Iran, this questionnaire was administered to 225 children to test reliability, resulting in a Cronbach's alpha of 0.93 for the entire questionnaire, with respective values of 0.80 for separation anxiety, 0.70 for social anxiety, 0.81 for panic-agoraphobia, 0.80 for specific phobia, and 0.89 for generalized anxiety (Amiralsadat Hafshejani et al., 2021; Ariapooran & Abbasi, 2020).

#### 2.2.2. Emotion Expression

This study used the Emotion Expression Questionnaire created by Penza-Clyve and Zeman (2002) to measure children's emotional expression. The questionnaire includes

16 items and assesses two subscales: poor emotional awareness (8 items) and unwillingness to express emotions (8 items). Responses are rated on a 5-point Likert scale: not at all true=1, slightly true=2, somewhat true=3, very true=4, and extremely true=5. Scores range from 16 to 80, with higher scores indicating greater difficulties in emotional expression. The developers reported internal reliability coefficients of 0.83 for unwillingness to express emotions and 0.81 for poor emotional awareness, and validity was established through significant negative correlations with the Children's Depression Inventory, the Children's Trait Anxiety Inventory, and the Children's Somatization Inventory (Penza-Clyve & Zeman, 2002). In the Iranian study by Arianpour (2016), Cronbach's alpha for the subscale of unwillingness to express emotions was 0.79 and 0.71 for poor emotional awareness. Other domestic studies have reported a Cronbach's alpha of 0.74 for unwillingness to express emotions and 0.71 for poor emotional awareness (Ariapooran & Abbasi, 2020).

### 2.2.3. Executive Functioning

Developed by Gioia et al. (2000), this questionnaire contains 86 questions suitable for children aged 6 to 12 years, measuring two indices: behavioral regulation (including inhibition, attention shifting, emotional control) and metacognition (including initiation, working memory, strategic planning, organization, monitoring). Scoring is based on a 3-point Likert scale: never=0, sometimes=1, always=2. Internationally, reliability of the inventory has been examined using Cronbach's alpha and test-retest methods, reporting Cronbach's alpha between 0.80 and 0.98 and test-retest reliability of 0.82 (Balsamo et al., 2019). In domestic research, internal consistency of the questionnaire has been verified with Cronbach's alpha, yielding coefficients of 0.85 for inhibition, 0.77 for attention shifting, 0.78 for emotional control, 0.68 for initiation, 0.77 for working memory, 0.86 for strategic planning, 0.77 for organization, and 0.77 for monitoring (Abdolmohamadi et al., 2017).

## 2.3. Interventions

### 2.3.1. Cognitive-Behavioral Play Therapy

Cognitive-behavioral play therapy sessions were conducted according to the protocol by Hall, Kaduson, and Schaefer (2002) for 8 sessions (once a week) and lasted 60

minutes per session for the experimental group participants (Knell, 2015; Knell & Dasari, 2016).

Session 1: The first session focused on psychological education, self-monitoring, and explanations about the prevalence and nature of pain and dental treatment pain control methods. The children were instructed to track the frequency, intensity, duration of pain, and other related symptoms (such as interference in daily activities) to monitor progress.

Session 2: The second session aimed to identify emotions using cartoon images depicting various feelings. The children guessed the emotions displayed and then mimicked these emotions through pantomime, helping them understand and express their feelings.

Session 3: This session taught coping skills. Initially, several mazes were provided to help children find exits and solutions. Subsequently, through role-playing games, children practiced how to manage difficult times when they feel overwhelmed.

Session 4: Deep breathing exercises were taught through play, such as imagining inflating and deflating a balloon in their stomach. This method aims to help children manage their physiological responses to stress.

Session 5: Progressive muscle relaxation was introduced. For example, children were asked to pretend to be a "robot" and then a "rag doll," helping them understand and regulate their body tension.

Session 6: The focus was on building positive self-belief and the role of self-talk during painful experiences. Children learned to identify negative thoughts and replace them with more adaptive thoughts, such as "I've managed this before, so I can do it again."

Session 7: The role of distraction and self-reinforcement activities was explored. Children identified activities they could engage in to distract from pain or cope with it, like focusing on tiles or the patterns on parquet floors.

Session 8: Parental training was provided, instructing parents not to focus on complaints of pain and to encourage the child to engage in other activities. Techniques of distraction and ignoring non-verbal pain behaviors were taught.

### 2.3.2. Resilience-Based Play Therapy

Resilience-based play therapy sessions were conducted according to the protocol by Nikneshan et al. (2019) for 8 sessions (once a week) and lasted 60 minutes per session for

the experimental group participants (Ashori & Karimnezhad, 2019).

Session 1: This session established a trusting relationship between the therapist, the child, and among peers, with storytelling about children's pain using two puppets and the activities they engage in during such times.

Session 2: Children were taught to recognize and understand emotions through storytelling techniques, where children guessed the emotions experienced by the characters in the stories.

Session 3: Problem-solving skills were taught using puppetry (e.g., a puppet named Farhad who is ill), and children were asked to suggest solutions to the problems encountered by the characters.

Session 4: Assertive behavior and self-esteem were enhanced through role-playing. Using finger puppets and performing plays, children learned and demonstrated the differences between aggressive, passive, and assertive behaviors.

Session 5: Stress control methods such as deep breathing and relaxation exercises were taught alongside playful activities like making bigger bubbles with bubble makers, which serve as practical demonstrations of proper breathing techniques.

Session 6: Optimism was taught using 'optimism and pessimism glasses' (a cognitive distortion identification tool) combined with playful activities, helping children understand and practice seeing situations in a positive light.

Session 7: Peer interaction and communication skills were addressed using puppetry techniques and finger puppets. The activity, "Will you be my friend?" helped children understand the differences between positive and

negative behaviors in friendships and the emotions these behaviors can evoke, which might impact the development and persistence of psychological issues.

Session 8: The final session focused on parental education, aimed at accepting both positive and negative emotions of the child. Empathy towards the child's feelings and techniques for parents to enhance their child's resilience were discussed.

2.4. Data Analysis

This study employed descriptive statistics (demographic information, mean, and standard deviation) and inferential statistics (multivariate covariance analysis and variance with repeated measurements at the follow-up stage). Additionally, prior to conducting the analysis, assumptions including the Shapiro-Wilk test for normality, Levene's test for homogeneity of variances, M Box for examining variance-covariance matrices, pre-test and group interaction for homogeneity of regression line slope, multicollinearity, and linearity (scatter plot) were used. Finally, the comparative effectiveness of cognitive-behavioral play therapy and resilience-based play therapy was examined using the Bonferroni post hoc test in SPSS software, version 26.

3. Findings and Results

The demographic information for the three groups based on age (in years), gender (male-female), education levels (university-non-university), and employment status (homemaker/unemployed and employed) is presented in Table 1.

Table 1

Frequency and Percentage of Demographic Information for Children in Two Groups

Research Variable	Levels	CBPT	RBPT	Control
Age (in years)	6 years	26% (4)	20% (3)	26% (4)
	7 years	40% (6)	40% (6)	40% (6)
	8 years	34% (5)	40% (6)	34% (5)
Gender	Male	34% (5)	40% (6)	26% (4)
	Female	66% (10)	60% (9)	74% (11)
Mother's Education	University	34% (5)	40% (6)	20% (3)
	Non-university	66% (10)	60% (9)	80% (12)
Mother's Job	Homemaker	74% (11)	74% (11)	66% (10)
	Employed	26% (4)	26% (4)	34% (5)

Table 1 shows that the three groups do not differ significantly in terms of age (in years), gender, education

levels (university-non-university), and employment status (homemaker/unemployed and employed).

**Table 2**

*Mean and Standard Deviation of Research Variables by Group and Different Assessment Stages*

Dependent Variable	Group	Pre-test (M ± SD)	Post-test (M ± SD)	Follow-up (M ± SD)
Separation Anxiety	CBPT	2.07 ± 6.20	2.15 ± 4.26	2.27 ± 3.80
	RBPT	2.16 ± 4.53	1.62 ± 2.93	1.55 ± 2.86
	Control	2.94 ± 4.66	2.72 ± 5.46	2.43 ± 5.66
Social Anxiety	CBPT	2.06 ± 5.40	2.70 ± 3.80	2.72 ± 3.53
	RBPT	2.65 ± 5.20	2.39 ± 4.00	2.78 ± 4.26
	Control	1.64 ± 5.13	1.30 ± 5.86	1.30 ± 5.86
Panic	CBPT	2.77 ± 9.13	1.88 ± 7.46	1.85 ± 7.00
	RBPT	2.33 ± 9.53	3.01 ± 7.00	2.17 ± 7.06
	Control	2.89 ± 7.93	1.87 ± 8.66	1.87 ± 8.66
Specific Phobia	CBPT	1.98 ± 7.93	2.44 ± 5.86	2.06 ± 5.53
	RBPT	2.28 ± 8.73	2.57 ± 6.06	2.17 ± 6.00
	Control	2.18 ± 6.06	1.95 ± 6.66	1.77 ± 6.85
Generalized Anxiety	CBPT	1.49 ± 9.66	2.34 ± 7.93	2.28 ± 7.66
	RBPT	2.00 ± 8.20	3.39 ± 6.14	2.10 ± 6.16
	Control	1.25 ± 8.00	1.44 ± 8.40	1.24 ± 8.53
Total Anxiety	CBPT	10.37 ± 38.32	11.51 ± 29.31	11.18 ± 27.52
	RBPT	11.42 ± 36.19	12.95 ± 26.13	10.77 ± 26.34
	Control	10.90 ± 31.78	9.28 ± 35.04	8.61 ± 35.52
Inhibition Component	CBPT	3.12 ± 10.26	2.29 ± 13.60	2.82 ± 13.00
	RBPT	3.82 ± 12.93	3.35 ± 14.00	3.08 ± 14.26
	Control	3.37 ± 11.66	3.42 ± 11.20	3.20 ± 11.04
Attention Shifting	CBPT	4.10 ± 11.73	2.37 ± 14.06	2.53 ± 14.13
	RBPT	4.25 ± 11.44	2.57 ± 14.26	2.54 ± 13.93
	Control	3.66 ± 11.40	3.39 ± 10.06	1.17 ± 9.93
Emotional Control	CBPT	3.02 ± 10.46	1.66 ± 15.26	2.03 ± 15.13
	RBPT	3.50 ± 10.60	3.55 ± 12.06	2.65 ± 12.20
	Control	1.28 ± 12.26	2.20 ± 11.46	2.20 ± 11.46
Initiation	CBPT	2.94 ± 8.46	2.28 ± 9.41	2.16 ± 10.00
	RBPT	2.29 ± 8.46	2.28 ± 10.26	2.17 ± 10.66
	Control	4.06 ± 8.60	2.94 ± 8.66	2.87 ± 8.53
Working Memory	CBPT	3.86 ± 11.93	2.65 ± 16.26	2.35 ± 16.13
	RBPT	3.31 ± 12.00	2.99 ± 13.31	2.67 ± 13.80
	Control	3.64 ± 10.86	3.57 ± 10.33	2.29 ± 10.13
Strategic Planning	CBPT	3.36 ± 11.06	3.31 ± 10.63	3.72 ± 10.72
	RBPT	3.13 ± 11.06	3.31 ± 12.55	3.13 ± 12.13
	Control	2.73 ± 10.53	2.57 ± 10.57	2.68 ± 10.23
Organization	CBPT	2.12 ± 8.66	1.18 ± 12.20	1.35 ± 12.60
	RBPT	1.95 ± 10.40	1.79 ± 12.53	1.58 ± 12.12
	Control	2.44 ± 9.13	2.44 ± 8.44	2.44 ± 8.44
Monitoring	CBPT	2.55 ± 9.33	3.31 ± 11.31	2.28 ± 11.28
	RBPT	2.55 ± 9.55	3.31 ± 11.31	2.66 ± 11.28
	Control	3.13 ± 9.40	3.23 ± 9.26	1.15 ± 9.15
Total Executive Functioning	CBPT	26.52 ± 82.00	18.81 ± 105.24	19.15 ± 106.32
	RBPT	25.03 ± 86.22	21.15 ± 101.18	19.10 ± 102.79
	Control	26.11 ± 83.84	23.76 ± 79.43	21.00 ± 78.60
Poor Emotional Awareness	CBPT	3.94 ± 21.33	3.85 ± 17.57	3.11 ± 16.53
	RBPT	6.13 ± 23.73	5.12 ± 20.50	4.58 ± 19.93
	Control	6.33 ± 23.40	6.42 ± 24.66	6.28 ± 24.40
Unwillingness to Express Emotions	CBPT	9.10 ± 45.39	8.21 ± 38.24	6.56 ± 35.79
	RBPT	10.18 ± 43.53	7.70 ± 37.90	7.02 ± 36.93
	Control	13.42 ± 45.31	13.62 ± 47.72	13.52 ± 47.73

The assumptions of repeated measures ANOVA including normality of data distribution, homogeneity of

error variances, homogeneity of covariance matrices of dependent variables, and sphericity were checked and confirmed.

**Table 3**

*Results of Repeated Measures ANOVA for Anxiety Across Three Phases*

Dependent Variable	Source of Variation	F-statistic	Significance Level	Effect Size	Statistical Power
Separation Anxiety	Group	7.511	.012	.131	.677
	Time	10.223	.001	.196	.946
	Time * Group	9.998	.000	.323	.996
Social Anxiety	Group	1.828	.003	.380	.768
	Time	7.525	.001	.152	.927
	Time * Group	8.887	.000	.297	.998
Panic Component	Group	8.846	.001	.296	.961
	Time	12.094	.000	.224	.963
	Time * Group	8.082	.000	.278	.977
Specific Phobia	Group	.294	.007	.114	.894
	Time	11.899	.003	.221	.974
	Time * Group	7.449	.005	.262	.978
Generalized Anxiety	Group	6.991	.002	.250	.908
	Time	11.655	.001	.217	.943
	Time * Group	5.821	.004	.216	.888
Total Anxiety	Group	13.076	.010	.328	.664
	Time	48.790	.007	.537	.869
	Time * Group	34.316	.005	.620	.853

The results in Table 3 indicate that the two intervention methods (Cognitive-Behavioral Play Therapy and Resilience-Based Play Therapy) have significantly affected the scores of the separation anxiety component ( $F = 7.511, p < .012, \eta^2 = .131$ ), social anxiety ( $F = 1.828, p < .003, \eta^2 = .380$ ), panic ( $F = 8.846, p < .001, \eta^2 = .296$ ), specific phobia

( $F = .294, p < .007, \eta^2 = .114$ ), generalized anxiety ( $F = 6.991, p < .002, \eta^2 = .250$ ), and total anxiety ( $F = 13.076, p < .010, \eta^2 = .328$ ) across the three assessment stages, meaning both methods have significantly improved overall anxiety scores and its dimensions.

**Table 4**

*Pairwise Comparisons Using the Bonferroni Post Hoc Test to Determine the More Effective Method*

Variables	Comparison Between Groups	Mean Difference	Significance
Separation Anxiety	Difference (CBPT - RBPT)	1.311	.259
	Difference (CBPT - Control)	-0.514	.001
	Difference (RBPT - Control)	-1.822	.007
Social Anxiety	Difference (CBPT - RBPT)	-0.244	.001
	Difference (CBPT - Control)	-1.377	.019
	Difference (RBPT - Control)	-1.113	.023
Panic Component	Difference (CBPT - RBPT)	0.784	.001
	Difference (CBPT - Control)	-1.855	.013
	Difference (RBPT - Control)	-1.264	.001
Specific Phobia	Difference (CBPT - RBPT)	-0.488	.001
	Difference (CBPT - Control)	-1.333	.001
	Difference (RBPT - Control)	-0.355	.001
Generalized Anxiety	Difference (CBPT - RBPT)	1.622	.074
	Difference (CBPT - Control)	-1.911	.006
	Difference (RBPT - Control)	-1.511	.010
Total Anxiety	Difference (CBPT - RBPT)	2.200	.747
	Difference (CBPT - Control)	-2.467	.022
	Difference (RBPT - Control)	-1.667	.029

Based on the results in Table 4, the differences in mean scores for Cognitive-Behavioral Play Therapy compared to the control group are greater than those for Resilience-Based Play Therapy compared to the control group, indicating that Cognitive-Behavioral Play Therapy has a more significant

effect on improving anxiety scores and its dimensions. Thus, the first hypothesis of the study stating "a difference in effectiveness between Cognitive-Behavioral Play Therapy and Resilience-Based Play Therapy on anxiety in children aged 6 to 8 years undergoing dental treatment" is confirmed.

**Table 5**

*Results of Repeated Measures ANOVA for Executive Functioning Behaviors Across Three Phases*

Dependent Variable	Source of Variation	F-statistic	Significance Level	Effect Size	Statistical Power
Inhibition Component	Group	3.901	.028	.257	.672
	Time	6.048	.010	.326	.760
	Time * Group	4.492	.009	.369	.829
Attention Shifting	Group	5.743	.006	.215	.842
	Time	5.030	.026	.107	.625
	Time * Group	5.904	.004	.219	.882
Emotional Control	Group	3.270	.048	.135	.591
	Time	12.905	.000	.235	.990
	Time * Group	9.998	.000	.323	.999
Initiation Component	Group	.878	.023	.249	.591
	Time	18.625	.000	.307	.895
	Time * Group	5.002	.004	.192	.884
Working Memory	Group	3.862	.019	.255	.668
	Time	14.471	.003	.356	.972
	Time * Group	9.110	.012	.303	.956
Strategic Planning	Group	10.334	.005	.330	.682
	Time	19.313	.002	.315	.799
	Time * Group	14.154	.002	.254	.674
Organization Component	Group	6.697	.010	.316	.875
	Time	13.589	.011	.244	.667
	Time * Group	11.250	.015	.349	.794
Monitoring Component	Group	2.381	.011	.202	.655
	Time	25.117	.000	.374	1.000
	Time * Group	9.252	.000	.306	.994
Total Executive Functioning	Group	22.163	.002	.513	.967
	Time	84.893	.004	.669	1.000
	Time * Group	46.743	.000	.690	1.000

The results in Table 5 indicate that the two intervention methods (Cognitive-Behavioral Play Therapy and Resilience-Based Play Therapy) have made significant differences across three measurement stages in scores of the inhibition component (F = 3.901, p = .028,  $\eta^2 = .257$ ), attention shifting (F = 5.743, p = .006,  $\eta^2 = .215$ ), emotional control (F = 3.270, p = .048,  $\eta^2 = .135$ ), initiation (F = .878, p = .023,  $\eta^2 = .249$ ), working memory (F = 3.862, p = .019,

$\eta^2 = .255$ ), strategic planning (F = 10.334, p = .005,  $\eta^2 = .330$ ), organization (F = 6.697, p = .010,  $\eta^2 = .316$ ), monitoring (F = 2.381, p = .011,  $\eta^2 = .202$ ), and overall executive functioning behaviors (F = 22.163, p = .002,  $\eta^2 = .513$ ). This means that both methods have had a significant impact on improving the overall score of executive functioning behaviors and its dimensions.

**Table 6**

*Pairwise Comparisons Using Bonferroni Post Hoc Test to Determine the More Effective Method*

Variables	Comparison Between Groups	Mean Difference	Significance
Inhibition Component	Difference (CBPT - RBPT)	-1.444	.484
	Difference (CBPT - Control)	-1.100	.017
	Difference (RBPT - Control)	-0.409	.036
Attention Shifting	Difference (CBPT - RBPT)	0.088	.001



	Difference (CBPT - Control)	-2.84	.014
	Difference (RBPT - Control)	-2.75	.018
Emotional Control	Difference (CBPT - RBPT)	-2.333	.086
	Difference (CBPT - Control)	-2.222	.010
	Difference (RBPT - Control)	0.111	.033
Initiation Component	Difference (CBPT - RBPT)	-0.933	.996
	Difference (CBPT - Control)	-0.267	.005
	Difference (RBPT - Control)	-0.202	.014
Working Memory	Difference (CBPT - RBPT)	0.422	.001
	Difference (CBPT - Control)	-3.089	.022
	Difference (RBPT - Control)	-2.526	.037
Strategic Planning	Difference (CBPT - RBPT)	-2.488	.068
	Difference (CBPT - Control)	-4.778	.000
	Difference (RBPT - Control)	-2.288	.015
Organization Component	Difference (CBPT - RBPT)	-2.222	.022
	Difference (CBPT - Control)	-1.200	.007
	Difference (RBPT - Control)	-0.422	.010
Monitoring Component	Difference (CBPT - RBPT)	-0.400	.001
	Difference (CBPT - Control)	-1.889	.013
	Difference (RBPT - Control)	-1.488	.019
Total Executive Functioning	Difference (CBPT - RBPT)	-1.133	.001
	Difference (CBPT - Control)	-17.289	.000
	Difference (RBPT - Control)	-16.156	.000

Based on the results in Table 6, the average differences indicate that Cognitive-Behavioral Play Therapy has had a greater effect compared to Resilience-Based Play Therapy on improving scores of executive functioning behaviors and its dimensions. This confirms the second hypothesis of the

study regarding "the difference in effectiveness between Cognitive-Behavioral Play Therapy and Resilience-Based Play Therapy on executive functioning behaviors in children aged 6 to 8 years undergoing dental treatment."

**Table 7**

*Results of Repeated Measures ANOVA for Emotional Expression Across Three Phases*

Dependent Variable	Source of Variation	F-statistic	Significance Level	Effect Size	Statistical Power
Poor Emotional Awareness	Group	1.633	.008	.371	.635
	Time	14.881	.000	.262	.890
	Time * Group	8.272	.000	.283	.894
Unwillingness to Express Emotion	Group	4.557	.016	.278	.744
	Time	14.852	.002	.261	.788
	Time * Group	11.500	.009	.354	.698
Overall Emotional Expression	Group	16.819	.003	.245	.901
	Time	30.972	.001	.424	.994
	Time * Group	19.972	.006	.487	.963

The results in Table 7 demonstrate that the two intervention methods (Cognitive-Behavioral Play Therapy and Resilience-Based Play Therapy) have created significant differences across three measurement stages in the scores for poor emotional awareness ( $F = 1.633, p < .008, \eta^2 = .371$ ),

unwillingness to express emotion ( $F = 4.557, p < .016, \eta^2 = .278$ ), and overall emotional expression ( $F = 16.819, p < .003, \eta^2 = .245$ ), meaning both methods have significantly impacted the improvement of emotional expression and its dimensions.

**Table 8**

*Pairwise Comparisons Using the Bonferroni Post Hoc Test to Determine the More Effective Method*

Variables	Comparison Between Groups	Mean Difference	Significance
Poor Emotional Awareness	Difference (CBPT - RBPT)	-0.267	.001
	Difference (CBPT - Control)	-3.022	.030
	Difference (RBPT - Control)	-2.756	.043
Unwillingness to Express Emotion	Difference (CBPT - RBPT)	0.400	.001
	Difference (CBPT - Control)	-4.311	.025
	Difference (RBPT - Control)	-3.117	.028
Overall Emotional Expression	Difference (CBPT - RBPT)	0.133	.001
	Difference (CBPT - Control)	-7.333	.009
	Difference (RBPT - Control)	-6.067	.015

According to the results in Table 8, the average differences indicate that Cognitive-Behavioral Play Therapy compared to the control group has a greater effect than Resilience-Based Play Therapy compared to the control group, indicating that Cognitive-Behavioral Play Therapy has a more significant impact on improving scores for emotional expression and its dimensions. Thus, the third hypothesis of the study stating "the difference in effectiveness between Cognitive-Behavioral Play Therapy and Resilience-Based Play Therapy on emotional expression in children aged 6 to 8 years undergoing dental treatment" is confirmed.

#### 4. Discussion and Conclusion

This study aimed to compare the effectiveness of Cognitive-Behavioral Play Therapy (CBPT) and Resilience-Based Play Therapy (RBPT) on anxiety, executive function behaviors, and emotional expression in children aged 6 to 8 undergoing dental treatment. The results, using repeated measures ANOVA, demonstrated that both intervention methods were effective in reducing overall anxiety scores and its various dimensions in the experimental groups during different measurement phases (post-test and follow-up). However, anxiety scores in the control group did not show significant changes across different measurement stages. Additionally, the Bonferroni post-hoc test results revealed that the mean difference in anxiety reduction between the two intervention methods and the control group was significant, with CBPT showing a greater reduction in anxiety scores compared to RBPT, indicating that CBPT has a more significant impact on improving anxiety scores and its dimensions. Therefore, the first hypothesis of the study is confirmed. These findings are consistent with the results of previous studies (Abdollahian et al., 2013; Adamiat et al., 2019; Faramarzi & ghanei, 2020; Farnam et al., 2020; Fattahi Andebil et al., 2018; Mahmoodi et al., 2022;

Mehrafza et al., 2022; Perryman & Bowers, 2018; Thomas et al., 2022).

In explaining the effect of Cognitive-Behavioral Play Therapy on anxiety reduction, it should be noted that play therapy is one of the most important alternative tools to conversation. Play is the language of children and allows them to communicate with their peers non-verbally. Play therapy does for children what talking and psychotherapy do for adults—it allows children to emotionally and behaviorally respond to life events based on how these events are perceived and recalled. This method assumes that children lacking in beliefs, cognitive contents, or problem-solving skills (high-level and complex cognitive processes) are somewhat disturbed and dysfunctional (Farnam et al., 2020; Fattahi Andebil et al., 2018). Cognitive deficiencies refer to inefficient cognitive processing, and cognitive-behavioral play therapists always strive to facilitate the acquisition of new skills and provide experiences that facilitate cognitive change. This finding can be explained from the perspectives of play theorists. Psychodynamic theorists have conceptualized play as a method for children to communicate and express their inner desires (Mahmoodi et al., 2022; Mehrafza et al., 2022).

The study's results, using repeated measures ANOVA, showed that both intervention methods (CBPT and RBPT) were effective in improving the scores of executive function behaviors and each of its dimensions in the experimental groups during different measurement phases (post-test and follow-up), but the executive function behavior scores in the control group did not show noticeable changes. Additionally, the Bonferroni post-hoc test results showed that the mean difference between the two intervention methods and the control group in improving the scores of executive function behaviors was significant, and the mean difference between CBPT and the control group was greater than that between RBPT and the control group, indicating

that CBPT has a more significant impact on improving the scores of executive function behaviors and its dimensions. Therefore, the second hypothesis of the study is confirmed. These findings are consistent with results from previous studies (Abdollahian et al., 2013; Adamiat et al., 2019; Davis & Barnes, 2021; Faramarzi & ghanei, 2020; Farnam et al., 2020; Fattahi Andebil et al., 2018; Kumar et al., 2022; Mahmoodi et al., 2022; Mehrafza et al., 2022; Perryman & Bowers, 2018; Sarah et al., 2021; Thomas et al., 2022).

In explaining the greater impact of Cognitive-Behavioral Play Therapy on emotional expression, it can be said that play is the best means for the development and flourishing of emotions and the best way to nurture emotions. While playing, children learn the quality of emotional emergence, control, and appropriate satisfaction. Although children do not distinguish between reality and play, they express genuine childlike honesty during play. The emotions, anxieties, and fears of the child are real during play. Play helps the child access the truths and realities around them, better adjusting themselves and others. The more the child plays and engages, the more they realize their level of efficiency and value, and what expectations they can have from their environment. Given that play originates from within the child and expresses their genuine response to their environment, bringing their imaginative abilities to the forefront, play increases the child's self-confidence, reduces anxiety, and enhances self-esteem, positive self-image, and self-efficacy. Play also facilitates socialization, creates independence, teaches communication skills, and emotional regulation. Therefore, considering the various functions of play and its immense appeal to children, it can play a unique role in reducing emotional deficiencies and in describing, naming, and expressing emotions.

## 5. Suggestions and Limitations

One limitation of the current study is that the findings are only generalizable to children who met the entry criteria for this study and do not apply to individuals with different demographic characteristics and inclusion criteria from the study participants. Future studies are recommended to sample from populations with other behavioral problems such as aggressive children, those with oppositional defiant disorder, hyperactive individuals, and using simple random sampling to enhance the generalizability of the results.

## Authors' Contributions

All authors have contributed significantly to the research process and the development of the manuscript.

## 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.

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## Declaration of Interest

The authors report no conflict of interest.

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## Ethical Considerations

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

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