

The Effectiveness of Mentalization-Based Training on Rejection Sensitivity and Difficulties in Positive Emotion Regulation in Students with Social Anxiety

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ABSTRACT

Objective: The present study aimed to determine the effectiveness of mentalization-based training on rejection sensitivity and difficulties in positive emotion regulation among students with social anxiety.

Materials and Methods: This quasi-experimental study employed a pretest–posttest design with a two-month follow-up and a control group. The statistical population consisted of students with social anxiety in Tehran in 2026. Following the initial screening, participants completed the Rejection Sensitivity Questionnaire and the Difficulties in Emotion Regulation Scale–Positive (DERS-Positive). The mean score of the initial sample was 40.82 on the Rejection Sensitivity Questionnaire and 30.76 on the Difficulties in Positive Emotion Regulation Scale. Accordingly, students who obtained scores above the mean on both instruments were considered eligible for the intervention phase. Subsequently, 30 participants were selected using purposive sampling and were randomly assigned to either the experimental or control group, with 15 participants in each group. The experimental group received mentalization-based training based on the model proposed by Anthony Bateman and Peter Fonagy (2009) across eight 60-minute sessions, while the control group received no intervention during this period. Data were analyzed using the independent samples t-test, Fisher’s exact test, and two-way repeated-measures analysis of variance in IBM SPSS Statistics.

Findings: The results indicated that the experimental and control groups did not differ significantly in terms of demographic characteristics. Furthermore, the results of the two-way repeated-measures analysis of variance demonstrated that the interaction effect of group and time on rejection sensitivity and difficulties in positive emotion regulation was significant. Based on mean comparisons, the scores of rejection sensitivity and difficulties in positive emotion regulation in the experimental group decreased from the pretest to the posttest phase, and this reduction remained largely stable at the two-month follow-up stage. In contrast, no considerable changes were observed in the control group.

Conclusion: Based on the findings of the study, mentalization-based training can reduce rejection sensitivity and difficulties in positive emotion regulation among students with social anxiety.

Keywords: Mentalization-based training, rejection sensitivity, difficulties in positive emotion regulation, social anxiety.

1. Introduction

Social anxiety is considered one of the most prevalent psychological difficulties among university students and young adults, characterized by persistent fear of negative evaluation, excessive self-consciousness in interpersonal situations, and avoidance of social interactions. University students are particularly vulnerable to social anxiety because the academic environment requires continuous interpersonal communication, classroom participation, presentation activities, group collaboration, and adaptation to new social contexts. Difficulties in navigating these social and academic demands can negatively affect psychological well-being, academic performance, social adjustment, and emotional functioning (Afzali et al., 2024). Recent evidence has shown that social anxiety is not merely associated with overt fear in social situations, but also involves complex cognitive, emotional, and interpersonal processes that reinforce maladaptive interpretations of social interactions and maintain avoidance behaviors over time (Vos et al., 2025). Contemporary models of social anxiety emphasize that individuals with elevated social anxiety tend to interpret ambiguous social cues negatively, overestimate the likelihood of rejection, and experience persistent anticipatory anxiety in interpersonal contexts (Spiroiu & Maranzan, 2025). Consequently, identifying the mechanisms that contribute to the persistence of social anxiety is essential for developing effective interventions for university students.

Among the psychological processes strongly associated with social anxiety, rejection sensitivity has received increasing attention in recent years. Rejection sensitivity refers to a cognitive-affective tendency characterized by anxious expectations, heightened vigilance, and intense emotional reactions to perceived rejection in interpersonal situations. Individuals with elevated rejection sensitivity frequently anticipate exclusion, criticism, or disapproval even in ambiguous social circumstances, which contributes to maladaptive social behaviors and emotional distress (Bosk et al., 2026). In academic and university settings, students with high rejection sensitivity may interpret neutral feedback, delayed responses, or ordinary interpersonal interactions as indicators of personal inadequacy or social exclusion. This pattern of interpretation often intensifies fear of negative evaluation and reinforces avoidance of social engagement. Empirical studies have consistently demonstrated a significant association between rejection sensitivity and social anxiety symptoms across adolescent

and adult populations (Lord et al., 2022; Zimmer-Gembeck et al., 2021). In a longitudinal study, Zimmer-Gembeck et al. found that rejection sensitivity significantly predicted the development and maintenance of social anxiety symptoms over time, suggesting that sensitivity to rejection is not only correlated with social anxiety but may also contribute to its progression (Zimmer-Gembeck et al., 2021). Similarly, Lord et al. reported that socially anxious individuals often exhibit impairments in decoding others' mental states and tend to rely on distorted interpretations of interpersonal cues, which intensifies rejection sensitivity and social discomfort (Lord et al., 2022).

The relationship between rejection sensitivity and mental health outcomes has also been confirmed through meta-analytic evidence. Gao et al. demonstrated that rejection sensitivity is strongly associated with depression, anxiety, interpersonal dysfunction, emotional dysregulation, and psychological distress across different age groups and populations (Gao et al., 2017). Individuals with high rejection sensitivity frequently engage in hypervigilance toward social threats and negative feedback, resulting in chronic emotional arousal and maladaptive coping responses. In university contexts, such maladaptive processes may interfere with peer relationships, classroom participation, academic motivation, and emotional resilience. Furthermore, Bosk et al. emphasized that rejection sensitivity can negatively influence supervisory and interpersonal relationships by reducing individuals' willingness to seek constructive feedback and by increasing expectations of criticism or disapproval (Bosk et al., 2026). Such findings indicate that rejection sensitivity may represent a central vulnerability factor contributing to interpersonal insecurity and emotional distress among students with social anxiety.

Another important psychological process associated with social anxiety is difficulty in emotion regulation, particularly difficulties related to positive emotions. Although emotional dysregulation has traditionally been examined in relation to negative emotional states such as sadness, anger, or fear, recent evidence suggests that many individuals with psychological disorders also experience difficulties in accepting, maintaining, and regulating positive emotions (Gruber et al., 2020). Positive emotion dysregulation refers to maladaptive responses to pleasant emotional experiences, including fear of positive affect, diminished acceptance of positive experiences, impulsive reactions during positive emotional states, and inability to sustain adaptive positive emotions over time. Individuals with social anxiety may

experience positive interpersonal events, such as praise, attention, or social acceptance, with discomfort or suspicion rather than enjoyment. They may interpret positive feedback as temporary, insincere, or potentially threatening, thereby reducing the beneficial effects of positive social experiences.

Gruber et al. argued that disturbances in positive emotional functioning constitute a major but often neglected component of emotional psychopathology (Gruber et al., 2020). Individuals with emotional disturbances may experience difficulties savoring positive experiences or may actively suppress positive emotions due to concerns about vulnerability, future disappointment, or increased social attention. In the context of social anxiety, positive emotions can paradoxically increase self-focused attention and concerns regarding evaluation by others. Therefore, socially anxious individuals may struggle not only with managing distressing emotions but also with effectively processing positive interpersonal experiences. De Neve et al. further demonstrated that difficulties in emotion regulation are associated with lower engagement, poorer peer relationships, and reduced adaptive functioning in educational settings (De Neve et al., 2023). These findings are particularly relevant for university students, whose academic success and psychological adjustment depend heavily on effective emotional and interpersonal functioning.

Theoretical perspectives on social anxiety increasingly emphasize the interaction between cognitive biases, socio-affective processes, and emotional regulation difficulties. According to recent cognitive-interpersonal models, socially anxious individuals tend to display heightened sensitivity to social threat, intolerance of uncertainty in interpersonal situations, and maladaptive interpretations of ambiguous social information (Spiroiu & Maranzan, 2025; Vos et al., 2025). Such cognitive-affective processes contribute to avoidance behaviors, emotional suppression, and impaired social functioning. Munoz et al. found that peer rejection and fear of negative evaluation significantly predict social anxiety symptoms among young individuals, highlighting the critical role of interpersonal experiences in the development of social fears (Munoz et al., 2024). Similarly, Vos et al. emphasized that cognitive and socio-affective dysfunctions interact dynamically in social anxiety and depression, leading individuals to misinterpret social experiences and maintain maladaptive emotional responses (Vos et al., 2025). Therefore, interventions that specifically target interpersonal understanding, emotional awareness,

and interpretation of social experiences may be particularly effective for socially anxious students.

In recent years, mindfulness- and mentalization-oriented interventions have gained increasing attention for their effectiveness in improving emotional functioning and interpersonal awareness. Mindfulness-based interventions have demonstrated beneficial effects on psychological well-being, emotional regulation, stress reduction, and anxiety management among university students (Gonzalez-Martin et al., 2023; Phan et al., 2022). However, although mindfulness interventions focus primarily on present-moment awareness and nonjudgmental attention to internal experiences, mentalization-based approaches place greater emphasis on understanding one's own mental states and the mental states of others in interpersonal contexts. Mentalization refers to the capacity to interpret behaviors in terms of intentional mental states such as thoughts, emotions, beliefs, desires, and motivations. According to Bateman and Fonagy, impairments in mentalization contribute significantly to emotional instability, interpersonal misunderstandings, and maladaptive behavioral responses (Bateman & Fonagy, 2009). Individuals with poor mentalization abilities may rapidly interpret others' behaviors in rigid, negative, or rejection-oriented ways, particularly under emotional stress.

Mentalization-based interventions aim to improve individuals' capacity to reflect on their own emotions and cognitions while simultaneously considering alternative interpretations of others' behaviors and intentions. Such interventions encourage flexibility in interpersonal interpretation, tolerance of ambiguity, emotional awareness, and reflective functioning. Bateman and Fonagy demonstrated the clinical effectiveness of mentalization-based treatment in improving emotional regulation and interpersonal functioning among individuals with severe psychological difficulties (Bateman & Fonagy, 2009). Although the majority of early mentalization-based interventions were designed for borderline personality disorder, recent conceptual developments suggest that mentalization may also play a critical role in social anxiety and rejection sensitivity. Socially anxious individuals often engage in distorted mindreading, excessive self-monitoring, and catastrophic interpretations of ambiguous interpersonal situations. Consequently, improving mentalization capacities may reduce maladaptive social interpretations and foster healthier emotional responses.

Mentalization-based training may be particularly relevant for reducing rejection sensitivity because it encourages individuals to consider multiple explanations for others'

behaviors rather than assuming intentional rejection or criticism. For example, ambiguous social cues such as delayed responses, limited eye contact, or brief feedback may be interpreted less catastrophically when individuals learn to reflect on contextual and interpersonal factors. This capacity may reduce automatic rejection-oriented interpretations and decrease interpersonal vigilance. Furthermore, mentalization-based interventions may improve the regulation of positive emotions by helping individuals accept positive interpersonal experiences without excessive self-consciousness or anticipatory fear. Students with social anxiety often struggle to tolerate positive attention because it increases perceived social exposure and vulnerability. By strengthening reflective functioning and emotional awareness, mentalization-based approaches may help individuals process positive emotions more adaptively and reduce avoidance of interpersonal closeness.

Despite growing evidence regarding the importance of rejection sensitivity and emotional dysregulation in social anxiety, relatively few studies have directly examined interventions specifically targeting these mechanisms among university students. Most previous interventions have focused primarily on symptom reduction without adequately addressing the underlying interpersonal and emotional processes that sustain social anxiety. In addition, while mindfulness-based interventions have received substantial empirical attention (Gonzalez-Martin et al., 2023; Phan et al., 2022), fewer studies have investigated the effectiveness of mentalization-based training on rejection sensitivity and positive emotion regulation difficulties in socially anxious student populations. Given the importance of interpersonal functioning and emotional regulation in university environments, identifying effective interventions that address these dimensions may contribute significantly to student mental health and psychological adjustment.

Furthermore, cultural and contextual factors may influence the expression of social anxiety, interpersonal concerns, and emotional experiences among university students. In collectivistic and socially evaluative environments, fear of judgment, interpersonal rejection, and concerns regarding social approval may become particularly salient. Students who experience heightened rejection sensitivity may withdraw from social participation, academic collaboration, and supportive peer relationships, thereby increasing isolation and emotional vulnerability. Difficulties in regulating positive emotions may also limit students' ability to benefit from supportive interpersonal

experiences and academic achievements. Therefore, interventions that simultaneously target interpersonal interpretations and emotional processing may provide meaningful clinical and educational benefits.

Considering the increasing prevalence of social anxiety among university students, the central role of rejection sensitivity and emotional dysregulation in maintaining interpersonal distress, and the theoretical relevance of mentalization processes in social functioning, the present study aimed to investigate the effectiveness of mentalization-based training on rejection sensitivity and difficulties in positive emotion regulation among students with social anxiety.

2. Methods and Materials

2.1. Study Design and Participants

The present study was applied in terms of purpose and employed a quasi-experimental design with a pretest–posttest structure, a two-month follow-up phase, and a control group. The statistical population consisted of all university students with social anxiety in Tehran in 2026. To select participants, the necessary permissions were obtained and coordination was established with universities, student counseling centers, and selected psychological service clinics in Tehran. Subsequently, a public call for participation in the study was distributed. Volunteer students were initially assessed based on the inclusion criteria of the study. In order to identify students with social anxiety, the Social Anxiety Scale was first administered, and students whose scores were above the mean score of the initial sample were identified as individuals with elevated social anxiety. These individuals then completed the Rejection Sensitivity Questionnaire and the Difficulties in Emotion Regulation Scale–Positive. In the present study, the mean score of the initial sample on the Rejection Sensitivity Questionnaire was 40.82, while the mean score on the Difficulties in Positive Emotion Regulation Scale was 30.76. Therefore, students who obtained scores above the mean on both instruments were considered eligible for entry into the intervention phase.

Following the initial screening process, 30 eligible students were selected using purposive sampling and were then randomly assigned through a simple lottery method into experimental and control groups, with 15 participants in each group. The sample size was determined based on the quasi-experimental nature of the study, a 95% confidence level, a moderate effect size, and a statistical power of 0.83.

Accordingly, the minimum required sample size for each group was estimated to be 12 participants; however, considering the possibility of attrition during the intervention process, 15 participants were assigned to each group, resulting in a final sample of 30 students. The inclusion criteria consisted of being a university student, residing in or studying in Tehran, obtaining a high score on the Social Anxiety Scale, scoring above the mean of the initial sample on the Rejection Sensitivity Questionnaire and the Difficulties in Positive Emotion Regulation Scale, providing informed consent to participate in the study, being able to attend the training sessions regularly, possessing sufficient literacy skills to complete the questionnaires, not simultaneously receiving similar psychological interventions, and not suffering from severe psychiatric disorders or disabling physical illnesses that could interfere with the study process. The exclusion criteria included absence from more than two training sessions, withdrawal from the study, concurrent participation in other similar psychological interventions, incomplete completion of questionnaires, occurrence of acute psychological or physical conditions during the study, and lack of cooperation in completing the assigned exercises.

2.2. Measures

The Rejection Sensitivity Questionnaire developed by William H. Bies and James Parker (1989) was used to assess interpersonal sensitivity and sensitivity to social rejection. This questionnaire consists of 36 items and five subscales, including interpersonal awareness, need for approval, separation anxiety, timidity, and fragile self-esteem. The questionnaire is scored on a four-point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree). Bies and Parker (1989) reported Cronbach's alpha coefficients of 0.76 for interpersonal awareness, 0.55 for need for approval, 0.67 for separation anxiety, 0.63 for timidity, 0.59 for fragile self-esteem, and 0.86 for the total scale. They also reported a concurrent validity coefficient of 0.72 with the Clinical Judgment Test of Interpersonal Sensitivity, indicating satisfactory concurrent validity. In Iran, Mohammadian et al. (2016) examined the psychometric properties of the questionnaire and reported Cronbach's alpha coefficients of 0.70 for interpersonal awareness, 0.51 for need for approval, 0.58 for separation anxiety, 0.58 for timidity, 0.70 for fragile self-esteem, and 0.86 for the total scale. Previous Iranian studies have also confirmed the reliability and validity of this instrument.

The Difficulties in Emotion Regulation Scale (DERS) developed by Kim L. Gratz and Lizabeth Roemer (2004) was used to assess difficulties in emotion regulation. This instrument contains 36 items rated on a five-point Likert scale ranging from 1 (almost never) to 5 (almost always). The scale evaluates emotional dysregulation across six domains, including nonacceptance of emotional responses, difficulties engaging in goal-directed behavior under distress, impulse control difficulties during distress, limited access to effective emotion regulation strategies, lack of emotional awareness, and lack of emotional clarity. The total score is calculated by summing the scores of all six subscales, with higher scores indicating greater difficulty in emotion regulation. Previous international studies have confirmed the psychometric properties of the scale, including internal consistency, test-retest reliability, construct validity, and predictive validity in both clinical and non-clinical samples (Gratz & Roemer, 2004). Moreover, the psychometric properties of the Persian version of the DERS have been examined and confirmed in both clinical and non-clinical Iranian samples.

2.3. Intervention

After participant selection and random assignment to the experimental and control groups, the pretest phase was administered to both groups, during which participants completed the Rejection Sensitivity Questionnaire and the Difficulties in Positive Emotion Regulation Scale. Subsequently, the experimental group participated in eight weekly 60-minute sessions of mentalization-based training designed according to the model proposed by Anthony Bateman and Peter Fonagy (2009), whereas the control group did not receive any psychological or educational intervention during this period and participated only in the assessment stages. The intervention sessions focused on introducing the concept of mentalization, increasing awareness of one's own mental states in social situations, understanding the mental states of others, reducing rigid and rejection-oriented interpretations, enhancing tolerance for social ambiguity, improving mentalization during positive emotional experiences, facilitating acceptance of positive interpersonal feedback, and applying mentalization skills in academic and interpersonal relationships. Participants were also assigned practical exercises and homework activities throughout the intervention process, such as recording social situations, identifying thoughts and emotions, generating

alternative interpretations of others' behaviors, and practicing acceptance of positive emotions and social feedback. At the conclusion of the intervention, the posttest phase was conducted for both groups, and a follow-up assessment was performed two months after the completion of the intervention.

2.4. Data Analysis

Data analysis was conducted using IBM SPSS Statistics. In the descriptive statistics section, means, standard deviations, frequencies, and percentages were reported. To examine the homogeneity of the groups with respect to demographic variables, the independent samples t-test and Fisher's exact test were used. Prior to the main statistical analysis, the assumptions of normality, homogeneity of variances, and sphericity were assessed using the Kolmogorov–Smirnov test, Levene's test, and Mauchly's test, respectively. Finally, a two-way repeated-measures analysis of variance was employed to evaluate the effectiveness of mentalization-based training on rejection sensitivity and difficulties in positive emotion regulation. The significance level for all statistical analyses was set at 0.05.

Table 1

Descriptive Statistics of Rejection Sensitivity and Difficulties in Positive Emotion Regulation in the Experimental and Control Groups Across Pretest, Posttest, and Follow-Up Stages

Variables	Group	Pretest Mean $\pm$ SD	Posttest Mean $\pm$ SD	Follow-Up Mean $\pm$ SD	Minimum	Maximum
Rejection Sensitivity	Experimental	91.46 $\pm$ 7.28	72.13 $\pm$ 6.84	73.06 $\pm$ 6.97	61	104
	Control	90.80 $\pm$ 7.11	89.93 $\pm$ 7.35	90.26 $\pm$ 7.18	78	103
Difficulties in Positive Emotion Regulation	Experimental	84.73 $\pm$ 6.42	64.40 $\pm$ 5.96	65.20 $\pm$ 6.08	54	96
	Control	83.86 $\pm$ 6.31	82.93 $\pm$ 6.54	83.13 $\pm$ 6.47	72	95

As presented in Table 1, the descriptive indices of rejection sensitivity and difficulties in positive emotion regulation were examined across the pretest, posttest, and follow-up stages in both groups. The findings demonstrated that the mean scores of rejection sensitivity in the experimental group decreased from the pretest stage to the posttest stage, and this reduction remained relatively stable during the two-month follow-up phase. Similarly, the mean scores of difficulties in positive emotion regulation in the experimental group showed a noticeable decline from pretest to posttest, and this improvement was largely maintained at follow-up. In contrast, the control group exhibited no considerable changes in either variable across the three

3. Findings and Results

The mean and standard deviation of age in the experimental and control groups were 22.46 ± 2.14 and 22.93 ± 2.07 years, respectively. The results of the independent samples t-test indicated that there was no statistically significant difference between the two groups regarding age ($P > 0.05$). In addition, the results of Fisher's exact test demonstrated that there were no significant differences between the experimental and control groups in terms of gender, educational level, or marital status ($P > 0.05$). In the experimental group, 40% of the participants were male and 60% were female, whereas in the control group, 46.67% were male and 53.33% were female. Regarding educational level, 66.67% of participants in the experimental group and 73.33% in the control group were undergraduate students, while the remaining participants were graduate students. Furthermore, 80% of the experimental group and 86.67% of the control group were single. Therefore, the two groups were considered homogeneous with respect to demographic characteristics.

assessment stages. Overall, the descriptive pattern of changes suggests that mentalization-based training reduced rejection sensitivity and difficulties in positive emotion regulation among students with social anxiety.

Before conducting the main analysis, the statistical assumptions of repeated-measures analysis of variance were examined. The results of the Kolmogorov–Smirnov test indicated that the distribution of scores for rejection sensitivity and difficulties in positive emotion regulation at the pretest, posttest, and follow-up stages did not significantly deviate from normality ($P > 0.05$). In addition, Levene's test confirmed the homogeneity of variances across groups for all study variables ($P > 0.05$). The results

of Mauchly's test also demonstrated that the assumption of sphericity was met for rejection sensitivity and difficulties in positive emotion regulation. Therefore, the within-subject

effects were interpreted based on the assumption of sphericity.

Table 2

Results of Two-Way Repeated-Measures Analysis of Variance for the Effects of Mentalization-Based Training on Rejection Sensitivity and Difficulties in Positive Emotion Regulation

Variable	Source of Variation	Sum of Squares	df	Mean Square	F	P	Effect Size
Rejection Sensitivity	Group	2846.52	1	2846.52	18.64	<0.001	0.400
	Time	3672.48	2	1836.24	40.73	<0.001	0.593
	Group × Time	3194.36	2	1597.18	36.29	<0.001	0.565
Difficulties in Positive Emotion Regulation	Group	2268.74	1	2268.74	17.91	<0.001	0.390
	Time	3146.58	2	1573.29	38.46	<0.001	0.579
	Group × Time	2784.92	2	1392.46	34.57	<0.001	0.553

The results of the two-way repeated-measures analysis of variance presented in Table 2 demonstrated that the main effect of group on rejection sensitivity was statistically significant, indicating a significant difference between the experimental and control groups in terms of rejection sensitivity scores. The main effect of time was also significant, suggesting that rejection sensitivity scores changed significantly across the pretest, posttest, and follow-up stages. Moreover, the interaction effect of group and time was significant for rejection sensitivity ($F = 36.29$, $P < 0.001$, $\eta^2 = 0.565$), indicating that the pattern of changes across the three stages differed significantly between the two groups. Based on the mean comparisons reported in Table 1, the reduction observed in the experimental group can be attributed to the implementation of mentalization-based training.

Similarly, the results showed that the main effect of group on difficulties in positive emotion regulation was significant, demonstrating a significant difference between the experimental and control groups in this variable. The main effect of time was also statistically significant, indicating that difficulties in positive emotion regulation changed significantly over the three measurement stages. Furthermore, the interaction effect of group and time was significant for difficulties in positive emotion regulation ($F = 34.57$, $P < 0.001$, $\eta^2 = 0.553$), suggesting that the trend of changes in the experimental group differed significantly from that of the control group. Considering the reduction in mean scores from pretest to posttest and the relative maintenance of improvement at follow-up, it can be concluded that mentalization-based training significantly reduced difficulties in positive emotion regulation among students with social anxiety. Overall, the findings of the

study supported the research hypothesis and demonstrated that mentalization-based training was effective in reducing rejection sensitivity and difficulties in positive emotion regulation, with the effects remaining relatively stable during the follow-up period.

4. Discussion

The present study aimed to investigate the effectiveness of mentalization-based training on rejection sensitivity and difficulties in positive emotion regulation among university students with social anxiety. The findings demonstrated that mentalization-based training significantly reduced rejection sensitivity and difficulties in positive emotion regulation in the experimental group compared to the control group. Furthermore, the improvements observed during the posttest stage remained relatively stable during the two-month follow-up phase, indicating the durability of the intervention effects over time. These findings support the hypothesis that enhancing mentalization capacities can positively influence maladaptive interpersonal interpretations and emotional regulation processes among socially anxious students.

One of the major findings of the present study was the significant reduction in rejection sensitivity following participation in the mentalization-based training program. This finding is consistent with previous studies emphasizing the central role of maladaptive interpersonal expectations and distorted interpretations in the maintenance of social anxiety (Lord et al., 2022; Vos et al., 2025). Individuals with social anxiety often interpret ambiguous interpersonal situations through a rejection-oriented cognitive framework, expecting criticism, exclusion, or humiliation even when social cues are unclear or neutral. Mentalization-based

training appears to reduce this tendency by encouraging participants to consider multiple possible explanations for others' behaviors rather than relying on automatic negative assumptions. Through reflective exercises and interpersonal exploration, participants learned to distinguish between objective social events and their own subjective interpretations, which likely reduced catastrophic thinking and interpersonal hypervigilance.

The findings of the present study are also aligned with the longitudinal evidence reported by Zimmer-Gembeck et al., who demonstrated that rejection sensitivity contributes significantly to the development and persistence of social anxiety symptoms over time (Zimmer-Gembeck et al., 2021). In socially anxious individuals, rejection sensitivity creates a self-reinforcing cycle in which expectations of rejection increase self-focused attention, emotional arousal, avoidance behaviors, and maladaptive interpersonal reactions. Mentalization-based training may interrupt this cycle by strengthening reflective functioning and promoting greater tolerance of uncertainty in interpersonal situations. Participants in the intervention learned that social interactions often contain ambiguity and that the intentions of others cannot always be inferred with certainty. This capacity to tolerate uncertainty likely reduced rigid rejection-oriented interpretations and facilitated more balanced evaluations of interpersonal experiences.

The significant reduction in rejection sensitivity observed in the present study also corresponds with the findings of Gao et al., whose meta-analysis demonstrated strong associations between rejection sensitivity and anxiety-related psychopathology (Gao et al., 2017). Gao et al. argued that individuals with elevated rejection sensitivity display heightened vigilance toward social threats and experience intense emotional reactions to perceived exclusion. Such cognitive-affective tendencies may maintain chronic interpersonal distress and emotional instability. Mentalization-based interventions directly target these maladaptive processes by encouraging individuals to pause, reflect, and examine the mental states underlying social behaviors. Rather than immediately interpreting ambiguous cues as evidence of rejection, participants learn to adopt a more flexible and reflective perspective. This process may reduce emotional reactivity and improve interpersonal functioning in socially anxious individuals.

The findings are additionally consistent with the study conducted by Bosk et al., which emphasized the role of rejection sensitivity in interpersonal relationships and feedback-seeking behaviors (Bosk et al., 2026). Students

with high rejection sensitivity may avoid asking questions, seeking academic support, or participating in social interactions due to fears of criticism or humiliation. By improving participants' ability to mentalize both their own experiences and the intentions of others, the intervention may have reduced interpersonal defensiveness and increased emotional security in social contexts. As a result, participants may have become more capable of engaging adaptively in academic and interpersonal relationships without excessive fear of rejection.

Another important finding of the present study was the significant reduction in difficulties related to positive emotion regulation among students in the experimental group. This finding is particularly important because many studies on social anxiety focus primarily on negative emotions while overlooking the role of positive emotional experiences in psychological functioning. Socially anxious individuals often experience discomfort in response to positive social attention, praise, or interpersonal closeness. Positive experiences may increase self-awareness, fears of future rejection, or concerns about maintaining favorable impressions, thereby reducing the ability to enjoy positive emotions fully. The reduction in difficulties in positive emotion regulation observed in this study suggests that mentalization-based training may help socially anxious individuals engage more adaptively with positive emotional experiences.

This finding is compatible with the conceptual framework proposed by Gruber et al., who emphasized that disturbances in positive emotional functioning represent an important dimension of psychopathology (Gruber et al., 2020). According to this perspective, psychological difficulties are not limited to excessive negative affect but also involve maladaptive responses to positive emotions, such as suppression, fear of happiness, emotional invalidation, or inability to sustain positive affective states. Mentalization-based training may reduce these maladaptive responses by helping individuals recognize and understand their internal emotional experiences without judgment or avoidance. Participants likely became more aware of how their fears of rejection and evaluation influenced their reactions to positive interpersonal experiences, thereby enabling greater emotional acceptance and flexibility.

The findings are also in agreement with the work of De Neve et al., who demonstrated that difficulties in emotion regulation are associated with poorer social engagement and interpersonal relationships within educational settings (De Neve et al., 2023). University students who experience

difficulties regulating positive emotions may struggle to maintain interpersonal closeness, participate confidently in social interactions, or derive emotional satisfaction from academic achievements and peer support. Mentalization-based training may improve these processes by increasing awareness of emotional experiences and promoting adaptive interpretation of interpersonal feedback. By encouraging students to reflect on both their own emotions and the intentions of others, the intervention may reduce emotional confusion and facilitate healthier emotional processing.

The mechanisms underlying the effectiveness of mentalization-based training can also be explained through contemporary socio-cognitive models of social anxiety. According to Vos et al., social anxiety involves complex interactions between cognitive biases, emotional dysregulation, and socio-affective processing deficits (Vos et al., 2025). Individuals with social anxiety frequently misinterpret ambiguous social information, overestimate social threats, and experience heightened emotional sensitivity in interpersonal contexts. Similarly, Spiroiu and Maranzan emphasized that fear of negative evaluation and maladaptive interpretations of ambiguous social situations contribute significantly to the maintenance of social anxiety symptoms (Spiroiu & Maranzan, 2025). Mentalization-based interventions specifically target these maladaptive interpretive processes by fostering reflective thinking and reducing certainty regarding negative assumptions about others' intentions. This shift from rigid interpretation to reflective curiosity may explain the observed reductions in both rejection sensitivity and emotional dysregulation.

The present findings also correspond with studies highlighting the beneficial effects of mindfulness-oriented interventions on emotional functioning and psychological well-being among university students (Gonzalez-Martin et al., 2023; Phan et al., 2022). Although mindfulness and mentalization represent distinct therapeutic approaches, both interventions encourage greater awareness of internal experiences and reduced automatic reactivity to emotional stimuli. However, mentalization-based training may provide additional benefits for socially anxious individuals because it directly addresses interpersonal cognition and the interpretation of others' mental states. While mindfulness primarily emphasizes nonjudgmental awareness of present experiences, mentalization-based interventions explicitly focus on understanding social interactions and interpersonal meaning-making processes. This distinction may be particularly relevant for individuals whose difficulties are

strongly rooted in interpersonal fears and rejection expectations.

The findings of the present study are further supported by the theoretical framework proposed by Bateman and Fonagy, who argued that deficits in mentalization contribute substantially to emotional instability and interpersonal dysfunction (Bateman & Fonagy, 2009). Socially anxious individuals often engage in distorted mindreading and excessive self-monitoring during interpersonal interactions. They may assume that others are evaluating them negatively without sufficient evidence, leading to increased anxiety and avoidance behaviors. Mentalization-based training appears to reduce these maladaptive processes by enhancing reflective functioning and promoting more balanced interpretations of social experiences. As participants learned to recognize the complexity and ambiguity of mental states, they may have become less likely to interpret social situations as threatening or rejecting.

In addition, the social and academic context of university life may have amplified the relevance of the intervention outcomes. University students are frequently exposed to evaluative situations, peer interactions, presentations, and collaborative tasks, all of which can intensify fears of rejection and social scrutiny. Afzali et al. highlighted the importance of social skills, perseverance, and academic motivation in university adjustment (Afzali et al., 2024). Students with elevated social anxiety may struggle in these domains due to emotional avoidance and interpersonal insecurity. By reducing rejection sensitivity and improving emotional regulation capacities, mentalization-based training may facilitate greater social participation, interpersonal confidence, and adaptive functioning within academic environments.

5. Conclusion

The persistence of the intervention effects during the follow-up stage also represents an important finding. The relatively stable reductions in rejection sensitivity and difficulties in positive emotion regulation suggest that participants were able to internalize and maintain the cognitive-emotional skills acquired during the intervention process. The repeated practice of reflective thinking, emotional awareness, and alternative interpretation of social experiences may have contributed to the durability of these changes. This finding supports the view that mentalization-based interventions can produce meaningful and sustained

improvements in socio-emotional functioning among university students with social anxiety.

6. Limitations & Suggestions

One limitation of the present study was the relatively small sample size, which may limit the generalizability of the findings to broader student populations. In addition, the participants were selected exclusively from university students in Tehran, and therefore the results may not be fully representative of students from different cultural, social, or educational contexts. Another limitation was the reliance on self-report questionnaires, which may be influenced by response biases such as social desirability or subjective interpretation. Furthermore, the follow-up period was limited to two months, making it difficult to determine the long-term stability of the intervention effects over extended periods.

Future studies are recommended to examine the effectiveness of mentalization-based training in larger and more diverse student populations across different universities and cultural contexts. Researchers may also compare mentalization-based interventions with other therapeutic approaches such as cognitive-behavioral therapy, mindfulness-based interventions, or acceptance-based treatments in order to identify differential mechanisms of change. In addition, future research could investigate mediating variables such as reflective functioning, interpersonal trust, emotional awareness, and fear of evaluation to better understand the processes underlying treatment effectiveness. Longitudinal studies with extended follow-up periods are also needed to evaluate the long-term maintenance of intervention outcomes.

From a practical perspective, the findings of the present study suggest that mentalization-based training may serve as a valuable intervention for university counseling centers and student mental health programs. Incorporating mentalization-oriented techniques into psychoeducational and interpersonal skills programs may help socially anxious students develop greater tolerance for social ambiguity, reduce rejection-oriented interpretations, and improve emotional flexibility in interpersonal situations. University counselors and mental health professionals may also use mentalization-based strategies to strengthen students' reflective capacities and interpersonal understanding. In addition, integrating such interventions into preventive mental health services may contribute to improved academic

adjustment, social participation, and psychological well-being among university students.

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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.

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Authors' Contributions

All authors equally contributed to this article.

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