Comparison of the Effectiveness of Cognitive-Behavioral Therapy and Reality Therapy on Reducing Anxiety in Mothers of Children with Autism

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1. Introduction

Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder characterized by deficits in communication and social interaction, as well as restricted interests and stereotypical behaviors (Abdelaziz et al., 2024). The prevalence of autism in 2014 was diagnosed at 1 in 59 children, showing a 30% increase compared to the 2012 report (Acharya & Sharma, 2021; Benson, 2018). In Iran, a study indicated that the prevalence of autism among five-year-old Iranian children is 6.26 per 10,000 (Hoseini Renani & Shojaee, 2018). Autism is a lifelong and debilitating disorder that affects not only the child but also the family, causing numerous negative outcomes (Lake et al., 2020). Autism disrupts children's individual, social, emotional, and academic functioning. Problems such as lack of appropriate communication with others, poor eye contact, inability to use proper sentences and phrases, learning difficulties, restricted interests and activities, attention deficits, aggression, and self-injury are associated with this disorder. Thus, children with autism face many challenges in their daily lives (Ebrahimi et al., 2023).

Given the characteristics of this disorder, along with its difficult and late diagnosis, recurrence of symptoms after a period of typical development, lack of effective and definitive treatment, and less favorable prognosis, it can impose additional psychological pressure on parents and other family members (Adams et al., 2021). Research has shown that parents of children with autism endure numerous financial and psychological stresses compared to parents of neurotypical children, with mothers being particularly at risk for psychiatric disorders such as depression and anxiety (Doi et al., 2022; Talcer et al., 2023).

Mothers of children with autism experience high levels of anxiety. Anxiety is a reaction to an unknown, internal, vague, and uncontrollable danger, caused by various factors (Sandin et al., 2016; Viktorin et al., 2017). Anxiety involves uncertainty, helplessness, and physiological arousal, accompanied by one or more physical sensations such as a hollow feeling in the stomach, chest tightness, palpitations, sweating, headaches, etc. Anxiety, as part of every human's life, exists in moderation and serves as an organized response. It can be said that without anxiety, we would all fall asleep at our desks. Lack of anxiety could expose us to many problems and dangers. Therefore, anxiety, as part of every human's life, forms one of the components of their personality structure. From this perspective, some anxieties can be considered normal and their positive impact on the development process can be accepted (Agazzi et al., 2017; Falk et al., 2014). However, repetitive and intensified worry leads to painful mental anxiety resulting from anticipating potential harm. Excessive anxiety eventually disrupts their health, personality, and mental well-being (Rezendes & Scarpa, 2011).

Cognitive-Behavioral Therapy (CBT) is a form of psychotherapy that helps mothers understand the thoughts and feelings that influence their behaviors. In many advanced healthcare centers, therapeutic strategies based on psychological and behavioral concepts, such as relaxation and cognitive methods to change negative thoughts, are used as effective strategies for treating many illnesses (Abdelaziz et al., 2024; Bieling et al., 2022; Ladouceur, 2024; Wang et al., 2021; Zugman et al., 2024). CBT is based on the essential connection between thought, feeling, and behavior. Beck believes that therapists can help people reconstruct their thoughts to better cope with stress. In this therapeutic approach, the patient is encouraged to consider the relationship between their automatic negative thoughts and their feelings of depression as hypotheses to be tested and to use behaviors resulting from automatic negative thoughts as a test of the validity or correctness of those thoughts (Craske, 2010; Gautam et al., 2020; Kingdon & Turkington, 2022; Rozen & Aderka, 2023).

Most research conducted on Reality Therapy and CBT is descriptive, particularly with less work done on children with autism. Given the high stress levels that mothers of children with autism face, efforts to mitigate anxiety are of particular importance. Since such individuals have not learned to satisfy their needs considering reality, their behavior is irresponsible. Thus, it is necessary to first teach them their needs and prepare them for responsible behavior. Based on this, the researcher aims to answer the question: Is there a difference in the effectiveness of CBT and Reality Therapy in reducing anxiety in mothers of children with autism?

2. Methods and Materials

2.1. Study Design and Participants

The present research is an applied and quasi-experimental study with a pre-test and post-test control group design. The statistical population included all mothers of children with autism whose children were enrolled in one of the exceptional schools in Shahriar County during the 2023-2024 academic year. The sample consisted of 45 individuals selected through convenience sampling and randomly

assigned to three groups: Reality Therapy (n=15), CBT (n=15), and control group (n=20). After the sessions, all participants completed the research questionnaires again. The necessary sample size was calculated based on similar studies, considering an effect size of 0.40, a confidence level of 95%, a test power of 80%, and a 10% dropout rate, resulting in 15 individuals per group. Accounting for potential dropouts based on previous studies, a dropout rate of 5 individuals per group was predicted, leading to a total sample size of 45 individuals. The control group received no training.

Inclusion criteria were as follows: mothers must have a child diagnosed with Autism Spectrum Disorder by a psychiatrist or clinical psychologist; mothers must have at least basic literacy; mothers must provide informed consent to participate in the study; the child's age must be within the specified range; mothers must score high on the anxiety questionnaire; willingness to regularly attend intervention sessions; and agreement to participate in the research as indicated by a signed written consent form. Exclusion criteria included being involved in a current romantic relationship, taking psychiatric medications, not cooperating with the therapist, and not completing the main proposed tasks.

After obtaining the necessary permissions, 45 mothers who scored high on the anxiety questionnaire, indicating the presence of anxiety, met the inclusion criteria, and were willing to participate in the study, were selected through convenience sampling and randomly assigned to two experimental groups and one control group (15 per group). The experimental groups were informed about the treatment rationale, research objectives, and the importance of participation, and assured that all information would remain confidential. Then, therapeutic sessions for the experimental groups were conducted. After the therapy sessions, participants from all three groups completed the questionnaires again as a post-test. Finally, data from the pre-test and post-test stages were prepared for statistical analysis. Ethical considerations included informing all respondents about the research in writing, obtaining informed consent, allowing participants to withdraw at any time, assuring confidentiality of information, and using data for research purposes only. To maintain privacy, participants' names were not recorded. The therapist committed to applying the more effective treatment to the control group at the end of the training.

2.2. Measures

2.2.1. Anxiety

The Beck Anxiety Inventory (1988) is a self-report tool consisting of 21 items designed to measure the severity of anxiety. Each item reflects a symptom of anxiety, rated on a 4-point scale. Scores range from 0 to 63, with higher scores indicating greater anxiety. Beck categorized scores of 0-9 as normal anxiety, 10-18 as mild to moderate anxiety, 19-29 as moderate to severe anxiety, and 30-63 as severe anxiety. The internal consistency of this scale is reported at 0.92, and its test-retest reliability is 0.75. The scale's correlation with the revised Hamilton Anxiety Scale is significant (r=0.75) and weakly correlated with the revised Hamilton Depression Scale (r=0.25). Kazemi (2009) found that this test effectively differentiates anxious from normal individuals. The test's reliability, calculated through Cronbach's alpha coefficient, was reported at 0.78 (Zemestani et al., 2018). In this study, the questionnaire's reliability, using Cronbach's alpha, was 0.79.

2.3. Intervention

2.3.1. Reality Therapy

Reality Therapy based on Choice Theory emphasizes understanding and meeting psychological needs through responsible behavior. The sessions are structured to introduce key concepts, teach practical techniques, and facilitate behavioral changes that enhance well-being and personal responsibility (Ebrahimi & Ebrahimi, 2021; Ebrahimi et al., 2023; Patkar, 2018; Rosidi et al., 2018; Tofighi Mohamadi et al., 2020; Wubbolding, 2017).

Session 1: Introduction and Relationship Building

Objective: Familiarize group members with each other, establish an emotional connection between members and the therapist, discuss group goals and rules, and administer the pre-test.

Session 2: Introduction to Choice Theory Concepts

Objective: Introduce participants to the concepts of internal and external control psychology, and provide an initial understanding of Glasser's Choice Theory, including concepts like choice, responsibility, and fundamental psychological needs such as belonging, power, love, survival, and freedom.

Session 3: Teaching Fundamental Needs

Objective: Educate participants about Glasser's fundamental psychological needs, including belonging,

power, love, survival, and freedom. Help them understand and recognize these five fundamental needs.

Session 4: Teaching Complete Behavior

Objective: Teach Glasser's concept of complete behavior, which includes four components: thought (analyzing, reasoning), action (walking, talking), physiology (sweating, trembling), and feeling (sadness, happiness). Emphasize that individuals enact behaviors rather than being passive recipients of feelings, e.g., "doing depression" instead of "being depressed."

Session 5: Psychological Issues Explanation

Objective: Introduce anxiety, anger, and depression from the perspective of Choice Theory, emphasizing that these are total behaviors aimed at bridging the gap between the desired world (quality world) and the perceived world. Discuss seven destructive behaviors (e.g., complaining, not listening) and seven caring behaviors (e.g., listening, mutual understanding).

Session 6: Internal Control

Objective: Introduce and discuss internal control by teaching the ten principles of Choice Theory. Provide detailed explanations, numerous examples, and ask participants to share personal examples.

Session 7: Introduction to Responsibility

Objective: Examine the concept of responsibility and its importance in daily life. Discuss how responsible behavior is crucial for meeting needs and improving life quality.

Session 8: Teaching Responsibility

Objective: After reviewing the previous session's homework on responsibility, plan for responsible behavior, define feelings of competence and worth, and establish a sense of commitment. Aim for participants to achieve a successful identity by having a clear understanding of their goals and defining their means to reach these goals.

Session 9: Teaching Behavior Change Techniques

Objective: Introduce the WDEP system (Wants, Doing, Evaluation, Planning) and help the group create concrete plans to avoid external control, embrace responsibility, and make choices.

Session 10: Teaching the Concept of Total Behavior

Objective: Review the previous session's homework and teach the concept of total behavior, emphasizing that all human actions consist of acting, thinking, feeling, and physiological signs. Highlight that every action is a total behavior.

Session 11: Needs Profile of Members

Objective: Review the previous session's homework and identify the needs profile of the members. Help participants

become aware of their strengths, gain realistic perspectives about their surroundings, and understand the intensity of their needs.

Session 12: Closure of Therapy Sessions

Objective: Evaluate the content of previous sessions, administer the post-test, and have participants complete the research questionnaires.

2.3.2. *Cognitive-Behavioral Therapy (CBT)*

Cognitive-Behavioral Therapy (CBT) aims to help individuals understand the thoughts and feelings that influence their behaviors. This structured approach involves identifying and challenging negative thoughts and developing healthier behavioral patterns through various cognitive and behavioral techniques (Abdelaziz et al., 2024; Bieling et al., 2022; Craske, 2010; Gautam et al., 2020; Hoseini Renani & Shojaee, 2018; Kingdon & Turkington, 2022; Ladouceur, 2024; Lake et al., 2020; Wang et al., 2021; Zugman et al., 2024).

Session 1: Introduction and Rapport Building

Objective: Introduce the patient, administer the pre-test, set treatment goals, explain session rules, and establish a therapeutic relationship.

Session 2: Feedback and Introduction to CBT

Objective: Review the previous session, take notes, introduce the principles of CBT, teach relaxation techniques, and assign homework.

Session 3: Identifying Negative Thoughts

Objective: Review the previous session, note negative and dysfunctional thoughts, use relaxation techniques, and assign homework.

Session 4: Identifying Core Beliefs

Objective: Review the previous session, teach the downward arrow technique to identify core beliefs and schemas, use relaxation techniques, and assign homework.

Session 5: Listing Core Beliefs

Objective: Review the previous session, create a list of core beliefs, use relaxation techniques, and assign homework.

Session 6: Testing Beliefs

Objective: Review the previous session, objectively analyze and test clients' beliefs (judgment and evaluation), use relaxation techniques, and assign homework.

Session 7: Cognitive Analysis

Objective: Review the previous session, use various cognitive analysis methods, encourage clients to reevaluate

their beliefs, use relaxation techniques, and assign homework.

Session 8: Challenging Automatic Thoughts

Objective: Review the previous session, use relaxation techniques, challenge automatic thoughts, and assign homework.

Session 9: Recognizing Feelings and Problem-Solving

Objective: Review the previous session, emphasize recognizing feelings, teach problem-solving skills, explain problem-focused and emotion-focused coping styles, use relaxation techniques, and assign homework.

Session 10: Cognitive Confrontation

Objective: Review the previous session, use relaxation techniques, challenge automatic thoughts, and assign homework.

Session 11: Cognitive Confrontation

Objective: Review the previous session, conduct cognitive confrontation, use relaxation techniques, and assign homework.

Session 12: Review and Closure

Objective: Review all sessions, administer the post-test, and conclude the therapy.

2.4. Data analysis

In the descriptive statistics section, the mean and standard deviation were used to examine the scores of the subjects in the pre-test and post-test stages. In the inferential statistics section, multivariate covariance analysis (MANCOVA) was used to compare the effectiveness of the treatments on the dependent variables' component scores using SPSS-26 software.

3. Findings and Results

The mean (standard deviation) age in the Reality Therapy group was 41.73 (9.39), in the Cognitive-Behavioral Therapy (CBT) group it was 43.20 (11.75), and in the control group, it was 42 (9.81).

Table 1

Central and Dispersion Indices of Research Variables Scores in Experimental and Control Groups

Variable	Group	Pre-test Mean (SD)	Post-test Mean (SD)
Anxiety	Reality Therapy	14.20 (2.48)	9.80 (2.67)
	Cognitive-Behavioral Therapy	15.40 (3.35)	12.73 (3.34)
	Control	15.47 (1.55)	15 (1.51)

The results of the Kolmogorov-Smirnov test showed that the obtained z values for the research variables were not significant at the 0.05 level. Thus, it can be concluded that the data distribution related to the research hypotheses is normal, and the normality assumption of the data is met, allowing us to use the analysis of variance test. Also, the Levene's test F values (for equality of variances) for all variables were not significant at the 0.05 level. Therefore, the null hypothesis is not rejected, the test is not significant, and there is no significant difference between the variances of the research variables scores in the experimental and

control groups. Consequently, the assumption of homogeneity of variances is confirmed, and another prerequisite for covariance analysis is met, allowing us to proceed with the analyses.

To examine the homogeneity assumption of the covariance of the dependent variables (pre-test and post-test scores) in the two groups, the Box's M test was used. As observed above, the homogeneity assumption of covariances for the research variables is maintained. To investigate the differences in anxiety scores among the three groups, univariate covariance analysis (ANCOVA) was used.

Table 2

Results of One-Way Covariance Analysis on Post-test Mean Anxiety Scores Controlling for Pre-test

Variable	Source of Variation	Sum of Squares	df	Mean Square	F	p	Eta Squared	Power
Anxiety	Pre-test	170.46	1	170.46	249.27	<.0001	0.90	1.00
	Group	36.41	1	36.41	53.25	<.0001	0.66	1.00
	Error	18.46	27	0.68				

As shown in Table 2, there is a significant difference in anxiety between the experimental and control groups after controlling for the pre-test (F = 53.25, p < 0.0001). In other words, there is a significant difference between the CBT and control groups in terms of anxiety mean scores. The effect size or difference is 0.66, meaning that 66% of the individual differences in post-test anxiety scores are due to group membership. The results showed that the mean anxiety scores of the CBT group were lower than those of the control group at the end of the training (p < 0.01).

Table 3

Pairwise Comparisons for Research Variables at the End of Training

Dependent Variable	Group	Group	Mean Difference	Significance Level
Anxiety	Reality Therapy	CBT	-1.92	0.032
		Control	-3.96	0.001
	CBT	Control	-2.04	0.015

To identify which groups had significant differences, Bonferroni's post hoc test was used. Based on the pairwise comparison results from the post hoc test (Table 3), the mean anxiety scores of the Reality Therapy group were significantly lower than those of the CBT and control groups at the end of the training (p < 0.01). In fact, Reality Therapy had a greater impact on improving anxiety compared to CBT (p < 0.01).

4. Discussion and Conclusion

Based on the findings, there was a difference in the effectiveness of CBT and Reality Therapy in reducing anxiety in mothers of children with autism. Reality Therapy was more effective in improving anxiety than CBT. These results are consistent with the prior findings (Abdelaziz et al., 2024; Bieling et al., 2022; Craske, 2010; Ebrahimi & Ebrahimi, 2021; Ebrahimi et al., 2023; Gautam et al., 2020; Hoseini Renani & Shojaee, 2018; Kingdon & Turkington, 2022; Ladouceur, 2024; Lake et al., 2020; Rosidi et al., 2018; Rozen & Aderka, 2023; Wang et al., 2021; Zugman et al., 2024).

In explaining these findings, it can be said that Reality Therapy helps individuals identify and pursue their needs in a realistic and practical manner. For mothers of children with Autism Spectrum Disorder (ASD), this approach can be particularly beneficial as it empowers them to take control of their lives and make positive changes in facing daily challenges (Ebrahimi & Ebrahimi, 2021; Ebrahimi et al., 2023). Focusing on addressing current issues and solving problems aligns with the ongoing stress of caring for a child with autism. While CBT is effective in changing maladaptive thought patterns and unhelpful behaviors, it requires significant cognitive engagement and restructuring of thought processes, which can be challenging for individuals under high stress. In contrast, the emphasis of Reality Therapy on immediate actions and personal responsibility can provide more tangible and quicker benefits for these mothers, helping them to manage their anxiety more effectively and efficiently (Ladouceur, 2024; Lake et al., 2020).

Studies have shown that Reality Therapy can significantly reduce anxiety and enhance psychological well-being across different populations. Studies indicated that Reality Therapy significantly reduced anxiety levels in individuals experiencing high stress, suggesting its potential applicability for mothers of children with autism. Research indicates that the daily demands and chronic stress associated with caring for a child with ASD significantly contribute to parental anxiety, particularly among mothers (Ebrahimi et al., 2023; Patkar, 2018). Reality Therapy's focus on practical and immediate coping strategies may offer more direct support in managing these stresses compared to cognitive restructuring approaches.

Reality Therapy's emphasis on personal responsibility and empowerment aligns with the needs of mothers of children with autism, who often feel pressured and powerless. By fostering a sense of control and agency, Reality Therapy can enhance self-efficacy and reduce anxiety (Wubbolding, 2017). Caring for children with ASD imposes significant stress on parents due to their specific needs and behavioral challenges. Mothers, as primary caregivers, are more affected. Reality Therapy, with its emphasis on individual choices and responsibility, can help these mothers effectively cope with daily stresses and anxieties.

One of the key principles of Reality Therapy is the focus on the present moment and practical actions. Mothers of children with autism need to address daily challenges promptly and effectively. Reality Therapy provides practical

solutions focused on the present, helping these mothers better handle stressful situations and reduce anxiety. By emphasizing individual responsibility and empowerment, Reality Therapy can increase the sense of control and self-efficacy in mothers of children with autism. This sense of control can help reduce anxiety and improve their mental health. Research has shown that self-efficacy is significantly associated with reduced anxiety and stress (Patkar, 2018; Rosidi et al., 2018; Tofighi Mohamadi et al., 2020). While CBT focuses on changing maladaptive thought patterns, this process can be time-consuming and complex. Reality Therapy, with its direct and practical approach, can meet the immediate and daily needs of mothers of children with autism. This approach can quickly show positive effects and significantly reduce anxiety.

Based on the evidence and analyses conducted, Reality Therapy can be a more effective approach in reducing anxiety in mothers of children with autism in Shahriar County. This approach, with its emphasis on individual responsibility, empowerment, focus on the present moment, and practical solutions, can help these mothers cope more effectively with daily stresses and challenges. Future research can explore these findings with larger samples and different methodologies to obtain more precise results and provide better intervention strategies for improving the condition of mothers of children with autism.

5. Limitations & Suggestions

This study had several limitations that should be considered in interpreting and using the results. Some of the most important limitations include: the small sample size, which may not be generalizable to a larger population; the use of convenience sampling, which may lead to sampling bias and not accurately represent the target population; the use of self-report questionnaires, which may be subject to social desirability bias and memory errors; the specific time frame of the study, which may produce results that vary over different times or environmental conditions; and the specific cultural, social, and economic characteristics of Shahriar County, which may not be generalizable to other regions. There is also the possibility of other interventions (such as social support, other therapies) that may have influenced the research results.

It is suggested that future research increase the sample size to obtain more generalizable results. Using random and diverse sampling methods to reduce sampling bias and increase population representation is recommended. Future

research could compare the effectiveness of Reality Therapy with other therapeutic methods (such as CBT). Longitudinal studies are recommended to examine the long-term effects of Reality Therapy on reducing anxiety in mothers of children with autism. More research should examine the impact of mediator variables such as social support, education level, and economic status on the effectiveness of Reality Therapy. Using multiple assessment tools and diverse methods (such as interviews, observations) to increase the accuracy and validity of results is recommended. Educational and empowerment programs for mothers of children with autism should be designed and implemented to familiarize them with Reality Therapy and use this approach in daily life.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

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

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

Authors' Contributions

All authors equally contributed in this article.

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