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Comparing the Effectiveness of Cognitive-Behavioral Therapy and Acceptance and Commitment Therapy in the Resilience of Mothers with Autistic Children

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Abstract

Background: Children with Autism Spectrum Disorders (ASD) need special care that can create anxiety in parents, particularly their mothers, and endanger their well-being.

Objectives: The present study aimed to compare the effectiveness of Cognitive-Behavioral Therapy (CBT) and Acceptance and Commitment Therapy (ACT) in the resilience of mothers with autistic children.

Methods: This quasi-experimental study was performed on mothers referred to special educational and medical centers for autism in Mashhad. A total of 45 mothers of children with autism were selected using convenience sampling and were randomly assigned to two experimental groups and one control group. The experimental groups of CBT and ACT underwent interventions based on the treatment plans of Bieling et al. and Vowles and Sorrell, respectively, in eight 90-minute sessions. The research tool was the resilience questionnaire of Connor and Davidson.

Results: Based on the results, the control group significantly differed from CBT and ACT training groups ($P<0.001$). This difference was more pronounced for the ACT group in the components of perception of individual competence and spiritual effects ($F=37.24$, $F=37.87$, respectively, and $P=0.00$), while for the CBT group, more differences were observed in the components of trust in individual instincts ($F=03.19$), positive acceptance ($F=94.91$), and control ($F=06.13$, and for all $P=0.00$).

Conclusion: The obtained results confirmed that CBT is more effective than ACT in the resilience of mothers with autistic children. It is recommended that CBT be used to promote the mental health of these mothers.

Keywords: Acceptance and commitment therapy, Autism, Cognitive-behavioral therapy, Resilience

1. Background

Autism Spectrum Disorder (ASD) is a heterogeneous neurodevelopmental condition affecting behavior, cognition, communication, social interaction, and family mental health (1). Since there is currently no effective treatment for ASD, it is a daunting challenge for parents to raise a child with ASD (2). Parents of children with ASD are very vulnerable to a variety of mental and physical disorders and therefore require special attention to receive therapeutic and educational interventions for prevention and treatment (3). The prevalence of ASD has increased dramatically in recent decades, supporting the claim of an autism epidemic. Currently, the data confirm the high variability in the prevalence of ASD worldwide, which is probably due to methodological differences in case diagnosis and a steady increase in prevalence estimates in each geographical area (4). So far, numerous studies have focused on the disabilities of children with autism; nonetheless, less attention has been paid to the characteristics of their care environments and the problems faced by their family members, especially mothers (5).

Children with autism, due to distinctive problems, inevitably need special schools, education, and care. All these issues create anxiety in parents, particularly their mothers, and endanger their well-being (5, 6). Studies demonstrated that families of children with autism face several challenges, one of which is parental stress, since it interferes with the quality of life of the whole family (7, 8). Positive social support can be effective in the reduction of stress among the parents of children with ASD. Increasing flexibility and resilience can also be beneficial for other family members, especially mothers of children with autism (9).

Resilience is of fundamental importance to mothers of children with autism. It is one of the most important human abilities, causing effective adaptation to risk factors. Resilience is the capacity of individuals to grow in the face of stress and disaster. In other words, it can strengthen and help people in the face of adversity and protect them against danger throughout life (10). Resilience allows a person to cope with problems, such as pain and stress, and maintain the quality of life. In medicine and psychology, it also shows physical resistance, spontaneous recovery, and the ability to regain emotional balance in stressful situations (11). Caregivers around the world find the care of children with ASD a great challenge. Family members have to manage many aspects of care, which is very difficult and exhausting and can affect the mental health of family members. Nevertheless, learning how to be resilient may help family members overcome the stress and burden of caring for a person with ASD (12). Some studies have demonstrated specific vulnerabilities in families of children with ASD that

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are associated with low family resilience. Therefore, special consideration should be given to interventional approaches with the potential to improve the overall resilience of the family (13).

Therapists have tried many therapies to improve the quality of life in mothers of children with autism, and today psychological therapy can be used as the best standard and the most researched form of psychotherapy (14). Since the introduction of Beck's cognitive theory of emotional disorders and their treatment with psychotherapy, cognitive-behavioral approaches have become the broadest psychological treatment for a wide range of disorders (15). The goal of cognitive-behavioral therapy (CBT) is to increase the quality of life by changing cognitive and behavioral factors that maintain problematic symptoms (16). The CBT, which is a complex treatment model with several evolving components, has been developed and used for a wide range of mental and physical problems and disorders (17). It is a type of psychotherapy that helps people learn how to identify and change patterns of destructive or disturbing thinking that have a negative impact on behavior and emotions (18). In summary, CBT dominates international guidelines for psychosocial therapy due to its clear research support, making it the first-line treatment for many disorders, as directed by guidelines from the National Institutes of Health and the American Psychological Association. In addition, CBT is an evolving psychotherapy that is research-based (19).

Another recent treatment is Acceptance and Commitment Therapy (ACT), which takes its name from its main message: accept what is beyond your personal control and do something that enriches your life. The emphasis of this treatment (third-wave behavioral therapy), unlike the first and second waves of behavioral therapy, is not on first-degree change; however, this type of behavior therapy emphasizes second-degree change. That is, instead of changing behavior, it seeks to change structure or function through contextual hypotheses, including therapeutic communication (20). The ACT has been considered by therapists in recent years to help the psychological problems of parents of children with autism.

In ACT, the main goal is to create mental flexibility. That is, to create the ability to make practical choices between different options that are more appropriate, rather than just taking action to avoid disturbing thoughts, feelings, memories, or desires, or in fact imposing oneself on one (21). This treatment is a psychological intervention based on modern behavioral psychology that includes the theory of communication framework, in which the processes of attention, awareness, and acceptance, as well as commitment and behavior change, are used to create psychological flexibility (22). Therefore, caring for children with autism leads to emotional consequences for parents, especially mothers, and destroys the balance in the family system (23).

The urgent need of mothers with autistic children to increase their mental health to face their problems and challenges and increase their quality of life emphasizes the necessity of this study.

2. Objectives

In addition, various studies have been conducted on the positive effects of these two types of treatment on resilience in mothers of children with autism; nonetheless, no research has compared the impact of these two methods on the enhancement of resilience among mothers. In light of the aforementioned study, the present study aimed to compare the effectiveness of CBT and ACT training methods in the enhancement of resilience in mothers with autistic children.

3. Methods

This research employed a pretest-posttest control group design as an experimental design. The statistical population of the study consisted of all mothers of children with autism in Mashhad who were referred to three different educational and medical centers for autism from 2020-2021. Of these, 90 cases were selected by convenience sampling, and after the initial screening test, 45 mothers of autistic children with the lowest resilience were designated and randomly assigned to three groups of 15 cases (two experimental groups and one control group).

The inclusion criteria entailed an age range of 25-55 years, a minimum education of diploma, no acute illness, and no concomitant treatments. The subjects were selected after receiving a letter of introduction from the university and making the necessary coordination with the officials of special educational and medical centers for autism. Initially, the pre-test was performed for all three groups; thereafter, one experimental group received CBT training, and the other experimental group received ACT training in eight 90-minute sessions. A number of 15 cases were placed on the waiting list as the control group. At the beginning of each session, the assignments of the previous session were reviewed, and the training was then given. At the end of the sessions, questions and answers were asked, and the participants' problems were fixed. At the end of the intervention, all three groups were re-evaluated with research tools (post-test). It is worth noting that the subjects in the three groups were matched in terms of demographic characteristics. In this study, ethical considerations were observed, including obtaining

Table 1. Stages of cognitive-behavioral therapy

Session	Objective
First	Introducing the participants and why they decided to participate in cognitive-behavioral group meetings. Explaining the rules and principles of treatment sessions Performing homework as an exercise to get more familiar with the participants to do homework Taking pretest, defining autism and resilience, as well as noting the important emotional and behavioral implications of group life
Second	Teaching participants healthy and unhealthy negative emotions Talking about negative spontaneous thoughts
Third	ABC model training; activating events, beliefs, and emotional and behavioral consequences for A, B, and C, respectively
Fourth	Training approaches to combat profit and loss techniques Practice replacing positive thoughts with negative ones
Fifth	Explaining illogical beliefs about the resilience variable and how to challenge these beliefs Learning to use the method of rewarding and reprimanding emotional and behavioral outcomes (while unconditional self-acceptance)
sixth	Explaining the illogical belief of low tolerance for defeat and flexibility that affects our lives Learning the challenge of mothers with autistic children who are overly concerned about how to deal with others; that is, trying to fix an illogical belief
Seventh	Teaching the challenge of questioning illogical beliefs and teaching rational illustration techniques, as well as advocacy techniques
Eighth	Learning to play the role wisely Learning to make a Joyful tasks list Learning to be embarrassed Summarizing the contents of previous sessions and post-test

Table 2. Content of acceptance and commitment therapy sessions

Session	Objective
First	Expressing people's expectations of the meetings Describing the acceptance and commitment therapy Introducing the intervention method and this basic supposition that bearing is institutionalized in human life and is part of an ordinary life The aims and expectancies of mothers with autistic children were asked.
Second	Using similitude and trope Extracting the experience of avoidance, mixing, and values to the subjects Practicing mindfulness and homework
Third	Reviewing the homework of the previous session Expressing effective ways to improve members' mood Teaching emotions to be natural and not to fight them Determining the inefficiency of controlling negative actions using similes Teaching the inclination towards emotions and nugatory experiences, and homework
Fourth	Reviewing the homework of the previous session Expressing the difference between surrender and tolerance Identifying principles and measuring them, activities, objectives and barriers, and homework
Fifth	Reviewing the homework of the previous session Training to separate assessments from individual experiences Separating feelings from principles using the bad cup simile and the position of observing thoughts without adjudication Using the efficiency explanation and right and wrong traps Mindfulness training and homework
sixth	Reviewing the homework of the previous session Considering yourself a background (chessboard simile) Expressing the disagreement between self as content and context Explaining yourself as a process and homework
Seventh	Reviewing the homework of the previous session Taking commitment action in the form of efficiency Training mindfulness practices Providing applied solutions to overcome barriers when using allegories and plan for commitment to follow the principles and homework
Eighth	Reviewing the previous sessions and being efficient in mothers' lives Receiving feedback from participants Giving permanent home exercises, and performing posttest

written consent from the mothers of children with autism, providing written information about the research to parents, as well as the confidentiality of information and identity of subjects.

Research tool

In this study, Connor and Davidson resilience acceptance of change and safe relationships, control, and spiritual impact. Although this scale scale (CD-RISC 2003) was used (23). This scale consists of 25 items that are rated on a 5-point Likert scale (completely true 4 to completely false 0). The highest score for subjects is 100, and the lowest is 0. The components of resilience include the perception of individual competence, trust in individual instincts and tolerance of negative emotions, positive measures different dimensions of resilience, it has a total score. Connor and Davidson reported Cronbach's

alpha coefficient of the resilience scale as 0.89. Moreover, the test-retest reliability coefficient in a 4-week interval was 0.87. The reliability of the resilience scale in Iran has also been investigated. In the study by Mehdiyar and Nejati, its reliability was obtained at 0.93 and 0.83 through test-retest and Cronbach's alpha, respectively (24). In the study by Bigdeli et al., the internal consistency of this scale based on Cronbach's alpha was reported to be 0.9 (25). Kayhani et al. (26), in examining the construct validity of the factor load resilience scale, identified all 10 questions based on confirmatory factor analysis as between 44% and 93%, indicating the validity of a desirable and acceptable construct for this scale.

In this study, the protocol of CBT sessions was based on Bieling, McCabe, and Anthony 2009 (27). In addition, the sessions of ACT were developed and implemented based on the treatment protocol in the book "Life with Chronic Pain," written by Vowles and Sorrell 2007 (28).

The data were analyzed in SPSS software (version 23). The normality of data distribution was evaluated by the Kolmogorov-Smirnov test, and M-box tests were performed to check the homogeneity of the variance-covariance matrix and the presence of homogeneity of variances by Levene's test. Univariate analysis of covariance (ANCOVA) was applied to test the research hypotheses.

4. Results

The mean and standard deviation of the resilience scores and its components in the study groups are presented in Table 3. The obtained scores are indicative of an increase in the mean scores of resilience and its components in the two training groups of CBT and ACT in the post-test compared to the pre-test. Nonetheless, there was no significant difference between the mean resilience scores and its components in the pre-test and post-test in the control group.

Before the statistical analysis of study variables, the assumption of data normality was investigated. As illustrated in Table 4, since the significance level of all variables was higher than 0.05, the data had a normal distribution. Levene's test was performed for homogeneity of variance of variables (Table 5). The results of the homogeneity test of the variances of the therapy and control groups for resilience and its components are not significant; therefore, the variances of the training groups of CBT, ACT, and control are the same. The results of the M box test also illustrated that there is an assumption of homogeneity of the variance-covariance matrix ($P > 0.05$; $F = 1.82$).

Table 3. Mean and standard deviation of resilience scores and its components in the studied groups

Variable	Group	CBT Mean ± standard deviation	ACT Mean ± standard deviation	Control Mean ± standard deviation
Resilience	Pre-test	42.93±3.92	43.13±4.42	43.27±4.11
	Post-test	72.80±7.14	70.93±7.48	45.07±4.65
Perception of individual competence	Pre-test	13.07±3.41	12.67±4.20	13.13±3.44
	Post-test	20.13±3.02	21.47±2.90	13.67±3.72
Trust in individual instincts	Pre-test	12.20±2.34	12.33±2.29	12.07±2.22
	Post-test	22.33±2.86	19.47±3.66	12.73±3.03
Positive acceptance	Pre-test	9.13±1.77	9.00±1.69	8.80±1.70
	Post-test	15.73±1.03	15.33±1.80	8.93±1.71
Control	Pre-test	5.53±1.73	5.80±1.61	5.87±1.55
	Post-test	8.80±1.47	8.80±1.52	6.40±1.59
Spiritual effects	Pre-test	3.00±1.07	3.33±1.23	3.40±1.35
	Post-test	5.80±0.86	5.98±0.99	3.33±0.82

Table 4. Kolmogorov-Smirnov test for resilience and its components

Variable	Test	Statistics Z	Significant level
Resilience	Pre-test	1.24	0.07
	Post-test	1.34	0.06
Perception of individual competence	Pre-test	1.31	0.06
	Post-test	1.11	0.17
Trust in individual instincts	Pre-test	1.39	0.06
	Post-test	0.84	0.48
Positive acceptance	Pre-test	1.02	0.25
	Post-test	1.21	0.08
Control	Pre-test	1.44	0.05
	Post-test	1.12	0.16
Spiritual effects	Pre-test	1.29	0.07
	Post-test	0.97	0.3

Table 5. Levene's test results for homogeneity of variance of variables

Variable	F	df_1	df_2	Significant level
Resilience	2.10	2	42	0.13
Perception of individual competence	1.11	2	42	0.34
Trust in individual instincts	0.32	2	42	0.73
Positive acceptance	2.59	2	42	0.09
Control	0.42	2	42	0.66
Spiritual effects	0.17	2	42	0.85

The results of multivariate analysis of covariance indicated a linear difference between the variables in the groups (Effect Size=0.83, P<0.001, F=93.60, and Wickels lambda=0.13). Therefore, the results demonstrate that there was a significant difference in at least one of the resilience components between the three groups compared in the post-test. Univariate analysis of covariance was used to evaluate the differences in resilience components. As displayed in Table 6, the pre-test effect was not significant on post-test scores in the component of perception of individual competence F(41,1)=0.001, P>0.05, while there was a significant difference between the perception of individual competence of the subjects in the three groups of CBT, ACT, and control (F (41.2) =37.24, P <0.01). Furthermore, the effect of pre-test was not meaningful in the component of trust in individual instincts F (41.1)=0.51, P>0.05. There was a significant difference between the level of trust in the individual instincts of the three groups (F (41, 2) = 0.19, P<0.01).

As suggested by the results (Table 6), the pre-test effect on the acceptance component was not meaningful (F (41.1) =1.30, P>0.05), while there was a significant difference between the positive acceptance rate of the subjects in the three groups F (41, 2) =94.91, P<0.01). In the control component, the pre-test did not show a significant effect (F (41.1) =22.2, P> 0.05); and there was a significant difference between the control amount of the three groups (F (41.2) = 73.29, P <0.01). Furthermore, in the component of spiritual effects, the pre-test had no impact on post-test scores F (41.1) = 0.37, P> 0.05). Nonetheless, there was a significant difference between the level of spiritual effects of the three groups (F (41.2) =87.37, P<0.01). Therefore, it can be concluded that the control group significantly differed from the training groups of CBT and ACT in resilience scores.

The Tukey post hoc test was used to evaluate the effectiveness of each of the therapeutic interventions. According to the results of the Tukey test (Table 7), in all components of resilience, there were significant differences between the training groups of CBT, ACT, and the control group (P<0.001). In the components of perception of individual competence and spiritual effects, this difference was more for the group of ACT, indicating that ACT training has a more pronounced effect, compared to CBT, on the perception of individual

Table 6. Results of univariate analysis of covariance related to resilience components

Variable	Group	Total squares	df	Mean squares	F	Significant level	Impact rate	Test power
Perception of individual competence	Pre-test	0.04	1	0.04	0.001	0.95	0.00	0.05
	Group	521.65	2	260.82	24.37	0.00	0.54	1.00
	Error	438.76	41	10.70				
Trust in individual instincts	Pre-test	8.48	1	8.48	0.44	0.51	0.01	0.10
	Group	733.06	2	366.53	19.03	0.00	0.48	1.00
	Error	789.52	41	19.26				
Positive acceptance	Pre-test	3.12	1	3.12	1.30	0.26	0.03	0.20
	Group	439.89	2	219.95	91.94	0.00	0.82	1.00
	Error	98.08	41	2.39				
Control	Pre-test	5.06	1	5.06	2.22	0.14	0.05	0.31
	Group	59.46	2	29.73	13.06	0.00	0.39	1.00
	Error	93.34	41	2.28				
Spiritual effects	Pre-test	0.30	1	0.30	0.37	0.55	0.01	0.09
	Group	61.28	2	30.64	37.87	0.00	0.65	1.00
	Error	33.17	41	0.81				

Table 7. Results of Tukey post hoc test for resilience components in intervention and control groups

Variable	Group (I)	Group (J)	Means difference (I-J)	Significant level
Perception of individual competence	CBT	ACT	-1.33	0.50
		Control	6.47	0.00
	ACT	CBT	1.33	0.50
		Control	7.80	0.00
Trust in individual instincts	CBT	ACT	2.87	0.18
		Control	9.60	0.00
	ACT	CBT	-2.87	0.18
		Control	6.73	0.00
Positive acceptance	CBT	ACT	0.40	0.76
		Control	6.80	0.00
	ACT	CBT	-0.40	0.76
		Control	6.40	0.00
Control	CBT	ACT	0.53	0.99
		Control	2.41	0.00
	ACT	CBT	0.53	0.99
		Control	2.40	0.00
Spiritual effects	CBT	ACT	-0.07	0.98
		Control	2.47	0.00
	ACT	CBT	0.07	0.98
		Control	2.53	0.00

CBT: Cognitive-Behavioral Therapy, ACT: Acceptance and Commitment Therapy

competence and spiritual effects in the mothers of children with autism. This difference was greater in the components of trust in individual instincts, positive acceptance, and control for the CBT group. As a result, it can be stated that CBT training has a more pronounced effect on trust in individual instincts, positive acceptance, and control of mothers with autistic children.

5. Discussion

The present study aimed to compare the effectiveness of CBT and ACT in the resilience of mothers with autistic children. The results indicated that resilience components have significantly augmented in both experimental groups undergoing CBT and ACT compared to the control group. According to the results, CBT increased resilience in mothers with autistic children in comparison with the ACT group. Therefore, it can be stated that the implementation of CBT can significantly increase resilience in mothers with autistic children. In the meantime, the effect of ACT on increasing resilience in mothers with autistic children should not be overlooked. These results are consistent with the findings of the study by Gandoz (29), Farnam et al. (30), Soltani et al. (31), Riahi et al. (32), and Chimeh et al. (33), who found that mothers with autistic children experience negative emotions, such as denial, anger, and depression in the process of diagnosing a child.

In this study, although ACT was effective in the resilience of mothers with autistic children, CBT training had a more pronounced effect on the resilience of these mothers. It can be explained that when the therapist applies CBT techniques to mothers with autistic children, the individual's self-perception, sense of adequacy and problem-solving skills, gaining independence, skills coping with dangerous and stressful situations, and many skills are taught to improve the desired mental state, which will promote resilience. Mothers with autistic children experience anxiety, restlessness, sadness, and helplessness when faced with stress and threatening situations. Long stressful conditions in the lives of these people endanger their physical and mental health, and they have poor resilience to stress and demonstrate great vulnerability. Using CBT, mothers were helped to use the existing situation as an opportunity for their development without giving in to stressful situations. In other words, without showing pathological emotional reactions, they try not only to control the current situation but also to find logical solutions to resolve conflicts caused by stress. This resistance and effort to find logical solutions in the context of stressful situations are due to the high resilience of these people (34).

In this study, the results revealed that ACT training has a more significant effect on the perception of individual competence. This result is consistent with the findings of the studies by Dehghani (35) and Coholic (36). The most important goal of ACT is to increase a person's psychological flexibility and behavioral resilience in the face of unpleasant thoughts, feelings and behaviors, and it puts an emphasis on people's desire for inner experiences. This treatment helped mothers of children with autism learn about the disturbing thoughts they always experienced, learn about the ineffective nature of their current plan, and instead of responding to it, do what is important to them in life. On the other hand, the technique of breaking down and accepting values causes mothers to conclude that whatever they do for their children, they do not care about the result and the goal is important to them; therefore, they try their best without being disappointed. Consistent with the study by Hayes et al. (37), the present research demonstrated that when these mothers deal with the challenges and problems of an autistic child, they consider themselves capable.

The results of the present study disclosed that CBT training has a more marked effect on trust in the individual instincts of mothers with autistic children. This finding is in line with the research by Gharedaghi and Kamilipour (38). Mothers with autistic children who received this training course, with higher cognition, gained more self-acceptance and developed a correct and complete understanding of their strengths and weaknesses. This situation leads to more self-satisfaction and provides the ground for tolerance of more negative emotions.

In agreement with the results of the studies by Gandoz (29), Farnam et al. (30), and Soltani et al. (31), in the current research, CBT training had a more significant effect on the positive acceptance of change in mothers with autistic children. This finding can be justified on the ground that mothers who received CBT have increased self-awareness skills; therefore, they have a greater ability to understand the needs of others and can better perceive the pressure of the external environment. By acquiring this skill, significant changes were made in the individual and interpersonal indicators of these mothers so that they achieved a realistic perception of themselves and the world around them. Therefore, it can be stated that mothers who have been trained in CBT have been able to improve both internally(i.e., controlling emotions, regulating emotions and improving self-esteem) and externally(i.e., improving interpersonal relationships and effective relationships with others). As a result, positive acceptance of change and secure relationships are strengthened in them.

Furthermore, in the present study, CBT training had a greater effect on the control of mothers with autistic children compared to ACT. This result was in accordance with the findings of the study by Riahi et al. (32). It can be explained that one of the features

that improve the CBT of people is self-efficacy since parent's self-efficacy means belief in their ability to influence their child and the environment. Therefore, parents gain higher self-efficacy, and in this case, their stress is reduced, and they gain a higher sense of control.

In the present study, the ACT had a more marked effect on the spiritual effects of mothers with autistic children. This finding confirmed the results of the studies by Fashler et al. (39) and Batink et al. (40). Myler (2013) also concluded that ACT increases spiritual beliefs (40). This result can be justified on the ground that religion is the most important adjustment strategy for parents of children with various problems, including autism. One of the most important adaptation mechanisms for these mothers is religious beliefs, and they communicate with God and perform religious rituals to better endure difficult situations. Moreover, ACT can improve the spirituality of mothers with autistic children by accepting behaviors and commitment to do the right behaviors, which are often the same moral behaviors, increasing the sense of social value, and promoting hope.

Among the notable limitations of this study, we can refer to the impossibility of random sampling of the study, which may have affected the results of statistical analysis and the internal validity of the research. In addition, the statistical population of the study consisted of mothers with autistic children in Mashhad; therefore, great caution should be exercised in the generalization of the results of this study to other communities.

6. Conclusion

As evidenced by the obtained results, it can be concluded that the control group significantly differed from the training groups of CBT and ACT in resilience scores. This difference was more pronounced for the CBT training group; consequently, CBT training had a more marked effect on the resilience of mothers with autistic children, in comparison with ACT. Therefore, it is recommended to use CBT training programs in welfare institutions and centers to improve cognitive regulation strategies and promote the mental health of mothers of children with ASDs.

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Conflicts of interest

The authors declare that they have no conflict of interest.

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