




The Effectiveness of Attachment-Based, Brain-Based, and Mindful Parenting Training on Parental Stress in Children with Symptoms of Social Anxiety

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ABSTRACT

Objective: This study aimed to evaluate the effectiveness of attachment-based, brain-based, and mindful parenting training on reducing parental stress in mothers of children exhibiting symptoms of social anxiety.

Methods: A quasi-experimental design with a pre-test, post-test, and follow-up stages was used, involving 60 mothers from three elementary schools in Felard city. Participants were divided into four groups: attachment-based parenting, brain-based parenting, mindful parenting, and a control group. Each experimental group received eight 90-minute training sessions. Parental stress was measured using the Parenting Stress Index before and after the intervention and during follow-up. Data were analysed using SPSS-26 and analysis of variance with repeated measurements method.

Findings: The brain-based parenting training significantly reduced parental stress in the post-test and follow-up stages compared to the control group. The attachment-based and mindful parenting trainings did not show significant effects on parental stress. Repeated measures ANOVA indicated significant within-group effects over time and interactions between time and group. The brain-based training had a notable impact on the mothers' ability to manage parenting stress effectively.

Conclusion: Brain-based parenting training is an effective intervention for reducing parental stress among mothers of children with social anxiety symptoms. The findings highlight the importance of understanding brain functions in parenting strategies. Further research is needed to explore the potential long-term benefits of attachment-based and mindful parenting methods on parental stress.

Keywords: attachment-based, brain-based, mindful parenting, parental orientation, parental stress, mental health

1. Introduction

Children, like adults, can suffer from psychological disorders and problems, among which anxiety disorders are common during this period. One of the most significant types of this disorder is social anxiety disorder. The main feature of social anxiety disorder is a severe and persistent fear of social or performance situations that cause embarrassment in these situations (American Psychiatric Association, 2022). Children with social anxiety are frequently preoccupied with a negative self-view. They devalue their talents and prominent personality traits in the shadow of poor performance in social settings and even see themselves as lacking notable abilities. Although they may not express it verbally, internally, they cultivate thoughts of worthlessness and inability to control anxiety, which become part of their beliefs (Mohammadi et al., 2020).

The highest prevalence of social anxiety disorder is in the age range of 8 to 13 years, a period when the child's interaction with parents, especially the mother, plays a significant role, and maternal behaviors can be considered one of the contributing factors to social anxiety at this age (Yang & Lu, 2022). One important characteristic of mothers that can impact their children is parental stress. Parental stress is a natural part of the parenting experience and occurs when parental demands exceed the anticipated and actual resources, hindering successful parental role performance. Various studies have generally shown that stress disrupts an individual's functioning in social, psychological, physical, and familial domains (Shorey & Ng, 2021). Parental stress results from a perceived mismatch between parenting demands and individual resources and can be experienced in multiple areas related to parenting (Bögels et al., 2014). Abidin (1992) considers parental stress to be the result of the interactive effect of the primary and explicit characteristics of parents (such as depression, sense of competence, health, attachment-related relationships, peer relationships, and role-restricted motherhood) with the characteristics of the child (such as adaptability, acceptance, demandingness, temperament, hyperactivity, and reinforcement). Parental stress can lead to a reduction in parents' mental health and well-being and have long-term effects on children's health. Increased maternal stress plays a significant role in the emotional development and behavior of children and can increase the likelihood of criticism, punishment, and parental irritability, which in turn can lead to conduct problems, oppositional defiant disorder, antisocial

behaviors, anxiety, and attention deficit disorder in children (Bögels et al., 2014; Shorey & Ng, 2021).

Parenting styles are described as a set of behaviors that describe parent-child interactions across a wide range of situations and are assumed to create an influential interactive environment (Gregory et al., 2020). Various parenting styles have been introduced to improve parenting conditions in mothers and the mother-child relationship. One type of parenting is attachment-based parenting (Juffer et al., 2023). The attachment style is a significant factor in the positive development of the child and maintaining a positive parent-child relationship. Playful and responsive caregiver activities are vital for the child's ability to form a secure attachment, regulate emotions, develop empathy, and feel a strong sense of self-worth. Since an individual's perception of trust and self roots in early developmental years, it is essential to return to the point where the child's emotional growth was interrupted and provide the necessary positive experiences to resume healthy and positive interactions. Thus, attachment-based parenting style includes four fundamental dimensions that form the basis of a healthy parent-child relationship. These dimensions manifest as specific behaviors, activities, and words, which are as follows (Kohlhoff et al., 2022):

1. Structure: Parents define all the rules and boundaries to promote a sense of security, organization, and self-regulation in the child. This dimension is often effective for children who exhibit high impulsivity and lack of focus and for parents who struggle with rule-setting or initiative.

2. Engagement: Parents/caregivers focus on the child personally so that the child knows they are seen and heard in the moment. This dimension promotes joyful and responsive companionship and helps parents and children establish a deeper emotional connection. Engagement is often effective for socially withdrawn children and parents prone to neglect or inattentiveness.

3. Nurture: The parent and child engage in soothing activities that are believed to enhance feelings of warmth, security, and comfort.

4. Challenge: The child is helped to undertake a fun yet challenging task or take an age-appropriate mild risk to foster confidence and competence (Kohlhoff et al., 2022).

Another type of parenting is brain-based parenting, which aims to use brain functions to better achieve educational goals and raise healthier and more capable children. The theoretical foundations of brain-based parenting are summarized in two specialized areas:

1. How life experiences affect the growth and development of children's brains.
2. The neurobiology of parenting, which specifically relates to brain processes.

This method emphasizes the critical role of the brain in parenting, showing which brain systems in the mother and child influence and affect good parenting characteristics and what happens in brain systems when parents are under pressure, interfering with their caregiving and parenting methods. Brain-based parenting includes principles that protect the developing child's brain (referred to as neuroprotective factors) and stimulate brain growth (growth-enhancing factors) (Hughes & Baylin, 2012). The general principles of this parenting approach involve understanding the brain and the functions of brain systems involved and effective in parenting and how to use this knowledge to adopt strategies for utilizing daily challenges to raise healthy and thriving children. This approach outlines methods for integrating and creating healthy and effective connections between seemingly separate brain systems with specific functions to help integrate the child's brain. Part of the focus of brain-based parenting is on integrating the child's right and left brains so that the child can connect with both their logical and emotional selves. Additionally, this style emphasizes the importance of linking the lower instinctive brain with the upper thinking brain to enable the child to make more balanced decisions. It also attempts to create a healthy connection between the past and present by elucidating how memory functions. In this style, strategies are provided to help children with mindfulness and a clear understanding of what is happening in their minds, allowing them to face emotions effectively and respond appropriately. The concept of "social self" and "individual self" is another element addressed to lay the groundwork for establishing healthy social relationships while maintaining an independent identity (Hughes & Baylin, 2012).

Mindful parenting is a new concept in parenting studies and is described as a set of parent practices or skills aimed at enhancing moment-to-moment awareness in parent-child relationships. It is a specific type of intentional and non-judgmental parenting that emphasizes parents' conscious presence in the present moment and attention to the child without prejudice (Dumas, 2005). Under stressful conditions, parenting skills often diminish for most parents; however, mindful parenting advances parenting under high-stress conditions and helps parents with children showing signs of psychological distress. Mindful parenting training is an effective intervention for families with children with

psychological disorders and parents experiencing parental stress or parenting difficulties (Shorey & Ng, 2021). Mindful parenting training reduces parental stress, negative parent-child interactions, and problematic child behaviors. Mindfulness means experiencing emotions without suppression or exaggeration. It is closely related to avoiding experiential avoidance and relational self-compassion. Mindfulness is a non-judgmental and accepting state of mind in which individuals observe their thoughts and feelings as they are without trying to suppress or deny them. In the parenting context, being mindful means bringing focused attention and awareness to the present moment, having an open and accepting attitude toward thoughts, feelings, and behaviors, and responding appropriately in stressful parenting situations, contrary to avoiding the experience of children's emotions and taking action in these situations (Coatsworth et al., 2018; Shorey & Ng, 2021).

Given the importance of childhood in shaping each individual's future and considering that social anxiety is a distressing psychological construct among children that can delay their social development, it is necessary to pay special attention to these children. Given the significant role of mothers in children's lives, one of the necessities and priorities for these children is improving parenting among mothers. Therefore, this research considered improving parenting with various methods and answered the question of whether there is a significant difference in the effectiveness of attachment-based, brain-based, and mindful parenting training on parental orientation, parental stress, parent-child conflicts, parental adaptability, and emotional-social development of children with symptoms of social anxiety.

2. Methods and Materials

2.1. Study Design and Participants

The research method in this study was experimental (pre-test-post-test design with three experimental groups and one control group) along with a follow-up phase (two months).

The statistical population of this study included all mothers with children showing symptoms of social anxiety in elementary school. To select a sample from these mothers, three schools were chosen by referring to the education department of Felard city, and 60 mothers were selected as available samples. These mothers were then assigned to four research groups (attachment-based parenting, brain-based parenting, mindful parenting, and control group) (15 people in each group).

Inclusion criteria were:

Ability to attend sessions, having a child with social anxiety symptoms confirmed by the teacher, principal, and school counselor.

Exclusion criteria were:

Simultaneous participation in other psychotherapy or psychological education, absence from more than two sessions, and lack of interest in continuing cooperation.

To conduct the research, three elementary schools from Felard city were randomly selected. After introducing the course and explaining it, the teachers were asked to identify children with social anxiety symptoms and invite their mothers to participate through invitation letters. After purposive sampling, the mothers were randomly assigned to the experimental and control groups in three schools (15 people in each group). While the control group was on the waiting list, the three experimental groups received the related training in eight ninety-minute sessions by the researcher. It is worth mentioning that all subjects were exposed to pre-test, post-test, and 45-day follow-up assessments before and after the training.

2.2. Measures

2.2.1. Parental Stress

The Parenting Stress Index was designed by Abidin (1995) to assess parental stress. This questionnaire has three subscales: parental distress, difficult child characteristics, and dysfunctional parent-child interactions. This scale is designed to assess the three subscales of parental distress (items 1 to 12), dysfunctional parent-child interactions (items 13 to 24), and difficult child characteristics (items 25 to 36), as well as the overall stress score (sum of all items), with scoring on a Likert scale from 1 to 5 (strongly agree to strongly disagree). A raw score above 85 on this scale indicates parental stress, and a score above 90 indicates clinically significant stress. The response options are set on a five-point Likert scale as strongly agree, agree, neutral, disagree, and strongly disagree. In the study by Fadaei et al. (2010), Cronbach's alpha results indicated that the reliability coefficients for total parental stress and each subscale (parental distress, dysfunctional parent-child interaction, and difficult child characteristics) were 0.90, 0.80, 0.84, and 0.80, respectively, for the normative group. The test-retest reliability coefficient after 18 days from the first administration was 0.75 for the total parental stress score, 0.82 for the parental distress subscale, 0.73 for the dysfunctional parent-child interaction subscale, and 0.71 for

the difficult child characteristics subscale, indicating the stability of the scale scores over time (Sarhang et al., 2022).

2.3. Interventions

2.3.1. Attachment-Based Parenting Training

The attachment-based parenting training aims to foster a secure attachment between parents and children, addressing social anxiety symptoms in children through structured interactions and specific techniques. Each session is designed to build understanding, improve communication, and enhance emotional bonding, ultimately reducing parental stress and promoting positive child development (Adili et al., 2024; Gregory et al., 2020; Hughes & Baylin, 2012; Juffer et al., 2023; Wright & Edginton, 2016)..

Session 1: Establishing Therapeutic Alliance and Pre-Assessment

The first session focuses on introducing the members, setting session rules, explaining attachment and its relation to children's social anxiety, and discussing initial and final assessments. A pre-test is conducted to gauge initial conditions. Participants are tasked with noting their children's social anxiety symptoms and their relationship dynamics to share in the next session.

Session 2: Explaining Attachment Theory and Treatment Goals

This session emphasizes understanding children's psychological and physical needs and the importance of mothers being responsive. Techniques such as "mother's availability" and "scriptwriting" are introduced and practiced during the session. Mothers are instructed to practice scriptwriting at home.

Session 3: Importance of Positive Verbal Communication

Building on the previous session, the importance of positive verbal communication between mother and child is highlighted. Techniques for effective communication and storytelling are taught and practiced. Mothers are encouraged to identify and reflect on their emotional responses throughout the week.

Session 4: Understanding Parental Mental Representations

This session reviews previously learned techniques and discusses different attachment styles and behaviors in children. Mothers are guided to recognize their attachment behaviors and those of their children. Practicing previous techniques at home is assigned.

Session 5: Identifying Positive and Negative Mother-Child Interactions

Mothers are trained to enhance their understanding of children's behaviors and internal feelings, and to articulate them effectively. Skills to comprehend underlying needs driving children's social anxiety are taught. Role-playing exercises are assigned for home practice.

Session 6: Developing a Multifaceted View of the Child

The session involves reviewing previous exercises and introducing the "magic wand" technique to create a realistic, secure relationship image between mother and child, embracing both positive and negative aspects with unconditional acceptance. Practicing this technique at home is assigned.

Session 7: Addressing Unresolved Behavioral Issues

Techniques for verbal reinforcement and stress management within the family are taught. Mothers practice putting themselves in their child's shoes to describe the qualities of primary caregivers from the child's perspective.

Session 8: Managing Emotions During Anxiety Episodes

The final session involves practicing emotional regulation through experiential techniques like embracing, reviewing experiences from previous sessions, and summarizing key lessons. A post-test is conducted, and ongoing assignments are given to maintain progress.

2.3.2. Brain-Based Parenting Training

Brain-based parenting training leverages an understanding of brain functions to enhance parenting strategies, aiming to raise healthier and more capable children. The sessions focus on integrating brain structures and functions to improve parent-child interactions and address parenting challenges (Hughes & Baylin, 2012).

Session 1: Introduction and Program Outline

Participants are introduced to the program, and a pre-test is conducted. The importance of proper parenting and brain-based techniques is discussed. Mothers share their main parenting concerns and are tasked with noting weekly challenges faced with their children.

Session 2: Understanding the Brain's Role in Parenting

This session explores the brain's physiology and structure, emphasizing its role in parenting. The concept of brain integration and its importance is introduced, along with the balance between chaos and rigidity in parent-child interactions. Participants are asked to reflect on and document their experiences with these concepts during the week.

Session 3: Left and Right Brain Integration

The focus is on understanding the roles of the left and right brain in daily functions and parenting. Techniques for better integrating both hemispheres in children and parents are taught. Participants are asked to identify challenges and how brain integration helped address them.

Session 4: Upper and Lower Brain Integration

Participants learn about the functions of the upper and lower brain regions and their relevance to daily activities and parenting. Strategies for integrating these brain regions are discussed, with participants documenting related challenges and solutions throughout the week.

Session 5: Explicit and Implicit Memory Integration

This session covers the roles of explicit and implicit memory in human functioning and parenting. Techniques for integrating these memory types in children and parents are provided. Participants are tasked with identifying memories and documenting instances where implicit memory impacted behavior.

Session 6: Understanding Different Aspects of Self

Participants are introduced to concepts like "mind-sight" and "mindfulness," distinguishing between "feeling" and "being." Techniques for focused attention are discussed to help children develop mind-sight. Participants document their feelings and how they assist their children using these concepts.

Session 7: Self-Integration with Others

The importance of understanding and nurturing social brains, mirror neurons, and establishing positive mental patterns in children is highlighted. Strategies for helping children integrate themselves socially are taught. Participants identify inappropriate social behaviors and plan improvements.

Session 8: Review and Summary

The final session reviews previous tasks, answers questions, and conducts a post-test. Participants summarize what they have learned and plan to apply brain-based strategies in ongoing parenting challenges. Permanent assignments are given to reinforce learned techniques.

2.3.3. Mindful Parenting Training

Mindful parenting training focuses on enhancing parents' moment-to-moment awareness and reducing stress through mindfulness techniques. The program aims to foster non-judgmental, present-focused parenting, improving parent-child interactions and reducing parental stress (Bögels et al., 2014; Coatsworth et al., 2018; Dumas, 2005; Shorey & Ng, 2021).

Session 1: Establishing Therapeutic Alliance and Pre-Assessment

Participants are introduced, and a pre-test is conducted. Mindful parenting techniques are explained, including formal and informal exercises and homework. The session includes a mindful breathing exercise and mindful eating of a raisin to familiarize participants with the approach. Homework includes short meditations and practicing mindful parenting.

Session 2: Understanding Mind Filtering and Attention

The session starts with a breathing exercise, followed by a discussion of participants' experiences. Techniques like "body scan" and gratitude exercises are introduced. Homework includes brief meditations and practicing mindful observation of their children.

Session 3: Three-Minute Breathing Space for Quick Calm

This session includes seated meditation, discussing homework, and introducing the three-minute breathing space technique for quick relaxation. Yoga exercises are incorporated to discuss bodily stress responses. Homework involves practicing the three-minute breathing space.

Session 4: Reacting to Stress Unconsciously

Participants engage in seated meditation with attention to sounds and thoughts, discuss stress-inducing events, and learn about different stress responses. Visualization exercises for accepting parental stress and standing yoga are included. Homework involves practicing the three-minute breathing space under stress.

Session 5: Understanding Inherited Parenting Patterns

The session includes seated meditation with emotions, discussing homework, and exploring parental schema models and reflexive reactions. Walking meditation indoors

is introduced. Homework involves seated meditation and practicing the three-minute breathing space.

Session 6: Perspective-Taking and Empathy

Seated meditation with selective attention is practiced, followed by a discussion of schema models discovered by mothers. Walking meditation outdoors and group discussions on understanding others' perspectives are included. Homework involves selective attention meditation.

Session 7: Practicing Self-Compassion and Gratitude

Participants engage in loving-kindness meditation, discuss homework, and explore concepts of detachment and connection. Discussions on mindful living at home or work and addressing needs and limitations are included. Homework involves practicing loving-kindness meditation.

Session 8: Review and Future Planning

The final session includes a body scan, reviewing previous exercises, and self-compassion meditation. Participants summarize their learning and plan to apply mindful parenting techniques continuously. Permanent assignments are given to maintain mindfulness practices.

2.4. Data Analysis

Given that each subject was exposed to training three times, repeated measures analysis of variance was used to compare the means in the experimental group with the control group via SPSS-26.

3. Findings and Results

Table 1 presents the mean and standard deviation of parental stress at pre-test, post-test, and follow-up stages across the research groups.

Table 1

Means and Standard Deviations of Parental Stress in Research Groups at Three Time Points

Time	Mindfulness Group	Brain-Based Group	Attachment Group	Control Group
Pre-test	85.07 (15.13)	86.53 (16.19)	92.93 (10.75)	82.33 (17.49)
Post-test	83.27 (15.24)	78.87 (17.71)	82.13 (9.54)	82.31 (17.08)
Follow-up	83.29 (14.52)	78.47 (16.26)	81.33 (9.74)	82.47 (17.81)

As seen in Table 1, the parental stress variable shows significant changes in the mindfulness, brain-based, and attachment groups compared to the control group at the post-test and follow-up stages. The results of repeated measures ANOVA for parental stress are presented in Table 2.

The results of the Shapiro-Wilk test showed that parental stress at all three stages of pre-test, post-test, and follow-up

had a normal distribution ($p > .05$), equal error variance ($p > .05$), and equality of variance-covariance matrix (as per the M-Box test) ($p > .05$). Additionally, the results showed that Mauchly's test was significant, indicating that the assumption of sphericity was violated. In cases where sphericity is not assumed, the Greenhouse-Geisser statistic can be used.

Table 2

Results of Repeated Measures ANOVA for Parental Stress

Type of Effect	Source of Effect	Sum of Squares	df	Mean Square	F	Significance	Partial Eta Squared	Power
Within-Group	Time	1083.73	1.29	838.01	68.02	.001	.55	1
	Time × Group Interaction	828.09	3.88	213.44	17.33	.001	.48	1
	Error (Time)	892.18	72.42	12.32	-	-	-	-
Between-Group	Group	445.53	3	148.51	25.74	.001	.38	.99
	Error	320.22	56	5.72	-	-	-	-

Due to the violation of the sphericity assumption, as seen in Table 2 for the parental stress variable, the within-group effect of time ($F = 68.02$, $df = 1.29$, $p < .001$) and the interaction of time and group ($F = 17.33$, $df = 3.88$, $p < .001$) indicate a significant difference in parental stress over time and the interaction of time with the group (four research groups). The partial eta squared for the time factor is .55 with a power of 1, and for the time × group interaction factor, it is .48 with a power of 1. This result shows that 55% and 48% of the variance in parental stress are due to the independent

variable (one of the mindfulness, brain-based, or attachment parenting training) with a 100% power confirmed for each, respectively. Furthermore, as seen in Table 2, in the between-group effect section, there is a significant difference in parental stress for the group factor ($p < .001$). The partial eta squared for the group factor is .38 with a power of .99. This means that the ANOVA conducted with 99% power shows that 38% of the variance between at least one of the experimental groups (three training groups) and the control group is significant in parental stress.

Table 3

Bonferroni Post-Hoc Test Results for Pairwise Comparison of Research Groups in Parental Stress

Variable	Row	Baseline Group	Comparison Group	Mean Difference	Standard Error	Significance
Time	1	Pre-test	Post-test	5.07	.59	.001
	2		Follow-up	5.33	.61	.001
	3	Post-test	Follow-up	.27	.26	1
Group	4	Mindfulness	Brain-Based	4.58	1.44	.004
	5		Attachment	-1.60	1.44	1
	6		Control	1.49	1.44	1
	7	Brain-Based	Attachment	-4.18	1.44	.006
	8		Control	-4.09	1.44	.008
	9		Attachment	Control	-2.09	1.44

As shown in Table 3, there are significant differences in parental stress between the pre-test and post-test, and follow-up stages ($p < .001$), but no significant difference between the post-test and follow-up stages ($p > .01$). Among the three training groups, only the brain-based group shows significant differences compared to the mindfulness, attachment, and control groups ($p < .001$), while there are no significant differences between the mindfulness group and the attachment and control groups, or between the attachment and control groups ($p > .05$). Therefore, only the brain-based parenting training was effective in reducing parental stress.

This study aimed to compare the effectiveness of attachment-based, brain-based, and mindfulness parenting training on parental stress. The results of repeated measures ANOVA showed that only the brain-based method was effective in reducing parental stress, while the other two methods did not show significant effects.

In line with or contrary to previous research findings, it can be said that although no study with this specific title has been conducted before, the effectiveness of these methods on other maternal or child-related constructs has been investigated (Adili et al., 2024; Aghaziarati et al., 2023; Anvarian & Behboudi, 2023; Bögels et al., 2014; Carver & Scheier, 2014; Coatsworth et al., 2018; Dumas, 2005; Gregory et al., 2020; Hughes & Baylin, 2012; Juffer et al., 2023; Mohammadi et al., 2020; Shorey & Ng, 2021; Wright & Edginton, 2016). Regarding the effectiveness of the brain-

4. Discussion and Conclusion

based method, these results align with other studies on the effectiveness of parenting-related variables, while the lack of effectiveness of attachment-based and mindful parenting is not consistent with other studies.

Parental stress means that parenting problems exceed the capabilities and resources of parents, preventing them from meeting parenting demands. Parental stress includes two dimensions: one entirely dependent on the child's personality and the other on parental performance. Parental stress is mostly influenced by parenting activities and acts as a barrier to optimal parenting. Increased parental stress may lead to violence and decreased parental warmth; it can result in behavioral problems in children, such as difficulty falling asleep, bed-wetting, tantrums, and even symptoms of mood or psychosomatic disorders. It appears that among the methods mentioned, the brain-based method has mechanisms that reduce parental stress.

In explaining this effectiveness, it can be said that brain-based parenting involves five systems: creating security for children, appropriate reward and punishment systems, understanding the child through empathy, creating meaning in parenting, and regulating the parent-child relationship. The goal of this method is to enhance the functions of different brain areas to better achieve educational goals and raise healthier and more capable children. Mothers learned how life experiences affect the brain development of children and the neurobiology of parenting related to brain processes. This method emphasizes the significant role of the brain in parenting, showing which brain systems in the mother and child influence good parenting characteristics and what happens in the brain systems when parents are under pressure, affecting their caregiving and parenting methods. Brain-based parenting includes principles that protect the developing child's brain (neuroprotective factors) and stimulate brain growth (growth-enhancing factors) (Hughes & Baylin, 2012). The general principles of this parenting involve understanding the brain and effective brain systems in parenting and how to apply this knowledge to adopt strategies for using daily challenges to raise healthy and thriving children. Accordingly, mothers learned how to integrate the child's brain, enabling the child to connect with both their logical and emotional selves. They also learned how the lower instinctive brain relates to the upper thinking brain, enabling the child to make more balanced decisions. Therefore, it was expected that these mechanisms would reduce parental stress. It seems that these training sessions and related strategies and techniques gave mothers a sense of self-efficacy and the ability to control parenting

situations, teaching them how to handle difficult situations, thereby enhancing parenting resources and reducing parental stress.

The unexpected results regarding the lack of effectiveness of mindful and attachment-based parenting on parental stress can be explained as follows: Mindful parenting has two main components: 1) being with the child and spending time together and 2) acceptance and warmth towards the child. In this regard, participating mothers learned how to engage in purposeful and non-judgmental parenting with mindful presence, paying attention to the child without prejudice. These educational goals were expected to reduce parental stress, improve negative parent-child interactions, and reduce problematic child behaviors. However, the results were unexpected. It seems that although mindful parenting could improve parenting orientation, it might not enhance parenting resources for establishing discipline, thus not sufficiently reducing parental stress.

Similarly, the unexpected results for attachment-based parenting indicate that while mothers learned about secure attachment and its necessities, such as nurturing, challenge, structure, and involvement with the child, and how to apply these principles to improve mother-child interactions, these changes did not result in a significant reduction in parental stress. Possible reasons for this outcome include an overemphasis on attachment style and its importance in the first five years, potentially leading mothers to feel guilty or regretful about their parenting performance. Additionally, the effect of this method on parental stress might require a longer time to manifest. Other moderating factors not identified in this study, such as the mother's relationship with her spouse, may also play a role in the effectiveness of this method.

5. Suggestions and Limitations

This study, like other research, has limitations, including the non-random selection of participants and the limited statistical population to mothers, which may affect the generalizability of the results. It is recommended that child counselors and family educators consider these methods to improve parenting constructs.

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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