

Comparison of the Effectiveness of Mindfulness-based Cognitive Therapy and Transdiagnostic Therapy on Mind Wandering in Mothers of Children with Autism

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ABSTRACT

Purpose: This study assessed the effectiveness of mindfulness-based cognitive therapy (MBCT) and transdiagnostic therapy (TDT) in mind wandering in mothers of children with autism.

Methods and Materials: This study employed a semi-experimental design with a pre-test and post-test control group structure aimed at assessing the effects of two interventions on mothers of children with autism. The target population includes all mothers of children with autism who were referred to the Autism Association in Tehran during the year 2024. Purposive sampling was used to select participants. A sample of 47 participants was randomly selected and divided into three groups: the intervention group receiving Mindfulness-Based Cognitive Therapy (MBCT; $n = 16$), the intervention group receiving Transdiagnostic Therapy (TDT; $n = 16$), and a control group ($n = 15$). The experimental groups participated in ten sessions of their respective interventions, each lasting 90 minutes for MBCT and 75 minutes for TDT, conducted weekly. The control group received no intervention during this period. The research instruments included the Mind-Wandering Questionnaire (Mrazek et al., 2013). Univariate and multivariate analyses of covariance (ANCOVA) and Bonferroni post hoc tests were conducted using SPSS-27.

Findings: ANCOVA results showed a significant difference between mindfulness-based cognitive therapy and transdiagnostic therapy in reducing mind wandering among mothers of children with autism ($F = 40.30, p < 0.01$). The Bonferroni test also revealed significant reductions in mind wandering in both intervention groups compared to the control ($p < 0.001$). Furthermore, with a mean difference of 3.07, transdiagnostic therapy was more effective than mindfulness-based cognitive therapy ($p < 0.05$), demonstrating its greater impact on reducing mind wandering.

Conclusion: The findings showed that both mindfulness-based cognitive therapy and transdiagnostic therapy effectively reduced mind wandering in mothers of children with autism, with transdiagnostic therapy being more effective. These therapies can thus enhance awareness and address emotional challenges, offering a cost- and time-efficient alternative to traditional treatments requiring extensive clinical training.

Keywords: Mindfulness-based Cognitive Therapy, Transdiagnostic Therapy, Mind Wandering, Mothers, Children with Autism

1. Introduction

Autism Spectrum Disorder (ASD) is classified as a neurological disorder characterized by difficulties in initiating and maintaining social communication and interaction. It often involves restricted interests and stereotypical behaviors, which extend beyond socio-cultural norms (World Health Organization, 2021). According to the US Centers for Disease Control and Prevention (CDC), the prevalence of autism in children has increased significantly—from 6.7 per 1,000 children in 2000 to 23 per 1,000 in 2018 (Maenner, 2023). Children with autism face various social, behavioral, cognitive, and sensory challenges that disrupt their lives and affect their families. These challenges can lead to physical, psychological, and social problems for parents and other family members (Sánchez Amate, & Luque de la Rosa, 2024). The birth of a child with autism often requires parents—especially mothers and fathers—to adapt and reorganize their family dynamics (Higgins et al., 2023). Autism can significantly alter family relationships, with attention becoming primarily focused on the child (Machado et al., 2018). Because children with autism often have difficulty making eye contact and sharing interests, mothers may struggle to develop a strong mother-child bond. This difficulty can stem from challenges in being recognized as a mother and in exchanging words with their child (Papadopoulos, 2021). Additionally, mothers of children with autism often experience feelings of suspicion and anxiety related to their child's disabilities (Asai et al., 2022). Mothers in these circumstances endure high levels of stress, which can threaten their physical and mental health. They need to manage their expectations according to their child's limitations, which adds to their burden (Rios et al., 2020). Evidence indicates that parents of children with autism experience higher levels of mental distraction or “mind wandering” compared to parents of neurotypical children (Kiehl et al., 2019). This mind wandering involves the mind drifting away from the main task to focus on unrelated thoughts and images, which can interfere with their functioning and contribute to psychological distress (Wong et al., 2023).

This phenomenon is often linked to impairments in a person's executive control system—the brain's ability to regulate attention and resist distractions. When individuals face challenging tasks that require sustained attention, uncontrolled thoughts can impair performance and increase emotional and psychological strain (Keulers & Jonkman, 2019). If the mental health needs of mothers caring for

children with autism are not addressed, the effectiveness of therapies and behavioral interventions for the children may be compromised. One promising approach to support these mothers is cognitive therapy, which aims to cultivate awareness and conscious control over thoughts and reactions (Agius et al., 2024). This form of therapy helps individuals recognize patterns in their thoughts, emotions, and interactions, enabling them to respond more skillfully rather than reacting automatically or unconsciously (Lunsky et al., 2021). Cognitive therapy, especially cognitive-behavioral therapy (CBT), is often used to treat various mental health issues, including depression and anxiety, by addressing cognitive vulnerabilities and promoting emotional regulation, positive mood, and acceptance (McCartney et al., 2021). By fostering mindfulness and awareness, this therapy helps individuals manage unpleasant thoughts and emotions more effectively, which can be particularly beneficial for mothers coping with the stresses associated with raising children with autism. Research indicates that mindfulness interventions are effective in reducing mind wandering (Hou et al., 2023; Shao et al., 2023). Pavandi, Naderi, Heidari, & Ehtesham Zadeh (2022) noted that strategic solutions, meditation, and metacognitive therapies can significantly decrease mind wandering and rumination in mothers of children with autism spectrum disorder (ASD).

On the one hand, mind-based cognitive therapy positively affects the happiness of mothers caring for children with autism (Valizadeh & Ahmadi, 2023) and enhances overall well-being (Talebi, 2021). On the other hand, new approaches have emerged to overcome the limitations of earlier cognitive-behavioral therapies. These approaches are founded on the hypothesis that emotional disorders are closely linked in their formation and emergence (Moses & Barlow, 2006). This newer therapeutic protocol combines elements of cognitive-behavioral therapy with transdiagnostic principles—meaning it applies broadly to various emotional disorders. It emphasizes understanding emotions as functional and contextual, and aims to identify and correct maladaptive efforts to regulate emotional experiences. By doing so, it facilitates proper processing of emotions and reduces undesired emotional responses triggered by internal or external cues (Barlow et al., 2011; Barlow et al., 2017). Participation in metacognitive therapy can influence parental reactions and emotional behaviors, and by alleviating parental psychological distress, it can also improve children's symptoms (Tonarely et al., 2021). In fact, this type of therapy can be effective in reducing emotional problems in mothers of children with autism (Mohseni-

Ezhiyeh et al., 2016). Research also suggests that transdiagnostic treatments are effective in addressing behavioral and emotional disorders, including reducing mind-wandering in children with hyperactivity and attention deficit hyperactivity disorder (Mohammadi et al., 2023).

Children with autism experience higher levels of stress, anxiety, and depression compared to caregivers of neurotypical children. Such emotional challenges in caregivers can negatively impact their ability to effectively manage their child's complex behavioral and emotional needs. Consequently, caregivers of children with autism require increased support to improve their psychological well-being. Although many supportive programs and interventions for children and adolescents with autism are available, there are fewer preventive programs specifically aimed at improving caregivers' mental health (Kangavary et al., 2023). Mindfulness-based cognitive therapy offers strategies to help caregivers recognize and overcome negative thinking patterns that can lead to depression, allowing them to address these issues proactively (Patel et al., 2022). This approach targets mechanisms underlying psychological conditions such as worry, rumination, and mental reduction (Saha et al., 2020). What distinguishes mindfulness-based cognitive therapy from other treatments is its emphasis on present-moment awareness—encouraging individuals to observe their thoughts, feelings, and behaviors impartially and without judgment. It involves experiencing thoughts and emotions as transient mental phenomena, rather than analyzing or suppressing them—as is common in traditional cognitive-behavioral therapy (Steele et al., 2018). Given the limited research in this area regarding autism and the proven efficacy of mindfulness-based cognitive therapy in treating emotional and cognitive problems, this study aims to investigate whether there is a difference in effectiveness between mindfulness-based cognitive and transdiagnostic therapies in mind wandering in mothers of children with autism.

2. Methods and Materials

2.1. Study Design and Participants

This study employs a semi-experimental design with a pre-test and control group, focusing on applied research. The target population consists of all mothers of children with autism who were referred to Autism Association in Tehran during the year 2024. According to Delavari (2009), a minimum of one participant per group is recommended in

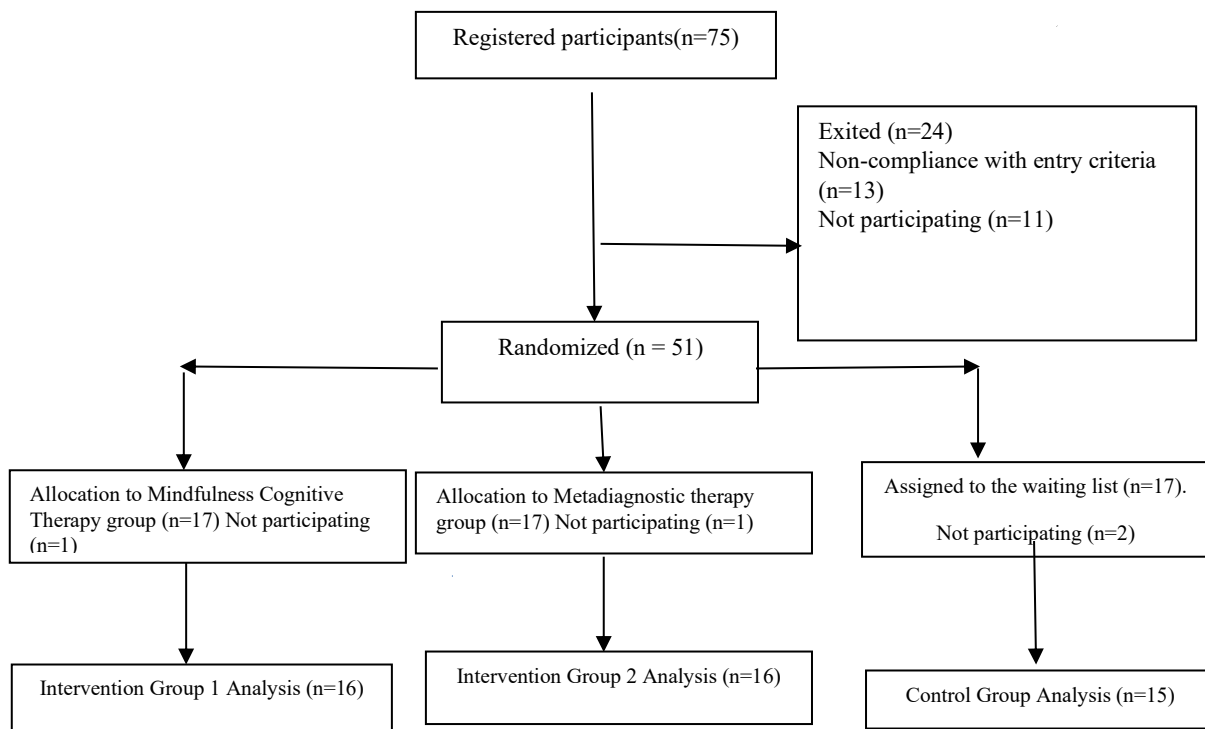
experimental research. A total of 51 mothers (members of the Iranian Autism Association) were selected as participants. They were randomly assigned to: Experimental Group 1: 17 mothers receiving Mindfulness Cognitive Therapy. Experimental Group 2: 17 mothers receiving Transdiagnostic group therapy (based on Barlo et al.) and Control Group: 17 mothers receiving no intervention.

Participants were included in the study based on the following criteria: a confirmed diagnosis of autism in their children; no physical illnesses or mental disorders that could interfere with the treatment process; no participation in concurrent intervention programs; an ability to read and write; and a willingness to participate in the study after receiving detailed explanations about its goals. Participants were excluded if they resigned from participation, refused to complete the questionnaires, or were absent for more than two sessions of the intervention.

To conduct this study ethically, the objectives were stated, and permission was obtained from Roushan Azad University, along with an introductory letter (IR.IAU.R.REC.1404.008). From spring to fall 2024, autism centers in Tehran were approached. The center manager assisted in selecting mothers of children with autism who met the inclusion criteria. The study's objectives were explained, assuring participants of confidentiality and that there would be no physical or psychological repercussions.

Data collection involved selecting 51 mothers through convenience sampling, who were then randomly assigned to two experimental groups and a control group (17 participants in each group). Following consent, a pre-test was administered. The experimental group undergoing mindfulness-based cognitive therapy (Mohammadi et al., 2015) participated in 10 weekly sessions of 90 minutes each, while the transdiagnostic group (Barlow et al., 2011) attended 10 weekly sessions of 75 minutes. The control group received no intervention during this period. After one week, both groups completed the post-test.

After reviewing the collected data and accounting for withdrawals, information from 47 participants was analyzed: 15 in the control group, 16 in the first experimental group, and 16 in the second experimental group. Ethical considerations included maintaining confidentiality regarding participants' conditions and information, using data solely for research purposes, avoiding coercion in participation, conducting thorough reviews of intervention content to ensure safety, and providing the control group with treatment interventions after the study period.

Figure 1*The CONSORT flow diagram of the study*

2.2. Measures

Mind-Wandering Questionnaire by Mrazek et al. (2013): The Mind-Wandering Questionnaire was developed by Mrazek et al. in 2013. This questionnaire is a self-assessment tool consisting of 5 questions. Some of the items include "I have trouble maintaining focus on simple or repetitive tasks" and "I perform tasks without full attention." The items are scored using a six-point Likert scale ranging from 1 (almost never) to 6 (almost always), and the total score is calculated by summing the item scores, resulting in a score range of 5 to 30, where a higher score indicates greater mind-wandering. Mind-wandering had a negative correlation with reading comprehension scores. Additionally, higher levels of mind-wandering were predictors of worse mood, lower life satisfaction, increased stress, and lower self-esteem. Mrazek et al. (2013) confirmed the tool's content validity and convergent validity with scores of unrelated task thoughts, and reported a reliability of 0.85 using Cronbach's alpha (Mrazek et al., 2013). In Iran, Pourabdol (2023) reported a reliability of 0.89 using Cronbach's alpha and a test-retest reliability coefficient of 0.81 over a four-week interval (Pourabdol, 2023). In the current study, the reliability of the questionnaire was estimated at 0.72 using Cronbach's alpha.

2.3. Interventions

The MBCT protocol begins in Session 1 with an introduction to automatic pilot and the practice of bringing attention to present-moment experiences through the "raisin exercise," where participants eat a raisin mindfully to explore automatic habits, followed by a body scan meditation to cultivate embodied awareness. Session 2 addresses dealing with obstacles to mindfulness, reinforcing the body scan, introducing ten minutes of mindful breathing, and engaging participants in exercises that explore the nature of thoughts and feelings. In Session 3, mindful breathing is revisited and extended to mindful movement (such as stretching or yoga), participants begin keeping a calendar of pleasant activities, and are guided in distinguishing thoughts from reality to enhance cognitive insight. Session 4 centers on staying present in daily life through five-minute mindful observations or listening practices, mindful walking, and keeping a calendar of unpleasant experiences to develop nonjudgmental awareness of discomfort. Session 5 explores acceptance and allowing, with practices including sitting meditation focused on breath and bodily sensations and reflections on preconceptions and how we react to them.

Session 6 reinforces that “thoughts are not facts” through sitting meditation, attention to breath and body, and guided inquiry into the content of thoughts, encouraging the practice of generating alternative, balanced perspectives. Session 7 focuses on self-care, using expanded sitting meditations involving awareness of breath, body, sounds, thoughts, and emotions, along with identification and engagement with personally meaningful, nourishing activities. Session 8 delves into constructive problem solving by introducing tools to challenge cognitive distortions, with a return to body scan meditation and practices of mindful awareness of breath in stressful situations. In Session 9, participants reflect on core values and what is most meaningful in life, engaging in meditations that support clarity and motivation toward living in alignment with those values. Finally, Session 10 consolidates learning by reviewing key practices such as the body scan and a final extended meditation, encouraging participants to integrate and apply what they’ve learned to support continued mindfulness practice and relapse prevention in the future.

The transdiagnostic protocol opens in Session 1 with increasing patient motivation using motivational interviewing strategies, clarifying treatment rationale, and collaboratively defining therapeutic goals to strengthen commitment to change. Session 2 provides foundational psychological training aimed at enhancing recognition and monitoring of emotional experiences, introducing the three essential components of emotional responses—physiological arousal, cognitive appraisal, and behavioral response. Session 3 deepens this work by focusing on emotional awareness training, helping clients mindfully observe their emotional reactions, notice their intensity and triggers, and reflect on their habitual responses to these experiences. In Session 4, the emphasis shifts to cognitive evaluation and re-evaluation, where participants explore the connection between thoughts and emotions, learn to identify maladaptive cognitive patterns, and practice cognitive flexibility through reappraisal of automatic thoughts. Session 5 introduces the concept of emotional avoidance, guiding clients in identifying behaviors used to escape uncomfortable emotional arousal and unpacking the short-

term relief and long-term costs associated with avoidance strategies. In Session 6, attention turns to investigating emotional behaviors, promoting awareness of actions linked to under-regulation or over-regulation of emotions, and fostering the development of alternative, emotionally congruent behaviors. Session 7 focuses on increasing tolerance for physical sensations associated with emotional states, using visceral exposure exercises that encourage direct contact with somatic discomfort to build distress tolerance. Sessions 8 and 9 are dedicated to visceral confrontation and emotional exposure, teaching participants to construct fear hierarchies, gradually face avoided situations or emotional cues, and apply structured exposure protocols to reduce avoidance behaviors and emotional reactivity. The protocol concludes in Session 10 with a focus on relapse prevention, where clients review core therapeutic principles, recognize signs of potential setbacks, consolidate their gains, and create individualized plans for maintaining progress and managing future challenges.

2.4. Data Analysis

Statistical Methods were utilized for summarizing data (charts, tables, frequencies, percentages, averages). Employed to analyze data, including one-way and multivariate analyses, as well as Bonferroni post hoc tests. SPSS-27 was used for data analysis and interpretation.

3. Findings and Results

In the present study, 47 participants were divided into three groups: cognitive therapy based on mindfulness (16 participants), transdiagnostic therapy (16 participants), and a control group (15 participants), with average ages of 37.19 ± 4.20 , 39.13 ± 3.72 , and 37.26 ± 13.8 , respectively, within the age range of 29 to 46 years. To examine the equivalence of the groups in terms of age, education, gender, and child age, the Chi-square test was used. Given the non-significance of the obtained statistic, it is concluded that there are no differences between the groups regarding age, education, gender, and child age ($p > 0.05$).

Table 1

Frequency distribution and percentage of age in experimental and control groups

Demographic features	Groups	Experimental Groups		Control Group	Chi-square Statistic	P
		Mindfulness-Based Cognitive Group	Transdiagnostic Group			

		F	%	F	%	F	%	3.69	0.450
Mother's Age	20 to 30 years	0	0	0	0	1	6.7%		
	30 to 40 years	11	68.8	8	50	7	46.7%		
	40 years and older	5	31.3	8	50	7	46.7%		
	Mean age $\pm$ SD	37.19 $\pm$ 4.20		39.13 $\pm$ 3.72		37.26 $\pm$ 13.8			
Gender	Female	6	37.5%	9	56.3%	9	60	1.83	0.401
	Male	10	62.5%	7	43.8%	6	40		
Mothers' Education Level	Below Diploma	1	6.3%	3	18.8%	2	13.3%	2.91	0.940
	Diploma	3	18.8%	5	31.3%	4	26.7%		
	Associate Degree	3	18.8%	3	18.8%	3	20%		
	Bachelor's Degree	5	31.3%	3	18.8%	4	26.7%		
	Master's and higher	4	25%	2	12.5%	2	13.3%		
Child's Age	8 years	3	18.8%	2	12.5%	3	20%	9.2	0.326
	9 years	5	31.3%	2	12.5%	2	13.3%		
	10 years	4	25%	3	18.8%	3	20%		
	11 years	1	6.3%	4	25%	0	0%		
	12 years	3	18.8%	5	31.3%	7	46.7%		

Table 2

Mean and standard deviation of mind wandering in experimental and control groups

Variable	Groups	Status	Mean $\pm$ SD	Shapiro-Wilk	P
Mind wandering	Control	Pre-test	21.60 $\pm$ 1.99	0.96	0.709
		Post-test	20.73 $\pm$ 2.46	0.94	0.328
	Mindfulness-Based Cognitive therapy	Pre-test	21.13 $\pm$ 2.96	0.92	0.198
		Post-test	17.06 $\pm$ 2.85	0.92	0.144
	Transdiagnostic therapy	Pre-test	21.62 $\pm$ 2.87	0.97	0.755
		Post-test	14.31 $\pm$ 2.68	0.97	0.768

Table 2 displays the mean and standard deviation of the mind wandering scores for both the experimental and control groups at the pre-test and post-test stages. Additionally, the Shapiro-Wilk test results for both groups during the pre-test

and post-test phases are not significant, indicating that the distribution of the mind wandering variable is normal ($P > 0.05$).

Table 3

The results of the ANCOVA comparing mindfulness-based cognitive therapy and Transdiagnostic therapy in improving mind wandering are presented. wandering

Source of changes	SS	df	MS	F	P	Eta
Pretest	11.84	1	11.84	64.15	0.001	0.267
Group	92.326	2	46.163	40.30	0.001	0.586
Error	19.231	43	0.448			
Total	1469.9	47				

The results of the ANCOVA in Table 3 indicates that there is a significant difference between the effectiveness of mindfulness-based cognitive therapy and Transdiagnostic

therapy in improving mind wandering among mothers of children with autism ($F = 40.30$, $P < 0.01$).

Table 4

Results of the Bonferroni test to determine the differences between mindfulness-based cognitive therapy and Transdiagnostic therapy in improving mind wandering.

Variable	Groups		Mean Difference	Standard Deviation	P
Mind wandering	Control	Mindfulness-Based Cognitive therapy	3.42	0.84	0.001
		Transdiagnostic therapy	6.50	0.83	0.001
	Mindfulness-Based Cognitive therapy	Transdiagnostic therapy	3.07	0.82	0.002

As shown in Table 4, the results of the Bonferroni test indicate a significant difference in mind wandering between the control group and the two intervention groups—mindfulness-based cognitive therapy and transdiagnostic therapy—with ($P<0.001$). This means that both mindfulness-based cognitive therapy and transdiagnostic therapy significantly reduced mind wandering compared to the control group. Additionally, considering the mean difference of 3.07, there was a significant difference between the two therapy groups ($P<0.05$), with transdiagnostic therapy having a greater effect on reducing mind wandering in mothers of children with autism.

4. Discussion and Conclusion

This study aimed to evaluate the effectiveness of mindfulness-based cognitive therapy and transdiagnostic therapy on mind wandering in mothers of children with autism. Mind wandering, often characterized by a lack of focus and increased rumination, can substantially impact the mental health of mothers caring for children with autism. The results of the data analysis, indicating a significant difference in mind wandering between mindfulness-based cognitive therapy and transdiagnostic therapy in mothers of children with autism, with transdiagnostic therapy showing greater effectiveness in reducing mind wandering. Similar research separately has been conducted that aligns with this finding.

Recent research has examined the efficacy of Mindfulness-Based Cognitive Therapy (MBCT) and Transdiagnostic Therapy in addressing these challenges. MBCT integrates cognitive-behavioral techniques with mindfulness strategies, aiming to enhance individuals' awareness of their thoughts and feelings without judgment. This approach can reduce rumination and improve emotional regulation. Studies have demonstrated that MBCT effectively decreases levels of mind wandering among

mothers of children with autism. For instance, Keng et al. (2023) reported that participants experienced lower levels of mind wandering following an eight-week MBCT program. A meta-analysis by Schoevers et al. (2024) emphasized that MBCT enhances emotional regulation, which is vital for mothers managing the stresses associated with autism care (Schoevers, 2024).

Transdiagnostic Therapy focuses on common underlying processes across various mental health conditions, rather than targeting specific disorders. This approach can be especially beneficial for mothers facing the complex challenges of parenting a child with autism. Research by Hofmann et al. (2023) indicates that transdiagnostic methods are effective in alleviating symptoms such as anxiety and depression, which are prevalent in this population (Hofmann, 2023). Furthermore, a longitudinal study by Lee et al. (2023) demonstrated that transdiagnostic therapy helped mothers develop better coping mechanisms, which subsequently reduced feelings of overwhelm and mental fatigue. Both Mindfulness-Based Cognitive Therapy and Transdiagnostic Therapy have shown promise in alleviating mind wandering among mothers of children with autism (Lee, 2023). These therapies not only enhance mindfulness and emotional regulation but also provide adaptable strategies to meet the complex emotional needs of these mothers. Continued research and implementation of these therapies could lead to improved mental health outcomes for this population (Hofmann, 2023; Keng, 2023; Lee, 2023; Schoevers, 2024).

To explain this finding, it can be stated that mind wandering is one of the most important cognitive-behavioral processes commonly involved in the formation and persistence of emotional disorders, serving as the core of depression and anxiety disorders. When individuals experience more negative emotions compared to their normal levels or act impulsively, they endure significant mind wandering and rumination (Mohammadi et al., 2023).

Given that mind wandering occurs frequently in daily life, interventions that encourage individuals to shift the content of their wandering experiences toward pleasant topics may have a significant impact, especially for clinical populations (Welz et al., 2018). In this context, during transdiagnostic therapy, clients become familiar with the nature of negative and unpleasant emotions and their detrimental effects on functioning, and it is expected that they gain greater awareness of their emotional disorder symptoms and their co-occurrence. The individual can then use mindfulness skills to experience their negative emotions without judgment or suppression. Next, they become acquainted with negative internal thoughts as a key element in transdiagnostic anxiety and depression disorders, describing this mechanism in terms of rumination, worry, preoccupation, attention fixation on threats, self-monitoring, and any form of negative internal thinking. The therapist teaches attention and mindfulness techniques to individuals, helping them to escape negative thinking using these two techniques. The next module involves familiarizing the individual with metacognitive beliefs about internal thoughts and challenging these beliefs. The therapist challenges negative metacognitive beliefs and, after modifying these beliefs, attempts to correct related positive metacognitive beliefs (Welz et al., 2018). Subsequently, the therapist introduces experiential avoidance, which is the reluctance to experience unpleasant internal experiences (such as feelings, emotions, memories, and impulses) and external experiences (such as situations, people, places), using both internal and external avoidance strategies, and helps individuals recognize avoidance strategies. The individual learns to overcome their experiential avoidance by following guidelines about acceptance and exposure to internal and external aspects. Finally, the therapist assists the client in addressing some of the negative consequences related to past experiences, events, and anticipated future goals with strategies that facilitate metacognition, all of which can help improve mind wandering (Barlow et al., 2017). Parents of children with autism experience higher levels of mind wandering, causing the mother's mind to drift away from her main tasks and focus on unrelated internal thoughts and images. Therefore, transdiagnostic therapy, by correcting these uncontrolled thoughts, may be more effective than mindfulness-based cognitive therapy in reducing mind wandering.

Transdiagnostic therapy, such as the Transdiagnostic Cognitive Behavioral Therapy (T-CBT), is designed to target core underlying processes common across different

emotional and cognitive disorders, such as rumination, worry, and emotional dysregulation (Farchione et al., 2024). Unlike disorder-specific treatments, transdiagnostic approaches address shared cognitive and emotional mechanisms, making them particularly effective in complex populations like caregivers of children with autism, who often experience overlapping emotional challenges. Research indicates that mind wandering is closely linked to deficits in emotional regulation and maladaptive cognitive processes such as rumination and worry (Mooneyham & Schooler, 2013). Transdiagnostic therapies emphasize techniques like mindfulness, cognitive restructuring, and emotional regulation strategies, which directly target these mechanisms. These techniques help individuals become more aware of their internal experiences, reduce automatic maladaptive thoughts, and improve their ability to focus on present-moment awareness. Moreover, mothers of children with autism often face chronic stress, which can intensify negative automatic thoughts and habitual mind wandering episodes. Transdiagnostic approaches are flexible and comprehensive, allowing them to be tailored to address the multifaceted emotional and cognitive difficulties within this population more effectively than narrower, diagnosis-specific interventions (Roefs et al., 2022).

Overall, the findings indicated that both mindfulness-based cognitive therapy and transdiagnostic therapy play a significant role in reducing mind wandering in mothers of children with autism. Additionally, there was a significant difference between mindfulness-based cognitive therapy and transdiagnostic therapy in improving these two components, with transdiagnostic therapy showing greater effectiveness. Based on the findings of this study, mindfulness-based cognitive therapy and transdiagnostic therapy can be suggested as effective methods for increasing awareness among mothers of children with autism. The results of the present study not only introduce and emphasize mindfulness-based cognitive therapy and transdiagnostic therapy as effective and efficient methods for addressing emotional issues and including mind wandering in mothers of children with autism, but also demonstrate that this therapy can compensate for some of the problems associated with previous treatments, such as the significant time and cost involved in training various therapeutic instructions by clinical specialists.

In this study, only self-report questionnaires were used to measure the research variables, which may have introduced some bias due to social desirability. Since the statistical population consisted solely of mothers of children with

autism in Tehran, caution should be exercised when generalizing the results to other communities, age groups, genders, and locales. Additionally, the study was not double-blind, as the same therapist trained in both methods administered the interventions. Another limitation is the lack of control over variables such as personality traits, physiological factors, parental psychological history, and socioeconomic status, which could influence the findings.

It is recommended that future studies incorporate additional assessment tools, such as interviews and observations, alongside questionnaires to improve the accuracy and comprehensiveness of data collection. Additionally, future research should include mothers of children with autism from other cities and involve fathers to enhance the generalizability of the findings, enabling a better understanding of differences and broader applicability of the results. Given the absence of a double-blind design in this study, it is suggested that the two interventions be delivered by separate therapists to minimize potential bias. Furthermore, subsequent research should explore variables such as personality traits, parental psychological issues, cultural factors, socioeconomic conditions, and other psychosocial factors that may influence treatment outcomes.

Given the wide range of techniques and therapeutic strategies within both mindfulness-based cognitive therapy and transdiagnostic therapy, it is advisable that therapists utilize a variety of methods throughout the treatment process to achieve optimal outcomes. Relying solely on one or a few approaches may not be effective due to the considerable individual differences among clients. Considering the greater effectiveness of transdiagnostic therapy observed in this study, it is recommended that comprehensive training on this approach be provided to therapists through workshops and qualitative training programs. Furthermore, when developing policies and educational initiatives, specialists should facilitate opportunities for mothers of children with autism—who need to visit health and treatment centers—to access these therapies. Psychologists and counselors should be encouraged to apply these therapeutic methods to support mothers in need.

Authors' Contributions

All authors significantly contributed to this study.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

In this study, to observe ethical considerations, participants were informed about the goals and importance of the research before the start of the interview and participated in the research with informed consent (Ethics Code: IR.IAU.R.REC.1404.008).

References

- Agius, H., Luoto, A. K., Backman, A., Eriksdotter, C., Jayaram-Lindström, N., Bölte, S., & Hirvikoski, T. (2024). Mindfulness-based stress reduction for autistic adults: A feasibility study in an outpatient context. *Autism*, 28(2), 403-414. <https://doi.org/10.1177/13623613231172809>
- Asai, K., Yamashita, Y., & Kase, Y. (2022). A literature study on the difficulties and problem-solving behaviors of mothers of children with autism spectrum disorders- Focusing on psychological support. *The Bulletin of Meiji University of Integrative Medicine*, 23-24, 13-23.
- Barlow, D. H., Ellard, K. K., Fairholme, C. P., Farchione, T. J., Boisseau, C. L., Ehrenreich May, J. T., & Allen, L. B. (2011). *Unified protocol for transdiagnostic treatment of emotional disorders: Workbook*. Oxford University Press. https://books.google.de/books/about/Unified_Protocol_for_Transdiagnostic_Tre.html?id=i4ttMqxVGTAC&redir_esc=y
- Barlow, D. H., Farchione, T. J., Bullis, J. R., Gallagher, M. W., Murray-Latin, H., Sauer-Zavala, S., Bentley, K. H., Thompson-Hollands, J., Conklin, L. R., Boswell, J. F., Ametaj, A., Carl, J. R., Boettcher, H. T., & Cassiello-Robbins, C. (2017). The unified protocol for transdiagnostic treatment of emotional disorders compared with diagnosis-specific protocols for anxiety disorders: A randomized clinical trial. *JAMA Psychiatry*, 74(9), 875-884. <https://doi.org/10.1001/jamapsychiatry.2017.2164>
- Farchione, T. J., Long, L. J., Spencer-Laitt, D., Moreno, J., & Barlow, D. H. (2024). State of the science: The unified protocol for transdiagnostic treatment of emotional disorders. *Behavior therapy*, 55(6), 1189-1204. <https://doi.org/10.1016/j.beth.2024.04.007>

- Higgins, L., Mannion, A., Chen, J. L., & Leader, G. (2023). Adaptation of parents raising a child with ASD: The role of positive perceptions, coping, self-efficacy, and social support. *Journal of Autism and Developmental Disorders*, 53(3), 1224-1242. <https://doi.org/10.1007/s10803-022-05537-8>
- Hofmann, S. G. (2023). Transdiagnostic approaches to mental health: A review. *Clinical psychology review*, 102, 102249.
- Hou, Y., Zhang, Y., Liu, Y., Yuan, H., & Lei, X. (2023). Mindfulness profiles among Chinese university students: exploring differences in phenomenon, cognition, and performance of mind wandering. *Mindfulness*, 14(4), 908-918. <https://doi.org/10.1007/s12671-023-02080-0>
- Kangavary, A., Halliday, E. R., Durocher, J., & Ehrenreich-May, J. (2023). A transdiagnostic prevention support group for caregivers of children with autism spectrum disorder: A case example. *Clinical Case Studies*, 22(5), 484-500. <https://doi.org/10.1177/15346501231198889>
- Keng, S. L. (2023). Mindfulness-based cognitive therapy: Effects on rumination in caregivers. *Journal of Clinical Psychology*, 79(2), 123-135.
- Keulers, E. H., & Jonkman, L. M. (2019). Mind wandering in children: Examining task-unrelated thoughts in computerized tasks and a classroom lesson, and the association with different executive functions. *Journal of Experimental Child Psychology*, 179, 276-290. <https://doi.org/10.1016/j.jecp.2018.11.013>
- Kielb, K., Bargiel-Matusiewicz, K. M., & Pisula, E. (2019). Posttraumatic stress symptoms and posttraumatic growth in mothers of children with intellectual disability-the role of intrusive and deliberate ruminations: a preliminary report. *Frontiers in psychology*, 10, 2011. <https://doi.org/10.3389/fpsyg.2019.02011>
- Lee, J. (2023). Transdiagnostic therapy and coping mechanisms in mothers of children with autism. *Cognitive therapy and research*, 47(3), 243-259.
- Lunsky, Y., Albaum, C., Baskin, A., Hastings, R. P., Hutton, S., Steel, L., Wang, W., & Weiss, J. (2021). Group virtual mindfulness-based intervention for parents of autistic adolescents and adults. *Journal of Autism and Developmental Disorders*, 1-11. <https://doi.org/10.1007/s10803-020-04835-3>
- Machado, M. S., Londero, A. D., & Pereira, C. R. R. (2018). Tornar-se família de uma criança com transtorno do espectro autista. *Contextos Clínicos*, 11(3), 335-350. <https://doi.org/10.4013/etc.2018.113.05>
- Maenner, M. J. (2023). Prevalence and characteristics of autism spectrum disorder among children aged 8 years-autism and developmental disabilities monitoring network, 11 sites, United States, 2020. *MMWR. Surveillance summaries*, 72. <https://doi.org/10.15585/mmwr.ss7202a1>
- McCartney, M., Nevitt, S., Lloyd, A., Hill, R., White, R., & Duarte, R. (2021). Mindfulness-based cognitive therapy for prevention and time to depressive relapse: Systematic review and network meta-analysis. *Acta Psychiatrica Scandinavica*, 143(1), 6-21. <https://doi.org/10.1111/acps.13242>
- Mohammadi, A., Zargar, F., Omid, A., Mehrabi, A., & Akbari, M. (2015). *An Introduction to the Third Generation of Cognitive-Behavioral Therapies*. Tehran: Arjomand Publications.
- Mohammadi, Z. D., Bavi, S., & Human, F. (2023). Effectiveness of Transdiagnostic Therapy in Behavioral-Emotional Disorder and Excessive Mind Wandering in Children with Attention Deficit Hyperactivity Disorder: A Randomized Controlled Trial. *Jundishapur Journal of Chronic Disease Care*, 12(2). <https://doi.org/10.5812/jjcdc-132186>
- Mohseni-Ezhiyeh, A., Malekpour, M., & Ghamarani, A. (2016). The Effect of Transdiagnostic Treatment on Mothers of Children with Autism Spectrum Disorder. *PCP*, 4(3), 199-207. <https://doi.org/10.15412/J.JPCP.06040308>
- Mooneyham, B. W., & Schooler, J. W. (2013). The costs and benefits of mind-wandering: A review. *Canadian Journal of Experimental Psychology*, 67(1), 11-18. <https://doi.org/10.1037/a0031569>
- Mrazek, M. D., Phillips, D. T., Franklin, M. S., Broadway, J. M., & Schooler, J. W. (2013). Young and restless: validation of the Mind-Wandering Questionnaire (MWQ) reveals disruptive impact of mind-wandering for youth. *Frontiers in psychology*, 4, 560. <https://doi.org/10.3389/fpsyg.2013.00560>
- Papadopoulos, D. (2021). Mothers' experiences and challenges raising a child with autism spectrum disorder: A qualitative study. *Brain Sciences*, 11(3), 309. <https://doi.org/10.3390/brainsci11030309>
- Patel, A. D., Arya, A., Agarwal, V., Gupta, P. K., & Agarwal, M. (2022). Burden of care and quality of life in caregivers of children and adolescents with autism spectrum disorder. *Asian Journal of Psychiatry*, 70, 103030. <https://doi.org/10.1016/j.ajp.2022.103030>
- Pourabdol, S. (2023). Psychometric Properties of the Mind Wandering Questionnaire. *Clinical Psychology Studies*, 13(51), 91-118. http://jcps.atu.ac.ir/article_17000.html?lang=en
- Rios, K., Aleman-Tovar, J., & Burke, M. M. (2020). Special education experiences and stress among Latina mothers of children with autism spectrum disorder (ASD). *Research in Autism Spectrum Disorders*, 73, 101534. <https://doi.org/10.1016/j.rasd.2020.101534>
- Roefs, A., Fried, E. I., Kindt, M., Martijn, C., Elzinga, B., Evers, A. W., Wiers, R. W., Borsboom, D., & Jansen, A. (2022). A new science of mental disorders: Using personalised, transdiagnostic, dynamical systems to understand, model, diagnose and treat psychopathology. *Behaviour Research and Therapy*, 153, 104096. <https://doi.org/10.1016/j.brat.2022.104096>
- Saha, S., Jarl, J., Gerdtham, U. G., Sundquist, K., & Sundquist, J. (2020). Economic evaluation of mindfulness group therapy for patients with depression, anxiety, stress and adjustment disorders compared with treatment as usual. *The British Journal of Psychiatry*, 216(4), 197-203. <https://doi.org/10.1192/bjp.2018.247>
- Schoevers, R. A. (2024). The role of MBCT in enhancing emotional regulation: A meta-analysis. *Psychological bulletin*, 150(1), 45-68. <https://doi.org/10.1037/bul0000415>
- Shao, H., Ren, G., Ding, X., Shi, M., Li, R., & Li, Y. (2023). The influence of mindfulness meditation on mind wandering and its mechanism. *Advances in Psychological Science*, 31(12), 2368. <https://doi.org/10.3724/SP.J.1042.2023.02368>
- Steele, S. J., Farchione, T. J., Cassiello-Robbins, C., Ametaj, A., Sbi, S., Sauer-Zavala, S., & Barlow, D. H. (2018). Efficacy of the Unified Protocol for transdiagnostic treatment of comorbid psychopathology accompanying emotional disorders compared to treatments targeting single disorders. *Journal of psychiatric research*, 104, 211-216. <https://doi.org/10.1016/j.jpsychires.2018.08.005>
- Talebi, M. (2021). The effectiveness of mindfulness-based cognitive therapy on anxiety, happiness and mindfulness in nurses. *Avicenna Journal of Nursing and Midwifery Care*, 29(2), 126-136. <https://doi.org/10.30699/ajnm.29.2.126>
- Tonarely, N. A., Kennedy, S., Halliday, E., Sherman, J. A., & Ehrenreich-May, J. (2021). Impact of youth transdiagnostic treatment on parents' own emotional responding and socialization behaviors. *Journal of Child and Family Studies*, 30, 1141-1155. <https://doi.org/10.1007/s10826-021-01946-y>

- Valizadeh, H., & Ahmadi, V. (2023). The effectiveness of mindfulness-based cognitive therapy on the happiness and ambiguity of mothers with children with autism spectrum disorder. *Quarterly of Applied psychology*, 17(1), 193-212. <https://psycnet.apa.org/record/2024-18114-009>
- Welz, A., Reinhard, I., Alpers, G. W., & Kuehner, C. (2018). Happy thoughts: Mind wandering affects mood in daily life. *Mindfulness*, 9(1), 332-343. <https://doi.org/10.1007/s12671-017-0778-y>
- Wong, Y. S., Willoughby, A. R., & Machado, L. (2023). Reconceptualizing mind wandering from a switching perspective. *Psychological Research*, 87(2), 357-372. <https://doi.org/10.1007/s00426-022-01676-w>
- World Health Organization. (2021). *ICD-11 for mortality and morbidity statistics*. Geneva: World Health Organization. <https://www.who.int/standards/classifications/classification-of-diseases>