Comparing The Effectiveness of Mindfulness-Based Therapy and Paradoxical Treatment on Rumination in Adolescents with Social Anxiety Symptoms

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Article Info	ABSTRACT
Article type: *Original Research* **How to cite this article:** Nurollahi, A., Shahabizadeh, F., & Nasri, M. (2023). Comparing The Effectiveness of Mindfulness-Based Therapy and Paradoxical Treatment on Rumination in Adolescents with Social Anxiety Symptoms. *Journal of Assessment and Research in Applied Counseling, 5*(4), 181-190. http://dx.doi.org/10.61838/kman.jarac.5.4.20 © 2023 the authors. Published by KMAN Publication Inc. (KMANPUB), Ontario, Canada. This is an open access article under the terms of the Creative Commons Attribution-NonCommercial 4.0 International (CC BY-NC 4.0) License.	**Objective:** This study aimed to compare the effectiveness of Mindfulness-Based Therapy (MBT) and Paradoxical Treatment (PT) in reducing rumination and associated symptoms in adolescents with social anxiety disorder (SAD). **Methods and Materials:** The study employed a quasi-experimental design with pretest-posttest and two-month follow-up across two experimental groups and one control group. Sixty adolescents aged 12-18 years with diagnosed SAD were selected through purposive sampling and randomly assigned to MBT, PT, or control groups (20 participants each). Participants completed self-report measures of rumination and depression at three stages: pretest, posttest, and follow-up. The MBT group received seven weekly 90-minute sessions based on Kabat-Zinn's mindfulness framework, while the PT group received seven weekly 90-minute sessions focused on paradoxical intention strategies. Data were analyzed using repeated measures ANOVA, with Bonferroni post-hoc tests to explore differences between groups and across time points. **Findings:** The repeated measures ANOVA indicated significant within-group effects for both brooding ($F(1.24, 190.59) = 30.87$, $p < 0.001$, $\eta^2 = 0.35$) and reflection ($F(1.29, 254.37) = 64.45$, $p < 0.001$, $\eta^2 = 0.53$). Interaction effects between the test stages and group were also significant for both brooding ($F(2.49, 74.03) = 11.99$, $p < 0.001$, $\eta^2 = 0.30$) and reflection ($F(2.58, 59.34) = 15.04$, $p < 0.001$, $\eta^2 = 0.35$). Post-hoc tests revealed significant reductions in rumination and depression for both MBT and PT groups compared to the control group, with no significant difference between the interventions. **Conclusion:** Both MBT and PT are effective in reducing rumination and depression in adolescents with SAD, providing sustained therapeutic benefits over time. **Keywords:** *Mindfulness-Based Therapy, Paradoxical Treatment, Rumination, Social Anxiety Disorder, Adolescents, Cognitive-Behavioral Therapy, Depression.*

1. Introduction

Social anxiety disorder (SAD) is a prevalent mental health condition characterized by intense fear or anxiety in social situations, often leading to avoidance behaviors and significant distress (McConville et al., 2017). Adolescents are particularly vulnerable to SAD, with its onset typically occurring during the formative teenage years. This disorder can significantly impair social, academic, and emotional development, contributing to a host of negative outcomes, including increased risk for depression, substance abuse, and suicidal behavior (Miller & Brooker, 2017). Consequently, effective interventions are crucial in mitigating the impact of SAD during adolescence.

Two promising therapeutic approaches for addressing symptoms of SAD and associated cognitive processes like rumination are Mindfulness-Based Therapy (MBT) and Paradoxical Treatment (PT). These interventions, while differing in their theoretical foundations and methods, have shown efficacy in reducing the symptoms of anxiety disorders, including those experienced by adolescents with SAD (Pascual-Madorran et al., 2021; Pourjaberi et al., 2023; Sadeghi et al., 2023). This study aims to compare the effectiveness of MBT and PT on reducing rumination in adolescents with SAD, providing insights into the relative merits of these interventions.

Mindfulness-Based Therapy is rooted in mindfulness practices, which involve cultivating a non-judgmental awareness of the present moment. MBT encourages individuals to observe their thoughts and feelings without becoming entangled in them, thereby reducing the automatic and often maladaptive cognitive processes that sustain anxiety and rumination (Hatamian & Ghorbani, 2016; Jafari & Shahabi, 2017). The effectiveness of MBT has been demonstrated in various studies, showing that mindfulness practices can lead to significant reductions in anxiety, depression, and rumination across diverse populations, including adolescents (Mousavi et al., 2019; Querstret, 2020; Sharifi Daramadi, 2014). For example, research has highlighted the potential of MBT to improve emotional regulation and reduce the frequency and intensity of rumination, which is particularly relevant for adolescents struggling with SAD (Torfiamidpoor et al., 2022; Tumminia et al., 2020; Wang et al., 2022; Zare et al., 2014; Zemestani & Fazeli Nikoo, 2019).

Paradoxical Treatment, on the other hand, involves the deliberate encouragement of the very behaviors or thoughts that the patient wishes to avoid. This approach, which draws on principles from cognitive-behavioral therapy and logotherapy, aims to disrupt the cycle of anxiety by reframing the patient's relationship with their symptoms. By paradoxically encouraging patients to engage with their anxiety-provoking thoughts or behaviors, PT can reduce the power these symptoms have over the individual, leading to decreased anxiety and improved coping strategies (Hashemizadeh, 2023). PT has been shown to be effective in treating a range of anxiety disorders, and its application to SAD could provide a valuable alternative or complement to more traditional interventions like MBT (Dehaqin et al., 2023).

Rumination, a repetitive and passive focus on negative thoughts or emotions, is a common cognitive process associated with SAD (Nikan et al., 2021). It exacerbates anxiety symptoms by reinforcing negative thought patterns and preventing the individual from engaging in problem-solving or adaptive coping strategies. Both MBT and PT have the potential to disrupt rumination, albeit through different mechanisms. MBT targets rumination by fostering an awareness of the present moment, allowing individuals to observe their thoughts without judgment and to disengage from the ruminative cycle. PT, in contrast, addresses rumination by encouraging individuals to confront and even exaggerate their negative thoughts, thereby reducing their impact (Eatesamipour & Ramazanzade Moghadam, 2023; Nikan et al., 2021). In conclusion, the present study seeks to compare the effectiveness of MBT and PT in reducing rumination in adolescents with SAD. By exploring the relative merits of these interventions, this research aims to contribute to the development of more effective treatments for SAD, a condition that can have a profound impact on the lives of affected adolescents. The findings of this study could provide valuable insights for clinicians and researchers seeking to improve the mental health outcomes of adolescents with SAD, ultimately helping to reduce the burden of this disorder on individuals and society as a whole.

2. Methods and Materials

2.1. Study Design and Participants

This study employed a quasi-experimental design with a pretest-posttest and two-month follow-up, including two experimental groups and one waiting-list control group. The study's participants were adolescents aged 12 to 18 years who were diagnosed with social anxiety disorder (SAD). The diagnosis was made using the Social Anxiety Disorder Adolescent Questionnaire (SASA) developed by Paklak in

2004, where scores above 90 indicated a high level of social anxiety. Participants were recruited from clients at the Yarigar Psychological Clinic in Tehran, who had active cases during the winter and spring of 2023-2024. The sample size was determined using the G*Power software, assuming an 80% test power, a medium effect size, and a 5% error rate. Considering a potential dropout rate, 60 participants were selected through purposive sampling. These participants were then randomly assigned to three groups: two experimental groups (Mindfulness-Based Therapy and Paradoxical Treatment) and one waiting-list control group, each consisting of 20 participants.

Inclusion criteria for the study were as follows: participants had to be between the ages of 12 and 18, have a clinical diagnosis of social anxiety disorder based on a structured clinical interview aligned with the DSM-5 criteria and the SASA, express willingness and consent to participate in the study, not have received psychological interventions in the past six months, not be on psychiatric medications, and not have any psychiatric disorder other than social anxiety disorder. Exclusion criteria included missing more than two sessions, irregular attendance, or a lack of cooperation with the researcher.

To conduct the study, necessary permissions were obtained from Birjand University of Medical Sciences and Health Services. The study was conducted at the Yarigar Clinic in Tehran. Adolescents with social anxiety disorder were identified and recruited based on the inclusion criteria. These adolescents were first referred by the clinic manager and then underwent a structured clinical interview according to the DSM-5 guidelines, followed by the SASA to confirm their diagnosis. Sixty adolescents who met the criteria were selected as the study sample. After finalizing the participant groups, a briefing session was held for all participants to explain the study objectives and encourage their participation. Participants were assured of the confidentiality of all data provided during the sessions and on the questionnaires.

Participants in Experimental Group 1 received seven weekly 90-minute sessions of Mindfulness-Based Therapy (MBT), while those in Experimental Group 2 underwent seven weekly 90-minute sessions of Paradoxical Treatment (PT). The control group did not receive any intervention during this period. All three groups completed the questionnaires as a pretest before the intervention. After the intervention, they filled out the questionnaires again as a posttest, and finally, they completed the questionnaires once more after two months as a follow-up measure. Following

the completion of the study, the control group was also offered three 90-minute weekly sessions of MBT or PT as an ethical consideration.

2.2. Measures

2.2.1. Social Anxiety

The primary tools for data collection were the Social Anxiety Scale for Adolescents (SASA) and the Rumination Response Scale (RRS). The SASA, developed by Paklak and Vidmar (2008), consists of 28 items divided into two subscales: Fear of Negative Evaluation (AFNE) and Social Interaction Anxiety (TISC). The AFNE subscale comprises 14 items measuring fears, worries, and expectations of negative evaluation from peers. The TISC subscale contains 13 items that assess tension, inhibition, and preparedness in various social situations, such as interactions with familiar and unfamiliar people, cross-gender peers, and participation in class discussions. The items are rated on a 5-point Likert scale, with scores ranging from 1 (very little) to 5 (very much), leading to a total score range of 28 to 140. The psychometric properties of the SASA, including its internal consistency and validity, have been confirmed in several studies (Nikan et al., 2021).

2.2.2. Rumination

The Rumination Response Scale (RRS), developed by Nolen-Hoeksema and Marrow (1991), was used to measure cognitive rumination. The scale consists of 22 items rated on a 4-point Likert scale from 1 (never) to 4 (always), resulting in a total score range of 22 to 88, where higher scores indicate greater levels of rumination. The RRS has demonstrated good content validity and reliability, with Cronbach's alpha reported at 0.90 in the original study and 0.82 in a validation study conducted in Iran (Nikan et al., 2021).

2.3. Interventions

2.3.1. Mindfulness-Based Therapy

The Mindfulness-Based Therapy (MBT) intervention consisted of a structured 7-session protocol, with each session lasting 90 minutes. The protocol was based on Jon Kabat-Zinn's format (1990) and was conducted weekly by a therapist trained in mindfulness approaches. The therapist had extensive experience participating in various mindfulness-based workshops. The intervention aimed to

enhance the participants' awareness and presence in the moment, thereby reducing automatic, habitual responses and improving their ability to manage social anxiety. Each session included a combination of guided mindfulness exercises, group discussions, and homework assignments. Participants were provided with recorded audio files of the weekly techniques for home practice, encouraged to engage in daily mindfulness exercises for 15 minutes, six days a week, using flashcards provided by the therapist. Final evaluations were conducted simultaneously in a separate session after the last session (Mousavi et al., 2019; Querstret, 2020; Sharifi Daramadi, 2014).

In the first session, the focus was on introducing the concept of mindfulness as an effective way to break free from automatic behaviors, teaching participants to become more aware of each moment. The session began with defining mindfulness and discussing the concept of automatic pilot. Exercises included a raisin-eating meditation, a body scan practice, and a brief 10-minute breathing-focused meditation. The session concluded with feedback and discussion, and participants were given body scan audio recordings and handouts for home practice throughout the week.

The second session emphasized increasing body awareness to make internal mental chatter more apparent and to gain greater control over reactions to daily events. The session included a review of the body scan exercise and homework from the previous week. Participants practiced mindful walking, recorded pleasant events, and engaged in 10 to 15 minutes of seated meditation. Homework assignments included daily body scans, mindful breathing exercises, and recording pleasant events.

The third session aimed to deepen awareness of how the mind can often be scattered and distracted. Through deliberate focus on the breath, participants were encouraged to cultivate greater concentration and integration. The session included a 20 to 30-minute meditation, focusing on breathing and bodily sensations, followed by a 3-minute breathing space practice and mindful walking. Participants were asked to list unpleasant events and reflect on their experiences during the week.

In the fourth session, participants were guided to view their experiences from a different perspective, emphasizing the importance of being present in the moment. The session included a 5-minute seeing and hearing exercise, a 20-minute meditation focusing on breath, body, sound, and thoughts, and a review of the previous week's homework.

The session also involved practicing the 3-minute breathing space technique and reflecting on unpleasant experiences.

The fifth session focused on fostering a non-judgmental attitude towards experiences, allowing participants to engage with their current reality without trying to change it. The session included a 20-minute seated meditation, with an emphasis on observing how the body reacts to thoughts, feelings, and bodily sensations. Participants discussed challenges encountered during practice and reviewed their homework. The session also reinforced the importance of regular 3-minute breathing space practices, particularly during difficult moments.

In the sixth session, participants explored how negative moods and thoughts can limit their engagement with experiences. The session involved a 20-minute seated meditation, focusing on breath, body, and sound, followed by reflections on the participants' responses to challenges. The session also included a discussion on mood and thought patterns, along with exercises to challenge and replace negative thoughts. Participants were provided with handouts for continued practice.

The seventh and final session emphasized the importance of regular mindfulness practice in maintaining balance and reinforcing positive intentions. The session included a body scan exercise, a review of homework related to early warning systems and action plans, and a comprehensive review of the entire program. The group discussed strategies for sustaining mindfulness practices beyond the seven-week program.

2.3.2. Paradoxical Treatment

The Paradoxical Treatment intervention was designed based on a theoretical framework that incorporates techniques from various therapeutic models, including behavioral therapy, cognitive therapy, logotherapy, and misattribution therapy. This intervention, validated by Basharat (2019) for content and practical application in anxiety disorders, consisted of 7 weekly 90-minute sessions. The approach utilized techniques such as massed repetition, stimulus satiation, imaginal and in-vivo exposure, cognitive restructuring, paradoxical intention, and imposed change to help participants confront and reframe their anxiety-related symptoms (Chitgarzadeh et al., 2023; Dehaqin et al., 2023; Ghadimi Nouran et al., 2020; Peluso & Freund, 2023).

In the first session, the therapist introduced the participants to the intervention, establishing initial rapport and outlining the goals and structure of the program. This

session also involved administering the pretest questionnaires.

The second session provided participants with an introduction to the history and principles of paradoxical intention, setting the stage for the intervention. Participants were asked to articulate their personal goals for therapy and to reflect on what they wanted to achieve and the efforts they were making towards these goals.

The third session focused on the first mechanism of the paradoxical approach, which involved prescribing and exaggerating symptoms intentionally. Participants practiced these techniques, reconstructing and deliberately experiencing their anxiety symptoms at predetermined times, thus reducing the power of these symptoms.

In the fourth session, the focus was on expanding paradoxical exercises, reviewing the previous week's assignments, and assessing the extent to which participants were implementing the strategies of reconstructing and deliberately confronting their problems. Participants were tasked with continuing these exercises, scheduling specific times three times a day for paradoxical intention practices.

The fifth session centered on the second mechanism, which aimed at breaking the connection between symptoms and anxiety, leading to the third mechanism—changing the symptoms for the patient and the system surrounding them. Participants continued with their paradoxical intention exercises at the scheduled times.

The sixth session introduced the fourth mechanism, which involved strengthening the ego and helping participants resolve conflicts by recognizing the disconnection between symptoms and anxiety. The session reinforced the previous exercises, with participants continuing to practice paradoxical intention at the prescribed times.

The seventh and final session was dedicated to reviewing the progress made throughout the intervention, addressing any remaining questions, and concluding the sessions with a posttest. Participants completed the questionnaires again as a posttest to assess the effectiveness of the intervention.

2.4. Data Analysis

Data analysis was conducted using descriptive statistics such as charts, means, and variances to summarize the raw data. To test the hypotheses, repeated measures ANOVA was employed using SPSS version 28. This analysis allowed for the examination of changes over time within and between the groups, particularly focusing on the effectiveness of Mindfulness-Based Therapy and Paradoxical Treatment in reducing rumination in adolescents with social anxiety symptoms.

3. Findings and Results

The demographic data of the participants in this study indicate that in Experimental Group 1 (Mindfulness-Based Therapy), 45% of the participants were in the 8th grade, while in Experimental Group 2 (Paradoxical Treatment), 45% were also in the 8th grade. In the control group, 55% of the participants were in the 8th grade. The remaining participants in each group were in grades 9, 10, or 11. Regarding age, 45% of participants in Experimental Group 1 were 14 years old, 40% in Experimental Group 2 were 14 years old, and 55% in the control group were 14 years old. The other participants were aged between 16 and 17 years.

The descriptive statistics for rumination scores, including the mean (M) and standard deviation (SD), for the three groups at the pretest, posttest, and follow-up stages are presented below (Table 1):

Table 1

Descriptive Statistics

Group	Variable	Measurement Stage	Mean (M)	Standard Deviation (SD)
Mindfulness-Based Therapy	Brooding	Pretest	15.10	2.79
		Posttest	12.30	2.36
		Follow-up	11.50	2.59
Paradoxical Treatment	Brooding	Pretest	15.20	2.14
		Posttest	11.10	2.38
		Follow-up	10.60	2.48
Control	Brooding	Pretest	15.30	2.27
		Posttest	14.80	3.37
		Follow-up	16.30	3.51
Mindfulness-Based Therapy	Reflection	Pretest	15.10	4.95
		Posttest	10.65	3.39
		Follow-up	11.65	3.39

Paradoxical Treatment	Reflection	Pretest	15.10	3.04
		Posttest	10.75	2.57
		Follow-up	10.60	2.54
Control	Reflection	Pretest	14.55	3.15
		Posttest	14.50	2.63
		Follow-up	14.20	1.85
Mindfulness-Based Therapy	Depression	Pretest	39.40	7.02
		Posttest	33.90	6.37
		Follow-up	33.60	7.71
Paradoxical Treatment	Depression	Pretest	40.10	7.27
		Posttest	32.90	5.37
		Follow-up	33.50	6.52
Control	Depression	Pretest	38.70	5.56
		Posttest	37.40	7.60
		Follow-up	39.20	7.18

As observed, the mean scores for rumination in both the mindfulness-based and paradoxical treatment groups showed a decrease from the pretest to the posttest, indicating a reduction in rumination among adolescents with social anxiety symptoms.

The data were analyzed to verify the assumptions for repeated measures ANOVA. The assumptions of normality and homogeneity of variances were met for all variables. However, the assumption of sphericity was violated, necessitating the use of the Greenhouse-Geisser correction in the analysis. The sample size for each group was 20, resulting in a total of 60 participants.

Table 2

ANOVA Results

Variable	Source	SS	df	MS	F	Sig	Eta-Squared
Brooding	Within-Groups	236.98	1.24	190.59	30.87	0.00	0.35
	Interaction (Test*Group)	184.09	2.49	74.03	11.99	0.00	0.30
	Between-Groups	334.44	2.00	167.22	11.87	0.00	0.29
Reflection	Within-Groups	327.81	1.29	254.37	64.45	0.00	0.53
	Interaction (Test*Group)	152.96	2.58	59.34	15.04	0.00	0.35
	Between-Groups	180.81	2.00	90.41	3.62	0.03	0.11
Depression	Within-Groups	760.04	1.77	429.81	23.96	0.00	0.30
	Interaction (Test*Group)	339.42	3.54	95.97	5.35	0.00	0.16
	Between-Groups	329.24	2.00	164.62	3.55	0.04	0.10

The ANOVA results in Table 2 indicate significant within-group effects (pretest, posttest, and follow-up stages) for all rumination and depression variables, with p-values less than 0.05. This suggests significant differences in rumination and depression scores across the three stages. The interaction effect between the testing stage and group was also significant, indicating that the changes in scores differed across the groups. The between-group effects were significant for all variables, confirming differences in the overall means between the mindfulness-based, paradoxical treatment, and control groups.

Table 3

Bonferroni Post-Hoc Test for Time Effects

Variable	Comparison	Mean Difference	Standard Error	Sig
Brooding	Pretest - Posttest	2.47	0.43	0.001
	Posttest - Follow-up	2.40	0.41	0.001
	Pretest - Follow-up	-0.07	0.17	0.99
Reflection	Pretest - Posttest	2.95	0.32	0.001
	Posttest - Follow-up	2.77	0.36	0.001
	Pretest - Follow-up	-0.18	0.16	0.73

Depression	Pretest - Posttest	4.67	0.79	0.001
	Posttest - Follow-up	3.97	0.79	0.001
	Pretest - Follow-up	-0.70	0.58	0.70

The Bonferroni post-hoc test in Table 3 revealed significant differences between the pretest and posttest stages, as well as between the posttest and follow-up stages, for all brooding, reflection, and depression components (p < 0.05). However, there were no significant differences between the pretest and follow-up stages, indicating that the changes observed in the posttest were maintained during the follow-up period.

Table 4

Bonferroni Post-Hoc Test for Group Effects

Variable	Group Comparison	Mean Difference	Standard Error	Sig
Brooding	Mindfulness vs Paradoxical	1.20	0.87	0.52
	Mindfulness vs Control	-2.50	0.87	0.02
	Paradoxical vs Control	-3.70	0.87	0.001
Reflection	Mindfulness vs Paradoxical	-0.10	0.91	0.99
	Mindfulness vs Control	-3.85	0.91	0.001
	Paradoxical vs Control	-3.75	0.91	0.001
Depression	Mindfulness vs Paradoxical	1.00	2.06	0.99
	Mindfulness vs Control	-3.50	2.06	0.02
	Paradoxical vs Control	-4.50	2.06	0.001
Brooding	Mindfulness vs Paradoxical	0.90	0.92	0.99
Follow-up	Mindfulness vs Control	-4.80	0.92	0.001
	Paradoxical vs Control	-5.70	0.92	0.001
Reflection	Mindfulness vs Paradoxical	1.05	0.85	0.66
Follow-up	Mindfulness vs Control	-2.55	0.85	0.01
	Paradoxical vs Control	-3.60	0.85	0.001
Depression	Mindfulness vs Paradoxical	0.10	2.26	0.99
Follow-up	Mindfulness vs Control	-5.60	2.26	0.001
	Paradoxical vs Control	-5.70	2.26	0.001

The post-hoc comparisons between the groups in Table 4 showed that both the mindfulness-based therapy and paradoxical treatment significantly reduced brooding, reflection, and depression scores compared to the control group at both the posttest and follow-up stages (p < 0.05). However, there were no significant differences between the mindfulness-based therapy and paradoxical treatment groups, suggesting that both interventions were equally effective.

4. Discussion and Conclusion

The current study aimed to compare the effectiveness of Mindfulness-Based Therapy (MBT) and Paradoxical Treatment (PT) on reducing rumination in adolescents with social anxiety disorder (SAD). The results indicated that both interventions significantly reduced rumination and depression compared to the control group. Specifically, MBT and PT were effective in decreasing both brooding and reflection components of rumination, with these effects being sustained during the follow-up period. The findings provide valuable insights into the mechanisms through which these therapeutic approaches alleviate symptoms of SAD, particularly the cognitive processes that exacerbate anxiety and depression.

The significant reductions in rumination observed in both MBT and PT groups align with previous research highlighting the effectiveness of these therapies in managing anxiety-related disorders. Mindfulness-Based Therapy, which emphasizes present-moment awareness and non-reactivity to thoughts, has been shown to reduce rumination by fostering a more adaptive cognitive style (Querstret, 2020; Sharifi Daramadi, 2014). The current study's results support this notion, demonstrating that MBT effectively decreases the frequency and intensity of ruminative thoughts in adolescents with SAD. This is consistent with the findings of prior studies (Mousavi et al., 2019; Pourjaberi et al., 2023; Querstret, 2020; Sharifi Daramadi, 2014; Torfiamidpoor et al., 2022; Tumminia et al., 2020; Wang et

al., 2022; Zare et al., 2014; Zemestani & Fazeli Nikoo, 2019) which reported that mindfulness practices could enhance emotional regulation and reduce the impact of negative thought patterns, thus breaking the cycle of rumination.

The effectiveness of Paradoxical Treatment in reducing rumination also corroborates previous research. PT, which encourages patients to confront and exaggerate their anxiety-provoking thoughts, may help reduce the cognitive load associated with rumination by diminishing the emotional power of these thoughts (Chitgarzadeh et al., 2023; Dehaqin et al., 2023; Eatesamipour & Ramazanzade Moghadam, 2023). The results of this study are in line with the prior works which found that paradoxical interventions could disrupt maladaptive cognitive processes, leading to decreased anxiety and improved coping mechanisms (Chitgarzadeh et al., 2023; Dehaqin et al., 2023; Eatesamipour & Ramazanzade Moghadam, 2023; Ghadimi Nouran et al., 2020; Hashemizadeh, 2023; Nikan et al., 2021).

One of the most intriguing findings of this study is the sustained effect of both interventions during the follow-up period. This suggests that the benefits of MBT and PT extend beyond the immediate treatment phase, potentially offering long-term improvements in cognitive and emotional functioning. The sustained reduction in rumination is particularly important for adolescents with SAD, as persistent rumination is associated with a higher risk of developing chronic anxiety and depression. The ability of these interventions to maintain their effectiveness over time aligns with the broader literature on the durability of therapeutic effects in cognitive-behavioral interventions (Nikan et al., 2021; Querstret, 2020).

The study also found that both MBT and PT were equally effective in reducing the symptoms of depression, a common comorbidity in adolescents with SAD. The reduction in depression scores can be attributed to the interventions' impact on rumination, as previous research has established a strong link between rumination and depressive symptoms. By addressing the cognitive patterns that sustain both anxiety and depression, MBT and PT offer a comprehensive approach to treating SAD. This dual effectiveness is crucial, given the high prevalence of comorbid depression in adolescents with SAD, and highlights the potential of these therapies to improve overall mental health outcomes.

The lack of significant differences between MBT and PT in their effectiveness suggests that both interventions are viable options for treating rumination in adolescents with SAD. This finding is consistent with the broader literature on the comparative effectiveness of different cognitive-behavioral therapies, which often find that multiple therapeutic approaches can be equally effective when applied to anxiety disorders (Hashemizadeh, 2023; Hatamian & Ghorbani, 2016; Nikan et al., 2021). The flexibility in therapeutic choice allows clinicians to tailor interventions based on individual patient preferences and needs, thereby enhancing treatment adherence and outcomes.

5. Limitations and Suggestions

Despite the promising results, this study has several limitations that should be considered when interpreting the findings. First, the sample size was relatively small, which may limit the generalizability of the results. Although the study was adequately powered to detect significant differences between groups, a larger sample size would provide more robust estimates of the effects of MBT and PT. Additionally, the sample was drawn from a single clinical setting, which may not reflect the broader population of adolescents with SAD. Future research should aim to replicate these findings in larger, more diverse samples to confirm the generalizability of the results.

Another limitation is the reliance on self-report measures to assess rumination and depression. While these measures are commonly used in psychological research, they are subject to biases such as social desirability and recall bias. Participants may have underreported their symptoms due to a desire to present themselves in a more favorable light, or they may have had difficulty accurately recalling their thoughts and feelings. Future studies could benefit from incorporating additional objective measures, such as behavioral observations or physiological assessments, to complement self-report data and provide a more comprehensive understanding of the effects of these interventions.

Finally, the study did not include a long-term follow-up beyond the two-month period. While the results indicate that the effects of MBT and PT are sustained during this time, it is unclear whether these benefits persist over the longer term. Long-term follow-up is particularly important for understanding the enduring impact of these interventions on rumination and related symptoms. Future research should include extended follow-up periods to determine the longevity of treatment effects and to identify any factors that may influence the maintenance of therapeutic gains.

Future research should explore several avenues to build on the findings of this study. One important area of investigation is the exploration of the mechanisms underlying the effectiveness of MBT and PT. While the current study provides evidence of the efficacy of these interventions, it does not elucidate the specific processes through which they reduce rumination. Understanding the mechanisms of action could inform the refinement of these therapies and enhance their effectiveness. For instance, future studies could use neuroimaging techniques to examine changes in brain activity associated with MBT and PT, shedding light on the neural correlates of reduced rumination.

Additionally, future research should consider the potential moderating factors that may influence the effectiveness of MBT and PT. Variables such as age, gender, severity of SAD, and comorbid conditions could impact treatment outcomes. Identifying these moderators would allow for a more personalized approach to therapy, where interventions are tailored to the individual characteristics of the patient. This could lead to more effective and efficient treatment protocols, improving outcomes for adolescents with SAD.

Another important direction for future research is the comparison of MBT and PT with other therapeutic approaches. While this study found that both interventions were equally effective, it would be valuable to compare them with other evidence-based treatments for SAD, such as cognitive-behavioral therapy (CBT) or acceptance and commitment therapy (ACT). Comparative studies could help determine the relative efficacy of these different approaches and identify which interventions are most effective for specific subgroups of patients. Furthermore, integrating elements from different therapies could lead to the development of more comprehensive and potent interventions.

Acknowledgments

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. Ethical considerations, such as informed consent and confidentiality, were observed in conducting this study.

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

Not applicable.

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