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Effectiveness of Mindfulness-based Stress Reduction Training on Anxiety Sensitivity, Rumination, and Self-Esteem in Adolescents with Social Anxiety Disorder

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Social fears, especially during adolescence and adulthood, can have profound and widespread impacts on personal and social life. The study aimed to determine the effectiveness of mindfulness-based stress reduction training on anxiety sensitivity, rumination, and self-esteem in adolescents with social anxiety disorder. The research design was quasi-experimental with a pre-test and post-test involving two groups: experimental and control. The statistical population included adolescents with social anxiety disorder. From this population, 30 individuals were selected through convenience sampling and randomly assigned to two groups (15 in the experimental group and 15 in the control group). The participants in the experimental group underwent mindfulness-based stress reduction training. The measurement instruments included the Anxiety Sensitivity Scale (Floyd et al., 2005), the Rumination

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Scale (Nolen-Hoeksema & Morrow, 1991), and the Rosenberg Self-Esteem Scale (1965). For data analysis, covariance analysis and SPSS 26 software were used. A significant difference was observed between the post-test means of anxiety sensitivity, rumination, and self-esteem in the experimental and control groups ($p < .005$). The results indicated that mindfulness-based stress reduction training has an effect on anxiety sensitivity, rumination, and self-esteem in adolescents with social anxiety disorder.

Keywords: social anxiety, anxiety sensitivity, mindfulness-based stress reduction, self-esteem, rumination.

Anxiety is a widespread and global issue, and most individuals may experience recurring anxiety throughout their lives. Adolescents, due to being in a sensitive age period, are more susceptible to various anxiety disorders (Kola et al., 2021). Clinical anxiety is inappropriate and is classified under anxiety disorders in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5); moreover, the most complaints related to mental health come from individuals with social anxiety disorder (Tajik et al., 2021). Anxiety disorders are among the most common and debilitating psychiatric disorders worldwide, characterized by persistent and excessive anxiety and worry. Anxiety disorders manifest in various forms and can be categorized based on symptoms and the nature of attacks (Shohani & Simon, 2022; Chen et al., 2025). This disorder is recognized as having a high prevalence in the Diagnostic and Statistical Manual of Mental Disorders (Krygsman & Vaillancourt, 2022).

One of the factors contributing to the onset and exacerbation of social anxiety disorder is anxiety sensitivity, which refers to the fear of bodily sensations associated with anxiety. This can manifest in various ways, such as fear of losing control over mental abilities, fear of physical symptoms, and sensitivity to

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negative evaluation by others (Khakpour et al., 2018). Anxiety sensitivity is a cognitive style that involves intense fear of anxiety symptoms. Individuals who are highly sensitive to anxiety symptoms believe that these symptoms lead to dangerous or catastrophic outcomes, such as physical and mental illnesses, loss of control, and embarrassment. These individuals differ in the frequency of experiencing anxiety symptoms and their fear of these symptoms (Peel et al., 2023; Brol & Shirk, 2020). Research indicates that reducing anxiety sensitivity can be associated with decreased anxiety and improved social anxiety disorder (Snippe et al., 2017).

On the other hand, the role of illness perception in clients with social anxiety disorder has previously been the focus of research. Illness perception refers to an individual's organized cognitive representation of their illness, or in other words, rumination. Rumination is one of the critical variables associated with the psychological symptoms of individuals with social anxiety disorder. It is defined as a persistent focus on a thought or topic and a category of conscious, passive, and repetitive thoughts that are defined by the causes and consequences of symptoms, which hinder adaptive problem-solving and increase negative thoughts (Shakoei et al., 2020). Lader (2015) argues that individuals with social anxiety disorder are constantly seeking judgment about their thoughts and feelings, viewing thoughts and feelings as complex mental events that will always remain, considering these thoughts as part of themselves or a reflection of reality, and constantly ruminating on these thoughts. Rumination in individuals with social anxiety disorder leads to distress and impairment in functioning (Tafreshi Amidi Pour et al., 2022).

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Individuals with social anxiety disorder also resort to avoidance to reduce unwanted experiences, which stems from their low self-esteem (Dai et al., 2024). In fact, one of the problems faced by individuals with social anxiety is reduced self-esteem, which occurs due to their worries about dangers, leading to feelings of discomfort or bodily symptoms of tension related to internal or external sources. Self-esteem is the individual's satisfaction with themselves and their sense of worth. In other words, self-esteem refers to how individuals think about themselves, how much they love themselves, and how satisfied they are with their performance, particularly regarding their social and educational status and the degree of alignment and closeness between their ideal self and their real self (Agostod, 2017; Harris & Orth, 2020). The most important source of self-esteem is how others behave towards the individual; that is, individuals pay attention to the behaviors of others to see themselves reflected in those behaviors. Individuals with social anxiety develop a negative self-concept due to their perception of others' negative behaviors, which leads to decreased self-esteem (Fritz, 2012). Kruptarakulchai et al. (2024) believe that individuals with social anxiety disorder, due to low self-esteem, are more listeners and observers than participants in social conversations.

Therapists with various theoretical approaches utilize different methods to manage and treat various mood disorders, including rumination and anxiety sensitivity in different populations. One psychological treatment that has gained attention in recent years for treating mood disorders is mindfulness-based stress reduction, which has shown significant effectiveness in terms of adaptability (Kumar et al., 2014).

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Mindfulness-based stress reduction is characterized as a state of awareness, without judgment, focused on oneself. This state contrasts with focusing on the past, especially in patients with depression, and focusing on the future in individuals with anxiety, which includes training individuals for a new attitude, non-judgmental acceptance, and approaching emotions, thoughts, and bodily sensations to cleanse themselves from negative mood states (Shakoei et al., 2020). In mindfulness-based stress reduction training, individuals learn how to relate to their irrational thoughts and focus on changing the content of their thoughts (Tafreshi Amidi Pour et al., 2021). Additionally, the role of individuals' beliefs in creating stress, anxiety, and illness, as well as changing their beliefs and perceptions, can lead to a better life and greater adaptability. Hayes (2019) believes that the main message in mindfulness-based stress reduction is the acceptance of what is beyond a person's control and the persistence and commitment to do whatever is within the individual's control (Fatemi & Khrazi Afra, 2020).

Therefore, during adolescence, due to the heightened sensitivity of teenagers to surrounding issues and the reactions and behaviors of parents and peers, their concerns about the future, close relationships with friends, mood fluctuations, and increases and decreases in certain neurotransmitters, along with physical changes in the brain and growth of perceptions, adolescents may experience various anxieties. The lack of skills to manage these psychological states can lead to anxiety disorders, including social anxiety disorder. If this disorder is not treated in a timely manner, it will create chronic and recurring symptoms in the individual. Thus, addressing effective treatments can mitigate these concerns. Therefore, the present

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study seeks to answer the question of whether stress reduction training based on mindfulness-based stress reduction is effective in reducing anxiety sensitivity, rumination, and improving self-esteem in adolescents with social anxiety disorder who visit treatment centers in Khorramabad.

Method

The research design is quasi-experimental, with experimental and control groups, utilizing a pre-test and post-test format. The statistical population of this study includes adolescents with social anxiety disorder in Khorramabad in 2024. According to the logic Cohen's (1986) for achieving appropriate statistical power, a sample of approximately 15 participants was selected for each of the two experimental and control groups. The sample from three psychotherapy and counseling centers in the city of Khorramabad was selected through convenience sampling and randomly assigned to two groups (15 in the experimental group and 15 in the control group). Inclusion criteria for the study included: not participating in concurrent educational classes during the training sessions of this research, informed consent from participants to participate in the study, scoring low on the self-esteem questionnaire, and scoring high on the anxiety sensitivity and rumination questionnaires. Exclusion criteria included: The participant's consent to continue in the study process and having more than three absences in training sessions. Ethical considerations adhered to in this study include: respect for the individual and their autonomy, informed consent, no harm to participants, and confidentiality of participant information.

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Instruments

Anxiety Sensitivity Index (ASI): Anxiety sensitivity is a self-report questionnaire developed by Floyd et al. in 2005. This questionnaire consists of 16 items and uses a five-point Likert scale ranging from very low (1) to very high (5). It reflects the belief that anxiety feelings are experienced unpleasantly and can lead to harmful outcomes. The degree of fear of anxiety symptoms is indicated by higher scores. The score range is between 0 and 64 (Floyd et al., 2005). The structure of this questionnaire consists of three factors: fear of bodily concerns (8 items), fear of cognitive control loss (4 items), and fear of being observed with anxiety by others (4 items). Psychometric properties of this scale show a high internal consistency ranging from .80 to .90. Mohseni et al. (2013) calculated its validity in an Iranian sample based on three methods: internal consistency, test-retest reliability, and split-half reliability, yielding reliability coefficients of .93, .95, and .97 for the entire scale, respectively. Validity was assessed through concurrent validity, correlation of subscale scores with the total scale and with each other, and factor analysis. The concurrent validity was established through simultaneous administration with the SCL-90 questionnaire, yielding a correlation coefficient of .56. The correlation coefficients with the total score were satisfactory, ranging from .74 to .87 (Mohseni et al., 2013). In the present study, the reliability of this scale was calculated using Cronbach's alpha method, yielding a value of .82.

Rumination Questionnaire: The Rumination Questionnaire was designed by Nolen-Hoeksema and Morrow (1991). This questionnaire evaluates negative mood responses and consists of two subscales: ruminative responses and distracting responses. It

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includes statements scored on a Likert scale from (1 = never) to (4 = often) (Nolen-Hoeksema & Morrow, 1991). Nolen-Hoeksema and Morrow (1991) reported a reliability of .91 for the questionnaire using Cronbach's alpha and a validity of .67. Treynor et al. (2020) reported a reliability of .90 and a validity of .65 based on empirical evidence. In Iran, the questionnaire was examined by Mansouri et al. (2010), who reported a reliability of .90 using Cronbach's alpha. Additionally, in the study by Tafreshi Amidi Pour et al. (2021), the reliability coefficient was found to be .83, with a validity of .79, indicating high validity. In the present study, the reliability of this scale was calculated to be .78 using Cronbach's alpha.

Rosenberg Self-Esteem Questionnaire: The Rosenberg Self-Esteem Scale consists of 10 items, where respondents are asked to answer questions based on a binary scale of agree and disagree. The first five items are positively worded (items 1 to 5), with a score of 1 for agreement and -1 for disagreement, while the last five items (items 6 to 10) are negatively worded, where agreement is scored as -1 and disagreement as 1. The score range is from -10 to +10. The closer the score is to -10, the lower the self-esteem, and the closer it is to +10, the stronger the self-esteem. Cronbach's alpha coefficients for this scale during test-retest in the first session were .78 for men and .86 for women, and in the second session, they were .88 for men and .87 for women (Green-Rosenberg et al., 2003). The study by Beshlide et al. (2010) supports the two-factor structure of this questionnaire. In the present study, the reliability of this scale was calculated to be .79 using Cronbach's alpha.

Mindfulness-based stress reduction Protocol: The content of the therapeutic sessions is based on the Mindfulness-based stress

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reduction treatment package developed by Kabat-Zinn (2003), designed for 8 sessions of 90 minutes each, held once a week. The content of the sessions is detailed in Table 1.

Table 1
Kabat-Zinn Mindfulness-Based Stress Reduction (MBSR) Protocol (2003)

Session	Goals	Content of Sessions
1	**Therapeutic Alliance**	• Pre-test assessment, • Members getting acquainted with each other, • Setting session rules, • Discussion about the initial and final assessments, • Reflecting on the moments before, during, and after being in social situations and experiencing anxiety.
2	**Mindfulness**	• Introduction to mindfulness and its effects, • Discussion about stress, • Negative thoughts and their effects on anxiety, • Introduction to mindfulness and its impacts.
3	**Awareness of Activities**	• Improving awareness of daily activities, • Awareness of any physical sensations associated with anxiety, • Practicing body scan
4	**Physical Relaxation**	• Teaching attention to breathing, • Reviewing experiences from the previous session, • Practicing body scan, • Seated meditation: Breathing exercise
5	**Monitoring Thoughts and Behaviors**	• Changing the individual's relationship with their thoughts,

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		• Increasing awareness of the nervous and muscular systems, • Practicing writing down negative judgments related to one's own behaviors during the past week, • Performing introductory Hatha Yoga exercises.
6	**Meditation**	• Labeling thoughts throughout the day in stressful situations, • Seated meditation at home, • Continuing yoga practice, • Seated meditation: Labeling thoughts and paying attention to emotions in the body.
7	**Paying Attention to Emotions**	• Awareness of positive and negative emotions related to oneself, • Reviewing the previous session's homework assignment, • Reviewing experiences from the previous session, • Paying attention to emotions related to the signs and symptoms of stress in the body.
8	**Wrap-up**	• Reviewing and summarizing the material, and conclusion, • Post-test assessment.

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Results

In the present study, a total of 30 adolescents with social anxiety disorder, aged 15 to 18 years, participated. The descriptive and inferential findings from this research are presented below.
Table 2 shows the mean and standard deviation of the scores for the two experimental and control groups in the pre-test and post-test stages for the variables of anxiety sensitivity, rumination, and self-esteem.

Table 2
Mean and Standard Deviation of Anxiety Sensitivity, Rumination, and Self-Esteem Variables by Group in Pre-Test and Post-Test

			Pre-test		Post-test	
	Group	**Count**	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**
Anxiety Sensitivity	Experiment	15	48.20	9.55	36.60	8.29
	Control	15	47.93	8.54	48.80	7.64
Rumination	Experiment	15	44.73	10.47	37.80	9.68
	Control	15	44.06	10.61	42.92	9.51
Self-Esteem	Experiment	15	4.04	2.29	6.13	2.41
	Control	15	4.06	3.12	4.07	3.03

As presented in Table 2, the mean and standard deviation of the anxiety sensitivity, rumination, and self-esteem variables for each of the experimental and control groups are shown separately for the pre-test and post-test stages. Before

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conducting this analysis, the assumptions related to this analysis were examined. To this end, the results of the Kolmogorov-Smirnov test for normality of distribution of scores were conducted, followed by Box's test to examine the equality of covariance matrices of the dependent variables (anxiety sensitivity, rumination, and self-esteem) at the levels of the independent variable (experimental and control groups). The non-significance of the F statistic in this test indicates the equality of the observed covariance matrices of the dependent variables at the levels of the independent variable.

Table 3
Results of Multivariate Analysis of Covariance on Post-Test Mean Scores of Anxiety Sensitivity, Rumination, and Self-Esteem in Experimental and Control Groups Controlling for Pre-Test

Test Name	Value	F	DF (Hypothesis)	DF (Error)	Significance Level (p)	Eta Squared	Statistical Power
Pillai's test	.90	75.95	3	23	.001	.90	1
Wilks Lambda	.09	75.95	3	23	.001	.90	1
Hotelling's Trace	9.90	75.95	3	23	.001	.90	1
Roy's Largest Root	9.90	75.95	3	23	.001	.90	1

As shown in Table 3, controlling for the pre-test, all tests indicate significant levels, showing that there is a significant difference between the participants in the experimental and control groups in the post-test for anxiety sensitivity, rumination, and self-esteem ($F = 75.95$, $p < .05$). Therefore, the

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research hypothesis is confirmed. To determine which variable shows a difference between the two groups, a one-way analysis of covariance (ANCOVA) was conducted, and the results are presented in Tables 8 to 10. The effect size or difference is equal to 0.90; in other words, 90% of the individual differences in the post-test scores of anxiety sensitivity, rumination, and self-esteem are related to the effectiveness of mindfulness-based stress reduction training on these variables in adolescents with social anxiety disorder (group membership).

Table 4
Results of One-Way Analysis of Covariance on Post-Test Mean Scores of Anxiety Sensitivity in Experimental and Control Groups Controlling for Pre-Test

	Results	sum of squares	DF	Mean Squares	F	P Value	Eta	Statistical Power
Anxiety Sensitivity	Pre-test	1613.55	1	1613.55	258.63	.001	.90	1
	Group	1157.26	1	1157.26	185.49	.001	.87	1
	Error	168.44	27	6.23				

As presented in Table 4, controlling for the pre-test, there is a significant difference between participants in the experimental and control groups in the post-test for the variable of anxiety sensitivity ($p < .05$). Therefore, the research hypothesis is confirmed. In other words, mindfulness-based stress reduction training has led to a reduction in anxiety sensitivity in the experimental group compared to the control group, with 87% of the differences among the experimental group participants attributed to the implementation of the independent variable.

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Table 5
Results of One-Way Analysis of Covariance on Post-Test Mean Scores of Ruminations in Experimental and Control Groups Controlling for Pre-Test

	Results	sum of squares	DF	Mean Squares	F	P Value	Eta	Statistical Power
Rumination	Pre-test	2491.3	1	2491.43	747.48	.001	.96	1
	Group	245.95	1	245.95	73.79	.001	.73	1
	Error	89.99	27	3.33				

As shown in Table 5, controlling for the pre-test, there is a significant difference between participants in the experimental and control groups in the post-test for the variable of rumination ($p < .05$). Therefore, the research hypothesis is confirmed. In other words, mindfulness-based stress reduction training has led to a reduction in rumination in the experimental group compared to the control group, with 73% of the differences among the experimental group participants attributed to the implementation of the independent variable.

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Table 6
Results of One-Way Analysis of Covariance on Post-Test Mean Scores of Self-esteems in Experimental and Control Groups Controlling for Pre-Test

	Results	sum of squares	DF	Mean Squares	F	P Value	Eta	Statistical Power
Self-Esteem	Pre-test	177.17	1	177.17	142.81	.001	.84	1
	Group	23.16	1	23.16	18.67	.001	.40	.98
	Error	33.49	27	1.24				

As presented in Table 6, controlling for the pre-test, there is a significant difference between the participants in the experimental and control groups in the post-test regarding the variable of self-esteem ($p < .05$). Therefore, the research hypothesis is confirmed. In other words, mindfulness-based stress reduction training has resulted in an increase in self-esteem in the experimental group compared to the control group, with 40% of the differences among the experimental group participants attributed to the implementation of the independent variable.

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Discussion

According to the results of the study, the mindfulness-based stress reduction training intervention was effective in reducing anxiety sensitivity, rumination, and improving self-esteem in adolescents with social anxiety disorder. The findings of this study are consistent with those of Tafreshi Amidi Pour et al. (2021), Shakoei et al. (2020), Dai et al. (2024), and Snipey et al. (2017). These results indicate that mindfulness-based stress reduction training for adolescents with social anxiety disorder leads to a significant reduction in anxiety sensitivity and rumination, as well as an increase in their self-esteem in the post-test. Since the mean differences in pre-test and post-test scores for anxiety sensitivity, rumination, and self-esteem in the experimental group compared to the control group are observable, it can be concluded that implementing mindfulness-based stress reduction interventions in adolescents with social anxiety disorder significantly reduces anxiety sensitivity and rumination while improving their self-esteem.

In explaining the impact of mindfulness-based stress reduction treatment on anxiety sensitivity, it should be noted that anxiety sensitivity can be assessed through self-report tools, clinical interviews, and behavioral exercises designed to provoke fear. Additionally, sensitivity to anxiety increases the risk of developing anxiety disorders, while mindfulness-based stress reduction reduces this risk. The recognized importance of anxiety sensitivity in treatment planning has led to the development of therapeutic strategies focused on anxiety sensitivity, both as independent interventions and as procedures included in multi-component treatment programs. One of these strategies is mindfulness-based stress reduction training and its

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techniques, including meditation. Sitting meditation helps us develop greater skills in focus and goal-directed attention. In these exercises, we learn how to gather and concentrate our minds. This skill allows us to calm our minds in the face of a wide range of experiences and to maintain mindful awareness of the present moment. This calming and settling exercise serves as an introduction to expanding awareness to the entire body and to mental and sensory experiences (Yuan, 2021).

In meditation and being present, instead of continuously seeking solutions or outcomes from the current situation, individuals simply live and experience whatever arises in the moment. The key to mindful living is that individuals can integrate both mental states of "being" and "doing" in their lives. In other words, the goal is for individuals to know which state is more suitable for them in each situation. Before any action, individuals must know where they stand on their mental map. The state of "doing" is very important. Individuals need to plan what they want to do, what tasks lie ahead, what food they need to buy, how to interact with their colleagues, and how to respond to everyday issues like children’s disputes. However, just as the state of "doing" is important, there is a need to integrate it with the state of "being." For individuals to be fully aware and conscious of their lives, they must blend these two states. This integration helps them to not always be in a state of doing and trying to change things but also to be present with what is and to have a deeper experience of their lives.

Additionally, the results of the study indicate that the mindfulness-based stress reduction intervention has led to a reduction in rumination. In explaining this finding, it can be said that rumination acts as an inefficient pattern in information

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processing, causing individuals to continuously focus on negative thoughts and worries. Wadd believes that this type of cognitive processing can lead to endless and unhelpful analyses that exacerbate psychological problems and reduce quality of life. This theory emphasizes that rumination acts as a defect in cognitive processing and an inability to change negative thoughts (McLaughlin & Nolen-Hoeksema, 2023). Rumination can increase the tendency toward self-harm. Individuals who ruminate may reach deeper negative emotions due to the continuous repetition of negative thoughts and self-criticism, which can lead to self-harming behaviors.

One effective way to manage rumination is to engage the mind with alternative and positive activities. When our minds are continuously focused on negative thoughts and unpleasant experiences, we get caught in a vicious cycle that is difficult to escape. Here, engaging in activities that promote mindfulness-based stress reduction and change the mental environment can play a significant role in breaking this cycle. For example, if you are constantly thinking about a specific problem and cannot free yourself from it, you might try activities such as reading an engaging book, watching a movie, or listening to music. These activities not only divert your mind from negative thoughts but can also help you think of positive and calming experiences. Furthermore, some activities like yoga, meditation, or walking in nature can also help you achieve greater relaxation and distance your mind from daily pressures. These activities, by creating a calm environment and focusing on breathing and the body, help you break free from the cycle of mental rumination and instead achieve calmness and focus on the present moment,

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which is referred to as mindfulness-based stress reduction (Nolen-Hoeksema, 2000).

In mindfulness-based stress reduction, individuals must be sensitive to the small and subtle changes in their emotions and moods. These minor changes in everyday moments, often overlooked, can have a significant impact on a person's mental state (Barkhordari Sharif Abad & Fallah, 2023). The primary goal of this program is to train participants to be more aware of their internal states in situations where there has been apparent improvement, but the threat of symptom recurrence still exists. For example, participants learn to pay attention to their thoughts, feelings, and internal experiences without reacting quickly or judging them. Throughout the program, they learn to engage with negative thoughts in a meditative and accepting manner rather than through confrontation or struggle. This skill enables them to cope better with their emotional challenges and prevent the recurrence of depressive symptoms. When our minds continuously dwell on negative experiences, it may seem that our entire lives are filled with insurmountable problems and challenges.

The results of the study also indicate that mindfulness-based stress reduction intervention has led to an increase in self-esteem. In explaining this finding, it can be said that the issue of self-esteem and the concept of self-worth are fundamental factors for healthy personality development. One of the most notable characteristics of divergent thinkers is their high self-esteem and sense of self-worth. Self-esteem has always been a vital personal need, particularly gaining special importance in the last decade of the current century. Research on career failures indicates that one of the clear reasons for these failures

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is the fear of decision-making. Everyone, from top executives to frontline workers, needs higher self-esteem, and recognizing this is essential for understanding high unemployment. The concept of self-esteem should not be confused with that of self-concept. Self-concept refers to the set of characteristics an individual use to describe themselves. For example, a person may see themselves as a good football player or an enthusiast for scientific stories, which form the content of their self-concept. However, self-esteem refers to the value that the information within the self-concept holds for the individual and arises from their beliefs about all the traits and characteristics they possess. The concept of depression, from a pathological perspective, is an internal state characterized by sadness, boredom, melancholy, or dejection, encompassing a wide spectrum from normal states at one end to fully pathological conditions at the other (Orth, Robbins & Widaman, 2018).

In this context, it can be said that the ultimate goal of mindfulness-based stress reduction exercises is to expand the detachment from experiences. Instead of getting caught up in thoughts or feelings, we observe them from a distance. During sitting meditation, this skill is developed, helping us connect more directly and deeply with our sensory and mental experiences. In this process, we consciously pay attention to the present moment and gain a better understanding of our experiences without getting caught up in automatic reactions or scattered thoughts. mindfulness-based stress reduction helps individuals identify negative thoughts and beliefs about themselves and prevent their destructive effects on their performance and psychological well-being. This theory suggests that with mindfulness-based stress reduction practice,

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individuals can enhance their positive self-efficacy and feel more in control of their lives and decisions. Harris and Orth (2020) argue that negative self-efficacy, which is the belief in one's inability or incompetence in facing challenges, can be reduced through mindfulness-based stress reduction practice. Individuals can focus on their strengths and capabilities rather than getting lost in negative and destructive thoughts (Harris and Orth, 2020).

The results of this hypothesis showed that mindfulness-based stress reduction helped participants identify and let go of their negative behavioral and cognitive patterns. mindfulness-based stress reduction caused individuals to rely less on their automatic and unconscious reactions and instead respond to situations with greater flexibility. Mindful individuals can choose new and creative solutions when facing life's challenges, allowing them to accept changes rather than resist them and respond with awareness and presence.

However, this research, like other studies, has its limitations. The selection of participants was done through convenience sampling. This study was conducted on individuals with social anxiety disorder in Khorramabad city. Therefore, caution should be exercised in generalizing the findings to other populations. In this study, the trainer and researcher were the same and only individuals with social anxiety disorder were evaluated, while other information sources that could confirm their changes were not considered, and the only data collection method was a questionnaire. Thus, the results are limited to the measurement errors of the questionnaire tool. The lack of a follow-up period is another limitation of this research. Therefore, it is recommended that future studies use random sampling and be

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conducted in other communities as well. Additionally, it is suggested that in future studies, the researcher and trainer be different, and other information sources, such as family and close relatives, be used to confirm changes. Besides questionnaires, qualitative methods such as interviews and assessments should also be utilized, and a follow-up period should be implemented to assess the continuity of treatment effects. Overall, considering the effectiveness of this method on anxiety sensitivity, rumination, and self-esteem, it is recommended that youth counselors use this therapeutic approach to improve anxiety sensitivity and rumination and enhance the self-esteem of adolescents with social anxiety disorder, as well as strengthen family dynamics to reduce anxiety disorders in adolescents. These results imply that adolescent counselors can also utilize this method to improve self-esteem and reduce anxiety disorders.

Ethical Standards

This research was conducted in accordance with all principles of confidentiality and the privacy of participant information.

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