Iranian Evolutionary Educational Psychology Journal
IEEPJ
University of Hormozgan
Online ISSN: 2588 - 4395
Homepage: https://ieepj.hormozgan.ac.ir

Effectiveness of Schema Therapy on Cognitive Emotion Regulation and Cognitive Avoidance in Mothers of Children with Autism Spectrum Disorder

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Article Info

Article type:
Research Article

Article history:

Received 12 Aug. 2025

Received in revised form 7 Sep. 2025

Accepted 11 Oct. 2025

Published online 01 Dec. 2025

Keywords:
Schema therapy,
Cognitive emotion regulation,
Cognitive avoidance,
Mothers of children with ASD

ABSTRACT

Objective: The present study aimed to investigate the effectiveness of schema therapy on cognitive emotion regulation and cognitive avoidance among mothers of children with Autism Spectrum Disorder (ASD).

Methods: This research employed an experimental design with pre-test, post-test, and follow-up assessments. The statistical population consisted of all mothers of children diagnosed with ASD in Dezful City in 2023. A total of 30 participants were selected through purposive sampling and randomly assigned to experimental and control groups. The data collection instruments included the Cognitive Emotion Regulation Questionnaire (Garnefski et al., 2001) and the Cognitive Avoidance Questionnaire (Sexton & Dugas, 2006). The experimental group received ten 90-minute sessions of schema therapy, while the control group received no intervention. Data were analyzed using mixed analysis of variance with repeated measures and Bonferroni post-hoc tests.

Results: Findings indicated that schema therapy significantly increased both positive and negative cognitive emotion regulation strategies and decreased cognitive avoidance at the post-test stage. These effects were maintained during the follow-up period.

Conclusions: Schema therapy was effective in improving cognitive and emotional functioning among mothers of children with ASD. The results highlight the importance of schema therapy as a psychological intervention to enhance emotional regulation and reduce avoidance behaviors in this population.

Cite this article: Bahrami Pour, L., Kazemian Moghadam, K. & Gholamzadeh Jofreh, M. (2025). Effectiveness of schema therapy on cognitive emotion regulation and cognitive avoidance in mothers of children with autism spectrum disorder. *Iranian Evolutionary Educational Psychology Journal*, 7 (4), 1-16.

DOI: https//doi.org/ 10.22034/7.4.1

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Publisher: University of Hormozgan.
DOI: https// doi.org/ 10.22034/7.4.1

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Introduction

Autism Spectrum Disorder (ASD) is a neurodevelopmental condition whose symptoms appear in early childhood, typically becoming identifiable around the age of three, though diagnosis may sometimes be delayed until the preschool years (Chen et al., 2019). ASD is characterized by impairments in social interaction, communication difficulties, and restricted or repetitive patterns of behavior (Association, 2013). Currently, ASD is considered the second most common developmental disability, with a prevalence rate estimated at 1 in 150 children (Vermeirsch et al., 2021). According to the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)*, its prevalence is reported at approximately 1% (Park et al., 2020). In Iran, the prevalence has been reported as 10 cases per 10,000 individuals (Amirlou et al., 2022). The disorder affects the brain's ability to process social behavior and communication skills, resulting in significant difficulties for children in establishing and maintaining social interactions (Loghmani & Khodabakhshi-Koolaee, 2019). ASD is a lifelong and disabling condition that affects not only the individual but also the entire family, often leading to numerous negative consequences for family members (Jassim et al., 2021).

ASD typically manifests during the first three years of life. The main symptoms include deficits in communication, challenges in social interactions, and restricted and repetitive behaviors, interests, and activities. Although ASD symptoms are usually identifiable by the age of three, they may appear later in higher-functioning children who resemble their neurotypical peers (Robertson & Baron-Cohen, 2017). The presence of a child with ASD often limits the family's social interactions and activities, negatively affects interpersonal relationships, and particularly impacts the mother's employment and career development. Many mothers are forced to leave their jobs due to the time and energy required for caregiving responsibilities. Family life often revolves around the child with autism, leading to increased rates of depression, anxiety, stress, shame, and guilt among parents. Research has shown that marital relationships are also affected, as increased conflict over the child's care and treatment may create emotional distance between partners (Riahi et al., 2012).

Caring for a child with ASD represents a major source of stress, especially for mothers, who tend to be the primary caregivers. This stress can negatively affect their mental health, adaptation, and overall psychological and physical well-being (Shaham et al., 2021). The psychological burden

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can also disrupt family functioning at multiple levels—micro-level domains such as communication, conflict resolution, independence, leisure, moral and religious values, social relationships, and overall life satisfaction, as well as macro-level aspects such as psychological health, family cohesion, and sense of purpose (Ramezanloo et al., 2020).

One key ability often impaired in parents of children with ASD is cognitive emotion regulation (Cai et al., 2018), which refers to the conscious cognitive strategies individuals use to manage emotionally arousing information (Ludwig et al., 2020). These strategies help individuals control their emotions, maintain emotional stability, and avoid being overwhelmed by emotional experiences (Garnefski & Kraaij, 2018). Cognitive emotion regulation strategies are typically categorized as either adaptive (e.g., positive reappraisal, acceptance, perspective-taking, refocusing on planning) or maladaptive (e.g., self-blame, rumination, blaming others, catastrophizing), each carrying distinct emotional and behavioral outcomes (Kraaij & Garnefski, 2019). Emotion regulation plays a crucial role in coping and adjustment to life stressors. Empirical findings indicate that cognitive emotion regulation correlates with the intensity and duration of pain, the ability to adapt to it, and the manifestation of psychosomatic symptoms (Shokrolahi et al., 2022). Kaufman et al. (2017) found that poor maternal emotion regulation was associated with child behavioral problems, while training in emotion regulation strategies reduced emotional and psychological difficulties in both mothers and their children.

Moreover, maladaptive cognitive regulation strategies may lead to cognitive avoidance—a coping pattern in which individuals attempt to avoid distressing thoughts or situations. Consequently, such individuals derive little pleasure from daily activities, experience persistent negative emotions such as sadness and anger, and gradually become detached from the external world, which further reduces their engagement and increases emotional distress (Kumar & Somani, 2020). People often adopt different coping styles to manage stress and anxiety. Among these, avoidance-oriented coping involves attempts to escape from negative experiences, which may manifest cognitively (e.g., denial, suppression of distressing thoughts) or behaviorally (e.g., evading responsibilities, excessive self-care, compulsive eating, or substance use) (Ottenbreit et al., 2014). Cognitive avoidance specifically refers to the mental diversion of attention away from distressing interpersonal thoughts or situations toward less threatening topics (Mihailova & Jobson, 2020). While avoidance may temporarily reduce distress, it ultimately sustains anxiety over time. It

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prevents effective emotional processing and inhibits the use of adaptive emotion regulation strategies, leading to a paradoxical increase in intrusive and distressing thoughts (Amani et al., 2021). Cognitive avoidance plays a central role in the development and persistence of anxiety disorders, as it fosters negative problem orientation and inhibits the formation of positive beliefs during anxious states (Dickson et al., 2012). Research evidence further suggests that cognitive avoidance is significantly associated with reduced quality of life and increased vulnerability to psychological disorders (Khakshoor et al., 2022).

One of the effective and evidence-based interventions for reducing psychological difficulties among mothers of children with ASD is Schema Therapy. Developed by (Young et al., 2006), schema therapy is an innovative and integrative psychotherapeutic approach grounded in the principles of Cognitive Behavioral Therapy (CBT) and extended to address deeper emotional and personality-level issues. This therapeutic model was designed particularly for individuals suffering from chronic and treatment-resistant psychological disorders. A unique feature of schema therapy lies in its theoretical depth and conceptual clarity—it systematically identifies early maladaptive schemas, coping styles, and modes of functioning (Beck & Freeman, 1996). By challenging maladaptive schemas and ineffective coping strategies and replacing them with adaptive and healthy cognitive-emotional responses, schema therapy provides a comprehensive framework for long-term change (Golavari & Khayatan, 2022). The approach integrates cognitive, emotional, behavioral, and interpersonal techniques to help clients overcome early maladaptive schemas. Its primary goal is to enhance psychological awareness and conscious control over schemas, while its ultimate aim is to restructure these schemas and improve coping styles (Renner et al., 2016).

Schema therapy, through its emphasis on reconstructing maladaptive schemas rooted in early childhood experiences, functions as an integrative intervention targeting dysfunctional cognitive-behavioral patterns. By utilizing experiential and cognitive restructuring techniques, it aims to modify the core mechanisms underlying psychological distress and to replace them with more adaptive patterns. Its efficacy has been well established in the treatment of anxiety, depression, and in the enhancement of overall psychological well-being (Akbari et al., 2021; Rezaei et al., 2000).

Raising a child with ASD presents mothers with unique psychological challenges that may foster or intensify maladaptive schemas, emotional dysregulation, and tendencies toward avoidance-

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based coping strategies. Increasing evidence supports the effectiveness of schema therapy in alleviating psychological distress in this population. For example, empirical findings demonstrate that schema therapy reduces parenting stress (Shaham et al., 2021), decreases depression (Aghili et al., 2022; Akmese et al., 2011), diminishes rumination and stress (Pisula & Kossakowska, 2010), and enhances psychological hardiness and quality of life.

Specifically, studies conducted in Iran have confirmed the positive effects of schema therapy on outcomes closely related to the present research—such as increasing adaptive emotion regulation strategies and cognitive flexibility, reducing maladaptive emotion regulation strategies, rumination, cognitive fusion, and cognitive avoidance, as well as improving emotional self-regulation (Ghasemi & Movahedi, 2022; Golizadeh, 2022; Jafarzade jahromi et al., 2022). Despite this growing body of evidence, few studies have simultaneously examined the impact of schema therapy on cognitive emotion regulation and cognitive avoidance among mothers of children with ASD—particularly within specific cultural contexts such as Dezful City. Addressing this research gap could lead to the development of more targeted psychological interventions aimed at enhancing the mental health of these mothers and, ultimately, improving the quality of care provided to their children with autism. Accordingly, the present study seeks to answer the following research question: Is schema therapy effective in improving cognitive emotion regulation and reducing cognitive avoidance among mothers of children with ASD in Dezful City?

Material and Methods

The present study employed a true experimental design with pre-test, post-test, and follow-up assessments, using both an experimental group and a control group. The statistical population consisted of all mothers of children with ASD in Dezful City in 2023. Based on the study objectives, 30 participants were selected through purposive sampling according to inclusion and exclusion criteria and were randomly assigned to the experimental (schema therapy) and control groups.

Inclusion criteria included having a child diagnosed with ASD aged 7–12 years, classification of ASD level 1 or 2 according to medical records, residence in Dezful City, maternal education level above middle school, and completion of a consent form to participate in the study.

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Exclusion criteria included absence from more than three therapy sessions and concurrent participation in other psychological treatments or interventions.

The participants' education levels ranged from middle school to master's degree. Their ages varied between 26 and 45 years, and they had between one and four children. Participants in both groups represented a range of socioeconomic statuses from low to very good.

Instruments

Cognitive Emotion Regulation Questionnaire (CERQ): The Cognitive Emotion Regulation Questionnaire (CERQ) was developed by Garnefski et al. (2001) to assess cognitive coping strategies individuals use following negative life events. This 36-item self-report instrument measures nine cognitive emotion regulation strategies, divided into two main categories:

Positive emotion regulation strategies: acceptance, positive refocusing, refocus on planning, positive reappraisal, and putting into perspective.

Negative emotion regulation strategies: self-blame, blaming others, catastrophizing, and rumination.

Of the 36 items, 20 assess positive strategies and 16 assess negative ones. Responses are scored on a five-point Likert scale ranging from *1 (never)* to *5 (always)*. The total score ranges from 36 to 180, with higher scores indicating better cognitive emotion regulation ability.

Garnefski et al. (2001) reported a Cronbach's alpha reliability coefficient of 0.93 and a test–retest reliability of 0.77. Concurrent validity was supported through significant positive correlations with measures of depression and anxiety. The Persian version was standardized by Hasani (2010), with internal consistency coefficients ranging from 0.76 to 0.96 and test–retest reliability coefficients from 0.51 to 0.77. Criterion and construct validity were also found satisfactory. In the present study, Cronbach's alpha coefficients for positive and negative strategies were 0.87 and 0.83, respectively.

Cognitive Avoidance Questionnaire (CAQ): The Cognitive Avoidance Questionnaire (CAQ), developed by Sexton and Dugas (2008), consists of 25 items designed to assess the extent of cognitive avoidance across several dimensions:

- Suppression of worrisome thoughts
- Substitution of positive thoughts for worrisome thoughts
- Distraction through attentional shifting

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- Avoidance of situations or activities that trigger worrisome thoughts
- Transformation of mental imagery into verbal thoughts

Responses are rated on a five-point Likert scale from *1 (completely false)* to *5 (completely true)*. The total score ranges from 25 to 125, with higher scores indicating greater levels of cognitive avoidance. Sexton and Dugas (2008) reported reliability coefficients between 0.71 and 0.91, and confirmed convergent and discriminant validity with related constructs such as worry, thought suppression, and coping styles. In Iran, MahmudAliloo et al. (2011) reported a reliability coefficient of 0.86, and Aghajani et al. (2017) found Cronbach's alpha values ranging from 0.83 to 0.86. In the present study, the Cronbach's alpha reliability coefficient for this scale was 0.81.

After obtaining approval from the Research Committee of Islamic Azad University, Ahvaz Branch, and receiving ethical clearance, mothers of children with ASD aged 7–12 were identified through specialized schools and clinics in Dezful. Fifty eligible mothers were initially screened according to inclusion and exclusion criteria.

In an introductory session, the study's purpose, benefits, and procedures were explained. Mothers were informed that participation was voluntary, data would remain confidential, and each participant would be assigned a code. They were also assured that the study posed no risk and that the researcher would be responsible for any potential harm (physical, psychological, or financial). At the end of the follow-up phase, the control group was also offered an appropriate intervention. From the initial pool, 30 mothers with the highest pretest scores were selected and randomly assigned to the experimental group (schema therapy) or the control group, each containing 15 participants. The experimental group received schema therapy in 10 sessions of 90 minutes, held twice a week. No intervention was provided to the control group during this period. After completion of the sessions, a posttest was administered, followed by a 45-day follow-up assessment**.**

Table 1. Schema Therapy Intervention Protocol

Session	Objectives and Activities
1	Establish rapport and introduce the importance and purpose of schema therapy; discuss participants' problems using a schema-based approach; set session rules (confidentiality, respect, active listening); evaluate participants' issues with a focus on personal history.
2	Identify and examine evidence supporting or rejecting schemas from past and current life; define schema therapy, early maladaptive schemas, their characteristics, and developmental origins.
3	Teach cognitive techniques such as schema validity testing and re-evaluating evidence; introduce schema domains and early maladaptive schemas; explain biological and functional aspects of schemas.

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4	Strengthen the "Healthy Adult" mode; identify unmet emotional needs; teach methods for emotional release; introduce coping styles and schema modes; prepare participants for schema assessment and change.
5	Teach imagery dialogues and healthy communication skills; assess schemas using questionnaires; provide feedback to enhance schema awareness.
6	Introduce advanced cognitive strategies for change, including imagery rescripting of problematic situations and exposure to distressing schemas.
7	Focus on therapeutic relationships, role-playing, and interpersonal interactions; encourage dialogue between healthy and schema-driven parts; train participants to complete schema monitoring forms.
8	Introduce experiential techniques for change; practice healthy behaviors through role-play and behavioral assignments; use imaginative techniques and "re-parenting" imagery work.
9	Focus on behavioral pattern breaking; discuss advantages and disadvantages of healthy vs. unhealthy behaviors; teach overcoming behavioral resistance; prioritize target behaviors for change.
10	Review previous sessions and consolidate learning; practice new skills; enhance motivation for change; teach visualization and role-play of healthy behaviors; reinforce strategies for lasting life changes.

Data Analysis

Data were analyzed using descriptive statistics (frequency, percentage, mean, and standard deviation) and inferential statistics, including mixed ANOVA with repeated measures, Bonferroni post hoc tests**,** and assumption checks. Data analysis was performed using SPSS version 27, and the significance level was set at $\alpha = 0.05$.

Results

Table 2 presents the mean and standard deviation of cognitive emotion regulation and cognitive avoidance across the experimental (schema therapy) and control groups during the pretest, posttest, and follow-up phases. As shown, the mean scores for cognitive emotion regulation and cognitive avoidance in the experimental group increased from the pretest to the posttest and follow-up stages.

Table 2. Means and Standard Deviations of Cognitive Emotion Regulation and Cognitive Avoidance Across Groups and Phases

Variable	Phase	Experimental (M ± SD)	Control (M ± SD)
Positive cognitive emotion regulation	Pretest	33.4 ± 6.48	54.13 ± 5.61
	Posttest	64.46 ± 7.69	54.4 ± 5.46
	Follow-up	64.06 ± 7.66	54.4 ± 5.46
Negative cognitive emotion regulation	Pretest	52.00 ± 4.44	54.6 ± 4.08
	Posttest	33.3 ± 5.16	54.33 ± 4.28
	Follow-up	43.8 ± 5.03	54.06 ± 4.06
Cognitive avoidance	Pretest	63.66 ± 7.09	62.73 ± 7.23
	Posttest	55.00 ± 7.98	62.33 ± 6.98
	Follow-up	54.86 ± 7.93	62.2 ± 6.86

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Before testing the study hypotheses, the assumptions of mixed repeated-measures ANOVA were verified. These included the quantitative nature of the dependent variables, normality, homogeneity of variances, and sphericity. As shown in Table 3, all assumptions were met.

Table 3. Tests of Homogeneity, Sphericity, and Normality for Dependent Variables

Variable	Levene's F	p	Mauchly's W	p	Kolmogorov–Smirnov Z	p
Positive cognitive regulation	2.18	.15	.396	.001	.11	.20
Negative cognitive regulation	0.46	.50	.628	.002	.113	.20
Cognitive avoidance	0.27	.60	.357	.001	.09	.20

The non-significant Levene's test values indicated homogeneity of variances, and the Kolmogorov–Smirnov test confirmed the normal distribution of the data. However, Mauchly's test of sphericity was significant, suggesting that the assumption of sphericity was violated; therefore, the Greenhouse–Geisser correction was applied.

To test the overall hypothesis of mean differences across the phases and groups, multivariate analysis of variance (MANOVA) was conducted.

Table 4. Multivariate Tests (MANOVA) for Between-Group and Within-Group Effects

Source	Test	Value	F	df (Hypothesis)	df (Error)	p
Between groups	Pillai's Trace	.547	10.47	3	26	.01
	Wilks' Lambda	.453	10.47	3	26	.01
	Hotelling's Trace	1.20	10.47	3	26	.01
	Roy's Largest Root	1.20	10.47	3	26	.01
Within groups	Pillai's Trace	.988	304.14	6	23	.001
	Wilks' Lambda	.012	304.14	6	23	.001
	Hotelling's Trace	79.34	304.14	6	23	.001
	Roy's Largest Root	79.34	304.14	6	23	.001

As seen in Table 4, both between-group and within-group multivariate tests were statistically significant, indicating that the experimental and control groups differed significantly on at least one dependent variable, and that differences also existed among the three testing phases.

Table 5. Results of Mixed Repeated-Measures ANOVA for Dependent Variables

Variable	Source	SS	df	MS	F	p	η^2
Positive cognitive regulation	Time	520.8	1.24	417.68	606.47	.001	.95
	Time × Group	468.82	1.24	375.2	545.78	.001	.95
	Between groups	993.34	1	993.34	7.95	.001	.95
Negative cognitive regulation	Time	390.28	1.45	267.69	344.85	.001	.95
	Time × Group	324.68	1.45	222.69	286.89	.001	.95
	Between groups	1424.04	1	1424.04	23.53	.001	.95
Cognitive avoidance	Time	423.46	1.21	347.91	264.40	.001	.95
	Time × Group	341.68	1.21	170.84	213.34	.001	.95
	Between groups	471.51	1	471.51	7.92	.001	.95

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As Table 5 shows, the main effect of time and the time × group interaction were significant for all dependent variables ($p < .001$), indicating that scores changed significantly over time and that the pattern of change differed between the groups. The between-group effect was also significant ($p < .001$), showing meaningful differences between the schema therapy and control groups in all variables.

Table 6. Bonferroni Post Hoc Comparison of Pretest, Posttest, and Follow-Up within Each Group

Variable	Phase Comparison	Experimental ΔM (p)	Control ΔM (p)
Positive cognitive regulation	Post–Pre	10.13 (.001)	0.26 (1.00)
	Follow-up–Pre	9.73 (.001)	0.26 (1.00)
	Follow-up–Post	0.4 (.82)	0.0 (1.00)
Negative cognitive regulation	Post–Pre	8.66 (.001)	0.26 (1.00)
	Follow-up–Pre	8.2 (.001)	0.53 (.53)
	Follow-up–Post	0.46 (.63)	0.26 (1.00)
Cognitive avoidance	Post–Pre	8.66 (.001)	0.4 (.86)
	Follow-up–Pre	8.8 (.001)	0.53 (.59)
	Follow-up–Post	0.14 (1.00)	0.13 (1.00)

As shown, in the experimental group, the differences between pretest and both posttest and follow-up scores were significant ($p < .05$) for all three dependent variables, while no significant differences were observed in the control group. Furthermore, in both groups, the difference between posttest and follow-up scores was not significant, suggesting that treatment effects were maintained over time.

Table 7. Bonferroni Post Hoc Comparisons Between Groups Across Phases

Variable	Comparison	Pretest ΔM (p)	Posttest ΔM (p)	Follow-up ΔM (p)
Positive cognitive regulation	Experimental – Control	0.2 (.92)	10.06 (.001)	9.66 (.001)
Negative cognitive regulation	Experimental – Control	2.6 (.10)	11.00 (.001)	10.26 (.001)
Cognitive avoidance	Experimental – Control	0.93 (.72)	7.33 (.001)	7.33 (.001)

As shown in Table 7, there were no significant between-group differences at pretest ($p > .05$). However, significant differences emerged at posttest and follow-up ($p < .05$) in all three dependent variables—positive cognitive regulation, negative cognitive regulation, and cognitive avoidance—favoring the schema therapy group.

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Discussion

The findings of the present study indicated that the schema therapy intervention significantly improved cognitive emotion regulation strategies and reduced cognitive avoidance among mothers of children with ASD. These results are consistent with previous research (Aghili et al., 2022; Ghasemi & Movahedi, 2022; Shaham et al., 2021) hat has emphasized the effectiveness of this therapeutic approach in modifying maladaptive cognitive patterns and enhancing the psychological well-being of mothers.

This outcome can be theoretically explained by the fact that schema therapy, as proposed by Young et al. (2006), directly targets early maladaptive schemas that constitute the core of dysfunctional cognitions. By identifying and restructuring schemas such as emotional deprivation, vulnerability to harm, and self-sacrifice—which are frequently activated within the context of parenting a child with autism—mothers learn to redefine their emotional responses in stressful situations. This process leads to improvements in cognitive emotion regulation strategies, including enhanced positive reappraisal and reduced self-blame.

Specifically, regarding the reduction of cognitive avoidance, schema therapy intervenes by challenging the "avoidance" coping style, one of the three maladaptive coping modes in the schema model. Through experiential techniques such as imagery rescripting and chair work, therapists help mothers confront rather than escape from distressing emotions and intrusive thoughts, thereby increasing their distress tolerance. This approach disrupts the maladaptive cycle of avoidance—temporary anxiety relief followed by schema reinforcement—and ultimately reduces cognitive avoidance as a dysfunctional coping mechanism (Renner et al., 2016).

Overall, schema therapy can be viewed as a comprehensive intervention operating across two main phases—assessment and education and change and restructuring—that integrates cognitive, experiential, behavioral, and interpersonal techniques. It addresses not only surface-level symptoms but also deeply rooted maladaptive beliefs. This integrative process enhances resilience and strengthens adaptive coping skills, equipping mothers to manage the inevitable challenges of parenting a child with ASD more effectively.

The study, however, has certain limitations that must be considered when generalizing the results. The sample was restricted to mothers of children with ASD in Dezful city; therefore, caution should be exercised in generalizing these findings to other regions or cultural contexts. Although

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efforts were made to ensure sample homogeneity, complete control over potentially confounding variables—such as the severity of the child's disorder, time since diagnosis, family socioeconomic status, and the mother's social support network—was not possible.

Given the observed effectiveness, it is recommended that group-based schema therapy be implemented as a standardized intervention program in psychological service centers related to neurodevelopmental disorders and family counseling centers. Such implementation could help target maladaptive beliefs and reduce psychological distress among mothers of children with ASD.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

The studies involving human participants were reviewed and approved by ethics committee of Islamic Azad University.

Author contributions

All authors contributed to the study conception and design, material preparation, data collection and analysis. All authors contributed to the article and approved the submitted version.

Funding

The authors did (not) receive support from any organization for the submitted work.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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