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Effectiveness of Mindfulness-Based Self-Compassion Training on Experiential Avoidance, Self-Kindness, and Emotional Beliefs in Mothers of Children with Autism Spectrum Disorder

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ABSTRACT:
The objective of the current study was to explore "the impact of mindfulness-based self-compassion training on experiential avoidance, self-kindness, and emotional beliefs in mothers of children with autism spectrum disorder." This research utilized a quasi-experimental approach with a pre-test-post-test design and a control group. The sample consisted of 30 mothers of children with autism spectrum disorder from Shahrud City during the years 1403-1402 (2024-2025), selected through convenience sampling from among those who applied for participation. The research tools used to assess the study variables included the Experiential Avoidance Questionnaire by Gamz and colleagues (2011), Neff's (2003) Self-Compassion Scale, and Jones's (1998) Emotional Beliefs Questionnaire. To analyze the data, multivariate analysis of covariance (MANCOVA), LSD post hoc test, and univariate analysis of covariance (ANCOVA) were employed to assess the effect of self-compassion training on the variables, with SPSS version 26 used for statistical analysis. The findings revealed that mindfulness-based self-compassion training effectively reduced experiential avoidance. Specifically, the group that underwent the self-compassion training exhibited a decrease in experiential avoidance compared to the control group (from 163.46 in the pre-test to 144.00 in the post-test). Additionally, the training was effective in enhancing self-compassion, as the training group showed an increase in self-compassion compared to the control group (from 52.40 in the pre-test to 65.03 in the post-test). Furthermore, the training significantly reduced emotional beliefs, with the group receiving the training showing a decrease in emotional beliefs compared to the control group (from 143.77 in the pre-test to 112.51 in the post-test). Overall, the study concluded that mindfulness-based self-compassion training positively influences experiential avoidance, self-compassion, and emotional beliefs in mothers of children with autism spectrum disorder.

Keywords: self-compassion training, mindfulness, experiential avoidance, self-kindness, emotional beliefs, autism spectrum disorder.

INTRODUCTION:

The mental health of a society is dependent on the well-being of its smaller components, such as families within that society. Healthy families play a crucial role in the mental health of society because the family unit, being a small institution, has a direct and substantial impact on the larger community of individuals (Lin et al., 2024). Autism spectrum disorder (ASD) is a developmental condition marked by challenges in social interaction, communication, and repetitive, stereotypical behaviors. This disorder begins between birth and three years of age (Osmanovich et al., 2024). Families with an autistic child, particularly the mother, face numerous challenges in raising, educating, and caring for a child who differs from others. These challenges place immense pressure on the mother, disrupting family unity and harmony, which in turn affects their coping strategies and adaptation (Hirota, 2023). The caregiving demands of a child with autism can negatively affect the mother's physical health and behavior. Given her crucial role in pregnancy, childbirth, and care, the mother experiences heightened levels of anxiety. Compared to mothers of typically developing children, mothers of children with autism face more challenges such as stress, anxiety, and depressive symptoms related to parenting (Papoudi, 2021). A meta-analysis by Jiang (2022) indicated that high levels of psychological issues in parents of children with ASD are predicted by factors such as financial strain, lack of support, and child-related

issues like aggression, self-harm, and social and communication deficits (Jiang, 2022). These findings may be explained by the correlation between parenting stress and the frequency and intensity of maladaptive behaviors in children (Cohen & Carter, 2006). The stress experienced by these parents also leads to negative psychological outcomes for the children, impacting the quality of care and parenting they receive. Parents who are highly stressed are less capable of implementing interventions for their children, leading to slower developmental progress. Therefore, the personality traits of parents (particularly the mother of a child with autism) influence how they respond to stress and help them cope with the negative psychological effects of parenting a child with autism. These mothers face mental and social challenges that are not typically experienced by mothers of children with typical development. As a result, they may experience lower levels of self-compassion. Self-compassion is defined as treating oneself with care and kindness during difficult situations or perceived shortcomings (Neff et al., 2007). In these circumstances, mothers of children with autism often try to avoid negative emotions (Papadopoulos, 2021). This conscious effort to escape negative emotions is referred to as experiential avoidance. Experiential avoidance occurs when an individual avoids engaging with certain private experiences, such as thoughts, bodily sensations, memories, or images. Research has shown that mothers of children with autism exhibit high levels of experiential avoidance due to the anxiety caused by negative emotions, and mindfulness training has been shown to reduce this tendency (Malashahi, 1400). Mindfulness training teaches individuals to accept their negative or internal experiences without judgment, instead of rejecting them, and to refrain from viewing negative experiences as failures. This process reduces denial and suppression. Describing internal or external experiences without judgment can provide emotional relief, leading to psychological relaxation and greater acceptance by diminishing sensitivity to traumatic events, ultimately reducing experiential avoidance (Kamali-Nasab et al., 1400). Thus, mindfulness may help address maladaptive self-soothing and avoidance responses, which maintain homeostasis and are linked to various psychological disorders, including anxiety, depression, and inattentiveness.

Mindfulness approaches focus on engaging with and accepting one's experiences rather than continuously attempting to avoid unpleasant or undesirable ones (Pre-Paris et al., 2016). In the context of the mental health of mothers of children with autism, mindfulness plays a crucial role in experiential avoidance. According to previous research, individuals with mindfulness in the context of autism spectrum disorders demonstrate better psychological health because feelings of hopelessness, self-blame, blame towards the child, isolation, and an increasing identification with negative thoughts and emotions do not persist. Instead, these challenges are faced with kindness and understanding, transforming negative emotions into more positive ones (Vasi, 2019). Conversely, mothers who lack sufficient mindfulness tend to engage in maladaptive behaviors in their interactions with their children, and the resulting stress from experiential avoidance significantly impacts their psychological well-being. It could be argued that self-compassion during difficult times and in dealing with the challenges of raising a child with autism is a key factor in addressing this deficiency. Self-compassion is similar to compassion for others; it involves mindfulness and encompasses elements such as self-kindness versus self-judgment, altruism versus isolation, and mindfulness versus excessive identification (Neff et al., 2020). Empirical studies show a connection between mindfulness and self-compassion in mothers of children with autism spectrum disorder. Mindfulness enhances self-compassion, psychological well-being, and resilience in mothers (Neff, 2013; Kazemi & Sharifi-Fard, 1400; Behtoui & Mikaeili, 1398). Another important factor in this process is the parent's perspective, thoughts, and beliefs about their child with autism. Thoughts and beliefs, in their broadest sense, include emotions, thoughts, behaviors, and feelings that interact extensively with each other. Emotional beliefs of mothers of children with autism may be influenced by the experience of living with a child with autism, leading to exaggerated, rigid, and absolute beliefs rooted in suspicion and assumption. These beliefs can result in harmful behaviors and emotions that jeopardize their psychological and emotional health (Dagdal, 2021). Emotional beliefs dominate the individual's mind and shape how they interpret and make sense of events, influencing the quality and intensity of behaviors and emotions. Because emotional beliefs are not necessarily grounded in reality, they can create conflict, disturbing the balance and psychological well-being of both the mother and the child, and preventing the establishment of order in the home (Daryadel, 1397).

Nieziou (2000) argues that when parents learn of their child's disability, they often experience feelings of guilt and blame. This pressure is particularly felt by mothers, who develop emotional beliefs in response. These beliefs, often inaccurate, are a major source of many social conflicts, especially in relationships (Ellis, 2000). These emotional beliefs involve incorrect and unrealistic thoughts about oneself and the world. Ellis (2001) suggests that no event can inherently cause psychological distress in an individual, as all stimuli and events are interpreted and given meaning in the mind. As a result, emotional and psychological problems stem from how one processes and makes sense of the information received from external events. The initial reactions of parents to such news can vary widely, but these reactions are typically influenced by the parent's beliefs and the surrounding environment. Responses can range from complete denial and

difficulty accepting the situation to an intense focus on seeking treatment (Ellis et al., 2001). Examining the psychological factors of parents and identifying effective coping strategies for neuropsychological disorders, such as autism spectrum disorder (ASD), is crucial, particularly strategies involving self-compassion, mindfulness related to experiential avoidance, self-kindness, and emotional beliefs—variables addressed in this study. Therefore, it is important to understand how mothers emotionally and psychologically react to their children's condition and provide appropriate training and support for coping. This is because every individual, despite the challenges they face, can achieve well-being, and mothers of children with autism are no exception (Benton et al., 2020). Given that the mother plays a critical role in maintaining the family's social and psychological balance, the tension and pressure placed on her affect the entire family. Addressing the needs of mothers with children with autism is therefore of significant importance (Kavaki, 2024). On the other hand, due to the unique challenges associated with children with autism, mothers face numerous difficulties. In Iran, the most significant challenges these mothers face include the high costs of diagnosis and education, limited public awareness of the disorder, and insufficient support from relevant organizations in terms of well-being and self-compassion. Since self-compassion is a modifiable trait and a potential source of adjustment for parents, particularly mothers, we aim to assist mothers in managing their negative emotions more effectively through self-compassion training. This training focuses on enhancing three components—mindfulness, experiential avoidance, self-kindness, and emotional beliefs—so that mothers can experience reduced stress and increased self-efficacy in parenting. To date, no research has explored the effectiveness of mindfulness-based self-compassion training on experiential avoidance, self-kindness, and emotional beliefs in mothers of children with autism spectrum disorder. Given the points raised, this study seeks to answer the following question: Can mindfulness-based self-compassion training for mothers of children with autism spectrum disorder lead to increased self-kindness and reduced experiential avoidance and emotional beliefs in them?

Method

The current study is applied in nature regarding its goal. The research uses a quasi-experimental design with a pre-test-post-test setup and a control group. The study's statistical population includes all mothers of children with autism in Shahrud City in the year 1403. Convenience sampling was employed, and from the eligible volunteers, 30 participants were chosen and randomly assigned into two groups of 15 (experimental and control). The sample was selected with written consent through visits to the Social Welfare Center in Shahrud, and the research questionnaires were administered in a group setting to those present in the study. The experimental group received the self-compassion training intervention, while the control group did not. The self-compassion intervention program was delivered in eight 90-minute sessions, with one session held each week throughout two and a half months (see Table 1).

Table 1: Summary of the Mindfulness-Based Self-Compassion Program Content (Shahbazi et al., 2015)

Meeting	content of the meeting
First	Establishing initial communication, an overview of the structure of meetings, introduction to the general principles of compassion-focused therapy, distinguishing compassion from self-pity, self-assessment of emotional distress, describing and explaining emotional abuse and its related factors, and conceptualizing self-compassion training
Second	Mindfulness training along with body scan exercises and breathing, familiarization with compassion-based brain systems, empathy training, training to understand and recognize that individuals feel that they are pursuing matters with an empathetic attitude, and homework assignments
Third	Familiarization with the characteristics of compassionate individuals, compassion toward others, cultivating feelings of warmth and kindness toward oneself, developing an understanding that others also have flaws and problems, nurturing the recognition of human commonalities in contrast to self-destructive feelings and shame, empathy training, and assigning homework
Fourth	Review of the previous session's exercises, encouraging participants to engage in self-awareness and examine their personality as either 'compassionate' or 'non-compassionate' based on the educational discussions, identification and application of exercises for cultivating a compassionate mind (self-compassion, empathy, and compassion toward oneself and others), teaching the physiotherapist metaphor, teaching forgiveness, and assigning homework
Fifth	Review of the previous session's exercises, familiarization with and application of exercises for cultivating a compassionate mind (forgiveness, non-judgmental acceptance), teaching the flu metaphor, teaching patience, training acceptance of issues, accepting upcoming changes, and enduring challenging situations in light of the variability of life's course and people facing various challenges, along with homework assignments
Sixth	Review of the previous session's exercises, practical exercises for creating compassionate images, teaching styles, and methods of expressing compassion (verbal compassion, practical compassion, situational compassion, and continuous compassion), and applying these methods in daily life for

	children, parents, friends, and acquaintances, teaching the development of valuable and elevated emotions, along with homework assignments
Seventh	Review of the previous session's exercises, teaching how to write compassionate letters to oneself and others, and teaching the method of 'recording and journaling real-life situations based on compassion and the individual's behavior in those situations
Eighth	Teaching and practicing skills: reviewing and practicing the skills presented in previous sessions to help participants cope with different life situations in various ways, and finally, summarizing and offering strategies for maintaining and applying this therapeutic approach in daily life

The questionnaire consists of an overall score and six sub-scores, each corresponding to a specific subscale, and is based on the Emotional Beliefs Questionnaire by Jones (1998), which is grounded in Ellis's Rational-Emotive Behavior Therapy theory. The 10 subscales of the questionnaire include: Expectation of approval from others, excessive self-expectations, self-blame and blaming others, reacting to helplessness with failure, emotional irresponsibility, anxious attention, problem avoidance, dependency, resistance to change, and perfectionism. These subscales are rated using a 5-point Likert scale (from strongly agree to strongly disagree), where the respondent indicates their opinion by selecting one of the options. A higher score represents higher emotional beliefs, while a lower score indicates lower emotional beliefs. The collected data from the pre-test and post-test phases were analyzed using multivariate analysis of covariance (MANCOVA) with SPSS26 software.

Findings

Descriptive Findings

Demographic Information

The findings in the demographic information section showed that the mean age of the participants was 37.05 years (standard deviation, 5.62), and the mean age of their children diagnosed with autism spectrum disorder (ASD) was 8.04 years (standard deviation, 2.70). Based on this, the mean duration since the diagnosis of ASD for the child, in years, was 4.98 with a standard deviation of 2.49 (Table 2). Furthermore, Table 3 presents the demographic characteristics of the participants, such as education level, employment status, number of children, and the gender of the child with ASD, categorized by the experimental and control groups, as well as for the overall sample.

Table 2: Statistical Indicators of the Research Sample for Mother's Age, Child's Age, and Time Elapsed Since Child's Diagnosis

Variable	Group	Mean	Standard deviation
Mother's age	Test	37.70	5.35
	Control	36.40	6.09
	Total	37.05	5/62
Child's age	Test	9.17	2.91
	Control	6.92	2.02
	Total	8.04	2.70
Time elapsed since diagnosis	Test	5.80	2.93
	Control	4.17	1.73
	Total	4.98	2.49

Table 3: Frequency and Percentage of the Research Sample for Demographic Characteristics

Variable		Experimental group		Control group		Total	
		Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Level of education	High school diploma	3	20	7	46.66	10	33.33
	Bachelor's degree	8	53.33	6	40	14	46.67
	Master's degree	4	26.67	2	13.34	6	20
Employment status	Housewife	8	53.33	10	6.66	18	60
	Employed	7	46.66	5	13.37	12	40
Number of children	Has one child	8	33.33	4	26.67	9	30
	Has two children	9	60	7	46.66	16	53.33

	Has three or more children	1	6.67	4	26.67	5	16.67
Child's gender	Boy	12	80	11	73.33	23	76.66
	Girl	3	20	4	26.67	7	23.37

The contents of Table (3) indicate that in terms of education level, the highest frequency in the research sample was observed among mothers with a bachelor's degree, followed by mothers with a high school diploma. Sixty percent of the research sample consisted of stay-at-home mothers who had a maximum of two children. It is also noteworthy that mothers with a son diagnosed with autism spectrum disorder (ASD) represented the highest frequency (76.66%). This difference in the number of boys and girls is consistent with the fact that ASD is diagnosed four times more frequently in boys than in girls (American Psychiatric Association, 2013), making it a natural occurrence.

The research findings regarding the scores of the study variables show that, for the experimental group, the mean scores of the subscales of experiential avoidance (behavioral avoidance, distress intolerance, procrastination, distraction/suppression, denial/repression) decreased in the post-test compared to the pre-test, and were lower than the same values for the control group mothers. However, for the "distress tolerance" subscale of experiential avoidance, the mean score in the experimental group increased in the post-test compared to the pre-test. Furthermore, based on the table, the mean scores of the self-compassion variable and its subscales (self-kindness, self-judgment, mindfulness, common humanity) increased in the experimental group in the post-test compared to the pre-test, while the mean scores for the same variable in the control group mothers were lower. In contrast, for the subscales (isolation and excessive identification), the mean scores in the experimental group decreased in the post-test compared to the pre-test. The mean scores for emotional beliefs in the experimental group also decreased in the post-test compared to the pre-test and were lower than the same scores for the control group mothers (Table 4). These results suggest that the implementation of self-compassion training sessions based on mindfulness led to changes in the scores for experiential avoidance, self-compassion, and emotional beliefs in mothers of children with ASD. However, to draw conclusions about the obtained differences and whether the self-compassion training approach was effective, as well as to interpret the results, inferential analysis through covariance analysis is necessary.

Table 4: Frequency and Percentage of the Research Sample for Demographic Characteristics

Variable		**Experimental group**				**Control group**			
		Pre-test		**Post-test**		**Pre-test**		**Post-test**	
		Mean	**Standard deviation**	**Mean**	**Standard deviation**	**Mean**	**Standard deviation**	**Mean**	**Standard deviation**
Experiential avoidance	Behavioral avoidance	32.20	4.70	27.00	3.94	35.53	5.18	34.46	5.03
	Distress avoidance	34.20	4.99	27.73	4.04	38.40	5.60	36.93	5.39
	Procrastination	17.46	2.54	13.13	1.91	19.73	2.88	17.66	3.57
	Distraction/Repression	17	2.48	14.60	2.13	19.46	2.84	19.06	2.78
	Denial/Repression	32.86	4.79	26.86	3.93	34.73	5.07	23.53	4.89
	Distress tolerance	29.73	4.34	34.66	5.05	31.20	4.55	31.93	4.66
	Experiential avoidance	163.46	23.86	144	21.03	179.06	26.21	177.60	25.93
Self-pity	Self-kindness	19.13	2.79	20.70	3.02	18.63	2.71	18.75	2.73
	Self-judgment	29.14	4.25	34.50	5.03	33.35	4.86	35.21	5.14
	Common humanity	30.59	4.51	33.37	4.87	29.81	4.35	3.015	4.40
	Mindfulness	35.16	5.13	37.21	5.43	31.45	4.59	33.74	4.92
	Isolation	16.5	2.34	15.10	2.20	16.87	2.46	13.75	2.00
	translates to "Over-identification	20.23	3.52	18.15	3.30	18.46	3.46	17.65	2.25
	Self-pity (Total)	52.40	9.12	65.03	8.88	80.15	9.74	71.08	16.55

Emotional beliefs.	Expectation of approval from others	29.44	6.27	27.94	6.95	28.53	5.27	28.12	5.10
	Unrealistic expectations from oneself	35.73	7.01	25.66	4.95	27.13	5.15	26.63	5.45
	Blaming oneself and others	39.33	8.19	30.80	7.04	4.93	9.34	40.26	9.15
	Reacting to helplessness with frustration	36.66	6.25	31.73	8.30	30.80	7.04	29.53	6.31
	Emotional irresponsibility	28.63	4.17	21.77	3.17	30.53	4.45	30.26	4.41
	Anxious attention	42.66	6.22	38.27	5.58	43.73	6.38	39.66	5.7
	Avoidance of problems	27.44	4.00	25.29	3.70	28.26	4.14	28.02	4.09
	Dependency	46.61	3.59	20.89	3.04	23.99	3.50	21.12	3.08
	Inability to cope with change	33.16	4.84	30.01	4.38	31.42	4.58	30.29	19.42
	Perfectionism	23.36	3.39	22.11	3.22	24.38	3.55	23.66	3.45
	Overall emotional beliefs	143.77	20.98	112.51	16.42	135.62	19.85	129.37	18.88

To test the assumption of equal covariance matrices, Box's test was used, and the results are reported in Table (5). According to the results in Table (5), the outcome of Box's test shows that the assumption of equal covariance matrices is not rejected (Box's M = 3.460, p = 0.802).

Table 5: Results of Box's Test for Testing the Equality of Covariance Matrices

Box coefficient	3.460
F	0.509
df1	6
df2	5680.302
Sig	0.802

To test the assumption of equal variances between the two groups in the population, Levene's test was conducted using mean scores. The results presented in Table (6) show that for none of the variables—experiential avoidance, self-compassion, and emotional beliefs—in mothers of children with autism spectrum disorder, the variances between the experimental and control groups show a significant difference.

Table 6: Levene's Test for Assessing the Equality of Variances between the Two Groups (n = 20)

variable	**F**	**df1**	**d2f**	**Sig**
Behavioral avoidance	1.145	1	28	0.239
Distress avoidance	2.365	1	28	0.135
Procrastination	0.368	1	28	0.549
Distraction / Suppression	2.573	1	28	0.120
Denial / Repression	3.419	1	28	0.075
Distress tolerance	1.276	1	28	0.268
Experiential avoidance	4.070	1	28	0.056
Self-compassion	0.279	1	28	0.602
Self-judgment	2.309	1	28	0.140
Common humanity	1.151	1	28	0.243
Mindfulness	1.205	1	28	0.254
Isolation	0.337	1	28	0.531
Over-identification	1.154	1	28	0.241
Self-pity (overall)	4.159	1	28	0.069
Expectation of approval from others	1.123	1	28	0.220
Unrealistic expectations of oneself	1.347	1	28	0.274
Blaming oneself and others	2.477	1	28	0.115

Reaction to helplessness with frustration	2.225	1	28	0.138
Emotional irresponsibility	0.263	1	28	0.595
Anxious attention	0.355	1	28	0.128
Avoidance of problem	1.118	1	28	0.214
Dependency	2.667	1	28	0. 134
Resistance to change	1.356	1	28	0.279
Perfectionism	1.138	1	28	0.231

Next, the Shapiro-Wilk test was used to assess the normal distribution of the variables of experiential avoidance, self-compassion, and emotional beliefs in mothers of children with autism spectrum disorder.

Table 7: Results of the Shapiro-Wilk Test for Normality of Data Distribution

variable	statistic	degrees of freedom	**Sig**
Behavioral avoidance	0.954	30	0.220
Distress avoidance	0.936	30	0.070
Procrastination	0.960	30	0.302
Distraction / Suppression	0.982	30	0.884
Denial / Repression	0.956	30	0.240
Distress tolerance	0.969	30	0.506
Experiential avoidance	0.951	30	0.176
Self-compassion	0.970	30	0.433
Self-judgment	0.983	30	0.418
Common humanity	0.933	30	0.208
Mindfulness	0.921	30	0.473
Isolation	0.967	30	0.217
Over-identification	0.911	30	0.217
Self-pity (overall)	0.944	30	0.164
Expectation of approval from others	0.922	30	0.211
Unrealistic expectations of oneself	0.939	30	0.274
Blaming oneself and others	0.978	30	0.137
Reaction to helplessness with frustration	0.911	30	0.058
Emotional irresponsibility	0.965	30	0.454
Anxious attention	0.933	30	0.278
Avoidance of problem	0.902	30	0.207
Dependency	0.977	30	0.678
Resistance to change	0.901	30	0.059
Perfectionism	0.938	30	0.215

The results in Table (7) show that the computed statistic for all dependent variables, including experiential avoidance, self-compassion, and emotional beliefs, was not significant in the pre-test. Therefore, the assumption of normality of the data distribution is accepted. Based on the confirmation of the statistical assumptions, covariance analysis can be used to test the research hypotheses. Thus, both multivariate and univariate analyses of covariance (ANCOVA) were employed to examine the main and sub-hypotheses. In this analysis, the post-test scores were treated as dependent variables, the group variable (with two levels: experimental and control groups) was treated as the independent variable, and the pre-test scores were included as covariates in the ANCOVA model.

Main Hypothesis of the Study: Mindfulness-based self-compassion training affects experiential avoidance, self-compassion, and emotional beliefs in mothers of children with autism spectrum disorder.

Table 8: Multivariate Analysis of Covariance (MANCOVA)

Test	value	**F**	**DF** hypothesis	**DF** error	**Sig**	η^2
Pillai's Trace	0.508	7.910	3	23	0.001	0.508
Wilks' Lambda	0.492	7.910	3	23	0.001	0.508
Hotelling's Trace	1.032	7.910	3	23	0.001	0.508

Largest Eigenvalue	1.032	7.910	3	23	0.001	0.508

According to the results of the multivariate analysis of covariance (MANCOVA), a significant difference was found in the linear combination of scores (experiential avoidance, self-compassion, and emotional beliefs) based on the group ($p = 0.001$, $F = 7.910$, Wilks' Lambda = 0.492). The partial eta-squared value showed that 50.8% of the variance in the dependent variables, including experiential avoidance, self-compassion, and emotional beliefs in mothers of children with autism, is determined by the grouping variable (experimental and control groups). Therefore, the findings suggest that changes in the independent variable, i.e., the self-compassion-focused treatment, significantly affected at least one of the dependent variables, including experiential avoidance, self-compassion, and emotional beliefs.

Subsequently, to examine the patterns of differences in each of the dependent variables, univariate analysis of covariance (ANCOVA) was conducted.

Table 9: Summary of Univariate Analysis of Covariance (ANCOVA) in the Context of Multivariate Analysis of Covariance (MANCOVA)

Variable	Source of Variation	SS	df	MS	**F**	**Sig**	η
Experiential Avoidance	Pre-test effect	2045.830	1	2045.830	8.219	0.008	0.247
	Treatment effect	4013.764	1	4013.764	16.125	0.001	0.392
	Error	6223.036	25	248.921			
	Total	794054.000	30				
Self-pity	Pre-test effect	516.176	1	516.176	20.492	0.001	0.450
	Treatment effect	211.613	1	211.613	8.401	0.001	0.252
	Error	629.737	25	25.189			
	Total	73744.000	30				
Emotional Beliefs	Pre-test effect	10.255	1	10.255	0.171	0.683	0.007
	Treatment effect	613.426	1	613.426	10.243	0.004	0.293
	error	1497.222	25				
	Total	47860.000	30				

As shown in Table (9), a significant difference was found in the linear combination of scores for experiential avoidance, self-compassion, and emotional beliefs in mothers of children with autism spectrum disorder based on the group. The partial eta-squared values indicated that 39.2% of the variance in experiential avoidance, 25.2% of the variance in self-compassion, and 29.3% of the variance in emotional beliefs are explained by the grouping variable (experimental and control groups). The results of the LSD post-hoc test are presented next.

Table (9-4): Results of the LSD Post-Hoc Test

Dependent Variable	Group (1)	Group (2)	Mean Difference	Standard Error	**Sig**	95% Confidence Interval (CI)	
						Lower Bound	Upper Bound
Experiential Avoidance	Experiment	evidence	*-26.935	6.708	0.0001	-40.750	-13.120
Self-pity	Experiment	evidence	*6.185	2.134	0.008	1.790	10.579
Emotional Beliefs	Experiment	evidence	*-10.530	3.290	0.004	-17.306	-3.754

Based on the results of the post-hoc LSD test in Table (10), the scores for experiential avoidance and emotional beliefs in mothers of children with autism spectrum disorder who were in the experimental group showed a decrease in the post-test compared to the control group, while the scores for self-compassion

increased. These changes in the scores for experiential avoidance, self-compassion, and emotional beliefs indicate the positive impact of mindfulness-based self-compassion training.

Sub-Hypothesis 1: Mindfulness-based self-compassion training affects experiential avoidance in mothers of children with autism spectrum disorder.

Table 11: Univariate Analysis of Covariance (ANCOVA) for the Effect of Mindfulness-Based Self-Compassion Training on Experiential Avoidance

Variable	Source of Variation	SS	df	MS	**F**	**Sig**	Eta squared (η^2)
Experiential Avoidance	Pre-test effect	185.053	1	185.053	6.429	0.019	0.226
	Treatment effect	349.518	1	349.518	12.142	0.002	0.356
	Error	633.279	22	28.785			
	Total	331824.000	30				

The results from the analysis of covariance (ANCOVA) in Table (11) indicate that, in the post-test, the mean scores for the subscales of experiential avoidance (behavioral avoidance: from 32.20 in the pre-test to 27.00 in the post-test), (distress intolerance: from 34.20 in the pre-test to 27.73 in the post-test), (procrastination: from 17.46 in the pre-test to 13.13 in the post-test), (distraction/suppression: from 17.00 in the pre-test to 14.60 in the post-test), and (denial/repression: from 32.86 in the pre-test to 26.86 in the post-test) showed a significant decrease in the experimental group compared to the pre-test. However, for the distress tolerance subscale of experiential avoidance (from 29.73 in the pre-test to 34.66 in the post-test), the mean score for the experimental group increased in the post-test compared to the pre-test. The overall mean score for experiential avoidance in the experimental group decreased (from 163.46 in the pre-test to 144.00 in the post-test). There were no significant changes in these scores for the control group across the different testing stages (pre-test to post-test).

Thus, the first hypothesis of the study is confirmed, meaning that mindfulness-based self-compassion training affects experiential avoidance in mothers of children with autism spectrum disorder. In other words, the results show that after removing the effect of pre-test scores as a covariate, the main effect of mindfulness-based self-compassion training on the post-test scores of experiential avoidance was significant, and the intervention led to a reduction in the scores for experiential avoidance in the experimental group. Furthermore, an examination of the significance levels and partial eta-squared values reveals that the training was both effective and significant, with the effect size for experiential avoidance being 22.6%.

Sub-Hypothesis 2: Mindfulness-based self-compassion training has an effect on self-compassion in mothers of children with autism spectrum disorder.

Table 11-4: Univariate Analysis of Covariance (ANCOVA) for the Effect of Mindfulness-Based Self-Compassion Training on Self-Compassion

Variable	Source of Variation	SS	df	MS	**F**	**Sig**	Eta squared (η^2)
Self-pity	Pre-test effect	1089.752	1	1089.752	40.998	0.0001	0.612
	Treatment effect	419.441	1	419.441	13.747	0.001	0.436
	Error	691.089	22	26.580			
	Total	73744.000	30				

The results from the analysis of covariance (ANCOVA) in Table (12) indicate that, in the post-test, the mean scores for the subscales of self-compassion (self-kindness: from 19.13 in the pre-test to 20.70 in the post-test), (self-judgment: from 29.14 in the pre-test to 34.50 in the post-test), (mindfulness: from 35.16 in the pre-test to 37.21 in the post-test), and (common humanity: from 30.95 in the pre-test to 33.37 in the post-test) showed an increase in the experimental group in the post-test compared to the pre-test, and these scores were lower than the same values in the control group. However, for the subscales of (over-identification: from 20.23 in the pre-test to 18.15 in the post-test) and (isolation: from 16.05 in the pre-test to 15.10 in the post-test), the mean scores showed a decrease in the experimental group. There were no significant changes in these scores for the control group between the pre-test and post-test stages.

Therefore, the second hypothesis of the study is confirmed. This means that mindfulness-based self-

compassion training has an effect on self-compassion in mothers of children with autism spectrum disorder. In other words, the results indicate that after controlling for the pre-test scores as a covariate, the main effect of mindfulness-based self-compassion training on post-test self-compassion scores was significant, and the intervention led to an increase in self-compassion scores in the experimental group. Furthermore, an examination of the significance levels and partial eta-squared values reveals that the training was effective and significant, with the effect size for self-compassion being 61.2%.

Hypothesis 3:

Mindfulness-Based Self-Compassion Training Affects the Emotional Beliefs of Mothers with Children Diagnosed with Autism Spectrum Disorder.

Table 12-4: Univariate Analysis of Covariance (ANCOVA) for the Effect of Mindfulness-Based Self-Compassion Training on Emotional Beliefs

Variable	Source of Variation	SS	df	MS	**F**	**Sig**	Eta squared (η^2)
Emotional Beliefs	Pre-test effect	470.431	1	470.431	12.937	0.002	0.370
	Treatment effect	128.850	1	128.850	3.543	0.073	0.139
	Error	799.978	22	36.363			
	Total	33430.000	30				

The results obtained from the analysis of covariance in Table (13) indicate that the mean scores of the subscales of emotional beliefs, such as expectations for approval from others (from 29.44 in the pre-test to 27.94 in the post-test), excessive self-expectations (from 35.73 in the pre-test to 25.66 in the post-test), self-blame and blame of others (from 39.33 in the pre-test to 30.80 in the post-test), reaction to helplessness with failure (from 36.66 in the pre-test to 31.73 in the post-test), emotional irresponsibility (from 28.63 in the pre-test to 21.77 in the post-test), anxious attention (from 42.66 in the pre-test to 38.27 in the post-test), problem avoidance (from 27.44 in the pre-test to 25.39 in the post-test), dependency (from 24.61 in the pre-test to 20.89 in the post-test), resistance to change (from 33.16 in the pre-test to 30.01 in the post-test), and perfectionism (from 23.26 in the pre-test to 22.11 in the post-test) decreased significantly in the experimental group in the post-test compared to the pre-test. No significant changes were observed in the control group between the pre-test and post-test. Therefore, it can be concluded that the third hypothesis of the study is confirmed, meaning that mindfulness-based self-compassion training affects emotional beliefs in mothers of children with autism spectrum disorder. This finding suggests that implementing mindfulness-based self-compassion training sessions led to a reduction in emotional belief scores. In other words, the results show that after removing the effects of pre-test scores as a covariate, the main effect of self-compassion training on emotional belief post-test scores is significant. The intervention led to a decrease in emotional belief scores in the experimental group. Furthermore, looking at the significance levels and eta-squared values indicates that the intervention was effective and significant, with the effect size for emotional beliefs being 0.37.

Discussion and Conclusion

According to the first hypothesis of the research, which stated that "Mindfulness-based self-compassion training affects experiential avoidance in mothers of children with autism spectrum disorder," and based on the results from Table (4), in the post-test stage, the mean scores of the subscales of experiential avoidance in the experimental group significantly decreased compared to the pre-test. However, in the subscale of distress tolerance, the mean scores of the group increased in the post-test compared to the pre-test, but overall, the mean scores of total experiential avoidance in the experimental group showed a decrease. No significant changes were observed in the control group. Therefore, the first hypothesis of the research was confirmed, meaning that mindfulness-based self-compassion training affects experiential avoidance in mothers of children with autism spectrum disorder. This result aligns with the findings of previous research. For instance, Balanger, Hayes, and Pistorello (2010) and Perry Parsh and colleagues (2016) have pointed out that mindfulness can help reduce experiential avoidance. Experiential avoidance refers to "avoiding the process of awareness," which is contradictory to mindfulness, which is defined as "the absence of problems." Mindfulness allows individuals to confront their painful experiences and, instead of avoiding them, constructively deal with them. To explain this result, it can be said that self-compassion training allows mothers to feel kindness toward themselves and become aware of their suffering without suppressing or fleeing from it. This approach helps reduce anxiety and avoidance of stressful situations. Mothers of children with autism who receive self-compassion and mindfulness training are likely to view stressful events as part of human experiences and will be able to accept and engage with them more positively. This research also indicates that mindfulness and self-compassion help individuals approach unpleasant emotions rather than avoid them,

responding to them with kindness and understanding. Therefore, self-compassion training can lead to a reduction in experiential avoidance, which in turn can reduce anxiety and improve psychological well-being. Finally, the results of this study are consistent with positive psychology theories, particularly the theory of key resources (Seligman, 2002). These theories emphasize that self-compassion, as a positive internal resource, can contribute to mental well-being and life satisfaction because, by increasing emotional flexibility, individuals can better cope with difficult conditions and life's hardships.

The second hypothesis of the research was based on the premise that mindfulness-based self-compassion training affects self-compassion in mothers of children with autism spectrum disorder. As shown in the results of Table (4), in the post-test stage, the mean scores of the subscales of self-compassion in the experimental group increased compared to the pre-test and were lower in comparison to the mean scores of the control group. However, the scores in the control group did not show significant changes between the pre-test and post-test stages. Based on these results, it can be concluded that the second hypothesis of the research was confirmed. That is, mindfulness-based self-compassion training affects self-compassion in mothers of children with autism spectrum disorder.

This result is consistent with findings from previous researchers such as Gilbert (2010), Trampeter, Decline, and Böhlemeyer (2017), Ehrhardt, Jörmann, and Berking (2015), Neff (2013), Mikaeili and colleagues (2020), and Behtoui (2019). For example, Gilbert (2010) found that self-compassion helps treat individuals with high shame and self-criticism, chronic issues, and those with low self-acceptance. Mothers of children with autism, due to caring for a child with cognitive impairments, are exposed to various physical and emotional risks. These mothers report lower general health and marital satisfaction, and higher levels of shame and embarrassment (Dyson, 1997). The likely reason for this is that mothers dealing with children's issues are more engaged and under more pressure (Hastings, 2003). Based on this, Gilbert introduced an intervention called self-compassion training. In this therapeutic approach, instead of focusing on changing self-evaluation, as in cognitive-behavioral therapies, self-compassion changes the individual's relationship with their self-evaluation. Increasing self-compassion is associated with reduced experiences of self-criticism, depression, rumination, thought suppression, and anxiety (Shamkhaniyan et al., 2022). Studies have shown that in clinical settings for individuals with low self-worth, increasing self-compassion is more beneficial than increasing self-esteem. If mothers of children with autism learn to feel better about themselves, but at the same time, still criticize themselves for their failures or mistakes, they will not be able to confront their challenges non-defensively. Moreover, increasing self-compassion in these individuals is easier than increasing self-esteem (Swan, 1997, cited by Leary et al., 2007). Gilbert developed a group-based intervention called "Compassionate Mind Training" (CMT), designed to help people develop self-compassion skills. In a preliminary study of CMT, which included patients from a hospital with severe shame and self-criticism, significant reductions in depression, shame, and feelings of inferiority were reported after participating in the CMT program (Gilbert & Procter, 2009). Chris Germer and Kristin Neff developed a public program to teach self-compassion skills called Mindful Self-Compassion (MSC) (Neff & Germer, 2012). The MSC program, based on mindfulness, is structured to reduce stress, with participants attending weekly two-and-a-half-hour sessions over eight weeks, plus a one-day "retreat" modeled after the program.

Self-compassion training in mothers of children with autism helps empower individuals on a mental level and aids in the recognition of self-awareness, leading to the cessation of old behavioral patterns and the initiation of new ones. It also helps these mothers identify and reshape their thoughts and behaviors toward themselves, making them more flexible in their reactions and fostering kindness toward both their child and family. Gilbert (2009) stated that self-compassion can serve as a form of connection with oneself, increasing individual satisfaction in various aspects of life. This satisfaction helps mothers become more resilient in the face of challenges, gain clearer perspectives on difficulties, and improve their quality of life.

The third hypothesis of the research stated that mindfulness-based self-compassion training affects emotional beliefs in mothers of children with autism spectrum disorder. According to the results of Table (4), in the post-test stage, the mean scores of the subscales of emotional beliefs in the experimental group decreased compared to the pre-test. No significant changes were observed in the control group between the pre-test and post-test stages. Based on this, it can be concluded that the third hypothesis of the research was confirmed. That is, mindfulness-based self-compassion training affects emotional beliefs in mothers of children with autism spectrum disorder.

This result aligns with the findings of some previous researchers, such as Ellis (2009), Khadami (2019), and Mashaikh (2020). For example, Ellis believed that dysfunctional attitudes are beliefs that predispose individuals to depression or, more generally, psychological distress. These beliefs, acquired through experience with oneself and the world, lead individuals to interpret specific situations in excessively negative and ineffective ways. Dysfunctional attitudes, which form the foundation of individuals' psychological disturbances, have two essential features: firstly, they involve rigid, specific, and powerful self-expectations that are often expressed in terms such as "should" or "must"; secondly, they lead to highly irrational attributions and catastrophic overgeneralizations. Ellis argued that many of the emotional and psychological

difficulties individuals face, including their daily lives and the resulting disorders, stem from types of irrational and unrealistic beliefs about themselves and the world around them. According to him, psychological problems are the result of individuals' distorted cognitions because emotions are products of cognition; the numerous consequences of irrational thinking are considered the main causes of the most significant emotional disorders (Ellis, 2002).

Ellis, in his Rational-Emotive Theory, assumed that there is a causal relationship between irrational beliefs and psychological problems, such as difficulty in adjustment and disorders like anxiety and depression (Vandervoort, 2006). According to him, beliefs are essentially divided into two categories: logical and illogical. Logical beliefs are those that help the individual achieve important, realistic, and flexible goals. In contrast, irrational beliefs prevent individuals from reaching their personal goals and have characteristics such as being illogical, dogmatic, rigid, and unrealistic.

In explaining this hypothesis of the research, it can be said that having children with autism spectrum disorder leads to depression, worry, stress, shame, and embarrassment in their parents. Most mothers, upon the diagnosis of autism spectrum disorder, experience reactions such as denial, confusion, anger, and depression. Mothers of children with autism are often confronted with other issues, such as the stigma associated with having a child with a disability, blaming the mother for the development of the disorder, comparing the child with a typical child, and doubts about the effectiveness of educational programs. These issues result in reduced social relationships and family problems, and in all cases, symptoms of depression are experienced. Studies of mothers' needs at the time of diagnosis and after acceptance and family adaptation to the disorder indicate that education and support services can play an important role in reducing their problems.

Mindfulness-based self-compassion training is a psychological treatment system aimed at reducing self-harming emotional and behavioral reactions by changing dysfunctional thinking and the irrational beliefs that underlie these emotional responses (Kerry et al., 2010). Cognitive-behavioral therapy focuses on reducing the frequency and intensity of maladaptive responses in clients, along with teaching new cognitive and behavioral skills to reduce undesirable behaviors and increase more adaptive ones (Khormayi, 2014).

Based on this, it can be said that programs aimed at supporting families, teaching coping strategies and problem-solving techniques, and especially changing irrational beliefs and improving parents' mental health, especially that of mothers, are very effective. Given that mothers have the closest relationship with their children, these programs help the family adapt properly to the child's condition and have a positive impact on the family system. Therefore, conducting mindfulness-based self-compassion sessions for mothers of children with autism is necessary.

Conclusion

The present study aimed to examine the effectiveness of mindfulness-based self-compassion training on experiential avoidance, self-compassion, and emotional beliefs in mothers of children with autism spectrum disorder (ASD). Parents, especially mothers of children with ASD, experience significant stress, anxiety, and depression due to the characteristics of the disorder, the behavioral and emotional issues accompanying it, societal blame, and feelings of shame due to a lack of understanding about the cause of the disorder. Additionally, mothers often feel guilty for not making the best decisions regarding their child's education and treatment.

In this training program, based on the self-compassion program developed by Neff and Germer (2012), mothers of children with autism first become aware of their harsh attitudes and behaviors toward themselves through exercises. They then learn how to treat themselves kindly during difficult times. Through informal self-compassion pauses and guided self-compassion meditations, they experience kindness and understanding toward themselves. The goal of this training is to foster a compassionate attitude toward oneself and teach participants how to act in line with this attitude. Participants learn to judge themselves less in the face of life's failures and challenges (self-kindness versus self-judgment), overcome concerns about difference and isolation through a sense of shared humanity (common humanity versus isolation), and act less reflexively and reactively by being mindful of the suffering they experience in the present moment (mindfulness versus over-exaggeration). In this way, individuals can be kind to themselves while accepting personal responsibility for negative events. Since self-compassion acts as a buffer against negative events, it helps individuals cope effectively with difficult life circumstances, such as failures and challenges.

Based on the findings of this research, it is recommended that self-compassion be considered an effective intervention for parents of children with autism spectrum disorder, aimed at improving experiential avoidance, self-compassion, and emotional beliefs.

One of the limitations of this study is that 80% of the participants had sons with autism spectrum disorder, so the results may not be fully generalizable to mothers of daughters with ASD. It is suggested that future research focus exclusively on girls with autism spectrum disorder.

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