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Effects of Mindfulness Training on Alexithymia and Resilience of Psychosomatic Patients

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Abstract

Background: A psychosomatic illness is a mental disorder that manifests physical symptoms without any clear physiological cause.

Objectives: The main objective of this research was to investigate the effects of mindfulness training on the levels of alexithymia and resilience in individuals suffering from psychosomatic disorders.

Methods: This study was conducted using a quasi-experimental pretest-posttest control group design. It specifically examined women who were diagnosed with psychosomatic disorders and sought treatment in Tehran in 2019. A total of 30 women were selected via convenience sampling and randomly assigned to experimental and control groups. The experimental group took part in eight 150-minute sessions of mindfulness intervention. The tools used for assessment during the pre-test and post-test phases were the Toronto Alexithymia Scale and the Conner-Davidson Resilience Scale. The data were analyzed in SPSS software (version 19) using analysis of covariance.

Results: The multivariate analysis of covariance demonstrated a significant difference between the two groups in dependent variables ($P<0.05$). The results of the univariate analysis of covariance for the variables of alexithymia and resilience revealed that mindfulness training had a significant impact on alexithymia and resilience in psychosomatic women during the post-test phase, as compared to the control group ($P<0.05$).

Conclusion: As evidenced by the results of this study, mindfulness training had a significant effect on decreasing alexithymia and boosting resilience in women with psychosomatic symptoms.

Keywords: Alexithymia, Mindfulness, Psychosomatic, Resilience

1. Background

Psychosomatic disorders are physical illnesses that manifest following the occurrence of severe stress. They encompass biological, anatomical, or physiological disorders that arise from susceptibility to stress in individuals (1). Individuals' mental state can impact their physical condition; therefore, some physical problems can be traced back to their stressors and daily life pressures (2). Psychosomatic disorders are a collection of medical conditions that pertain to the connection between the body and mind. The development of each physical illness is impacted by biological, psychological, behavioral, and social elements (3). In the etiology of

psychosomatic disorders, stress, in interaction with biological and genetic potentials, is considered a fundamental element in the development or exacerbation of psychosomatic disorders (4).

When identifying and describing emotions is disrupted for any reason in the emotional information processing system, psychological helplessness blocks the ways of analysis and logical thinking, limiting the individual's cognitive style to objective, pragmatic, and reality-oriented thinking. In this state, the person suffering from alexithymia prefers to be merely an observer of events and does not engage in analyzing and interpreting them, restricts their relationships and activities to objective matters, and fundamentally disregards their own and others' emotions (1,4). There is ample evidence that alexithymia and difficulty in identifying and expressing emotions are related to multiple physical health problems (5). Moreover, a wide array of studies have pointed out that the features of alexithymia exist not only in disorders referred to as psychosomatic disorders in traditional psychopathology but also other severe chronic physical and mental disorders (6,7).

One of the other variables of interest is resilience, which explains how individuals cope with unexpected situations (8). The growth of resilience processes can be beneficial in mitigating the emotional and psychological impact of stressful factors in adults (9). The findings of the study by Makas et al. (10) demonstrated that the resilience factor directly impacts emotional well-being and indirectly impacts overall life contentment (10). In other words, resilience leads to positive emotions, attitudes, and satisfaction with life (11). Resilience is not simply passive resistance to threats or damaging conditions; a resilient individual actively participates in and contributes to their environment (12). It is self-repair accompanied by positive emotional, affective, and cognitive outcomes (11).

Given the increasing growth of stress and psychosomatic disorders in industrial societies today, there is a growing need to employ more effective techniques to reduce these risks more than ever. One of the interventions that is expected to impact such conditions is mindfulness training (13,14). Mindfulness-based interventions have successfully treated various clinical disorders and physical ailments by addressing physical and mental components (15,16). A multitude of mindfulness-based interventions and therapies have emerged in the past two decades, including the mindfulness-based stress reduction (MBSR) approach developed by Kabat-Zinn (17) and the mindfulness-based cognitive therapy (MBCT) approach developed by Williams et al. (18). These approaches highlight practices, such as sitting meditation, walking meditation, and yoga exercises (17,18). These interventions involve attention exercises where individuals concentrate on a particular stimulus, such as breathing or bodily sensations, for a specific duration using relaxation and cognitive techniques (13-16). Mindfulness techniques effectively improve muscle relaxation and decrease worry, stress, and anxiety (19).

It appears that mindfulness works mainly by helping individuals control their attention. A conducive attentional atmosphere is created by consistently focused attention on a neutral stimulus, such as breath (19-22). The MBSR is a structured group program to lower stress levels, promote mental well-being, and alleviate pain and distress (21,22). A review study analyzing 15 research trials on various conditions, such as fibromyalgia, chronic pain, rheumatoid arthritis, type 2 diabetes, chronic fatigue syndrome, multiple chemical sensitivity, and cardiovascular diseases, all pointed to positive therapeutic outcomes of mindfulness interventions. It was also noted that mindfulness has no specific side effects

or adverse consequences (23).

2. Objectives

In this regard, the essential goal is to choose and implement methods that lower stress, increase the well-being of individuals, and create favorable conditions to adapt to the most suitable situation. Therefore, considering the high prevalence of psychosomatic disorders and their consequences, and given that research indicates the impact of mindfulness on stress and psychological disorders, the present study seeks to assess the effect of mindfulness training on alexithymia and resilience in psychosomatic patients.

3. Methods

This study was conducted based on a quasi-experimental pretest-posttest control group design. The statistical population for this study consisted of women attending psychosomatic treatment centers in Tehran in 2019. Cohen's table was utilized in this study to determine the sample size. Cohen's table considers two factors for sample size estimation: 1) Power of the test, which refers to the test's ability to detect existing differences, and 2) Effect size, which indicates the expected differences between groups. Using a test power of F=0.76, an effect size of 0.5, and a significance level of α=0.05, the sample size for each group was calculated at 15 cases.

The inclusion criteria for participants in the study involved having a confirmed diagnosis of psychosomatic disorder, an illness duration exceeding six months, female gender, an age range of 30-45 years, possessing a high school diploma or higher education, the absence of severe mental disorders in axis 1 and 2, and mere use of standard medical care during the study. Although the initial selection of the sample group was not random, and participants were selected via convenience sampling based on specific criteria, allocating individuals to the groups was performed randomly. Many 15 individuals were assigned to the experimental group, while the remaining 15 cases were allocated to the control group.

The participants willingly participated in the study, with ethical and legal considerations considered when forming the sample groups. They were given the option to withdraw from the research at any point without any pressure. To begin the study, participants were fully informed about the nature of the research and assured that their information would be kept confidential. Conducting the research did not pose any risks to the participants. After completing the necessary administrative procedures and collaborating with experts from psychosomatic treatment centers in Tehran, the desired sample of voluntary patients was selected based on specific research criteria. A total of 30 individuals who agreed to participate were invited to the clinic for an introductory session on mindfulness concepts, ensuring confidentiality and receiving research consent. The participants then completed pre-test questionnaires on alexithymia and resilience, followed by random assignment to two groups.

The control group remained separate from the training program, while the experimental group underwent weekly mindfulness group sessions for eight weeks Table 1. The sessions, designed by the researcher, were based on Jon Kabat-Zinn's MBSR program (17). Each session included specific content and ended with home exercise instructions for the participants. After the eight-week training, both groups underwent a post-test simultaneously using research tools. A detailed overview of the structure and components of the study can be observed in Figure 1, displaying the consort model.

Table 1. Overview of the eight-session mindfulness-based stress reduction program

Sessions	Overview of the session
Session one	Analyzing the nature of session formation and introducing mindfulness, gaining awareness of stressors and stress responses, examining awareness of pleasant and unpleasant events on emotions, thoughts, and bodily sensations, practicing body scan meditation, providing feedback, and discussing body scan exercises
Session two	Reviewing last week's assignment, teaching relaxation through creating tension and releasing it in muscles associated with emotions, muscle relaxation exercise, five-minute visual or auditory exercise, teaching judgment, teaching mindful walking, and mental absorption exercises
Session three	Reviewing last week's assignment, identifying emotions and emotional regulation skills, identifying emotions without empathizing with them, separating emotions from oneself and reducing emotional distress, teaching mindful breathing meditation, and practicing breath control
Session four	Reviewing last week's assignment, practicing mindful breathing and body scan exercises, applying relaxation techniques in different situations and daily activities, teaching yoga skills, practical interpersonal communication skills, and courage learning strategies
Session five	Reviewing last week's assignment, teaching tolerance skills, mental visualization (anger management), three-minute breathing space exercise, and seated meditation (awareness of breath, body, sounds, and thoughts)
Session six	Reviewing last week's assignment, unconditional love and friendship meditation, relaxation training, and mindfulness activity, practicing seated meditation, mindful yoga, and discussing seeing thoughts differently or vicarious thoughts.
Session seven	Reviewing last week's assignment, completing mindfulness, reviewing sessions 4, 5, 6, and repeating the exercises of previous sessions, sleep hygiene, and preparing a list of enjoyable activities
Session eight	Reviewing last week's assignment, body scan exercise, and summarizing the topics covered in previous sessions

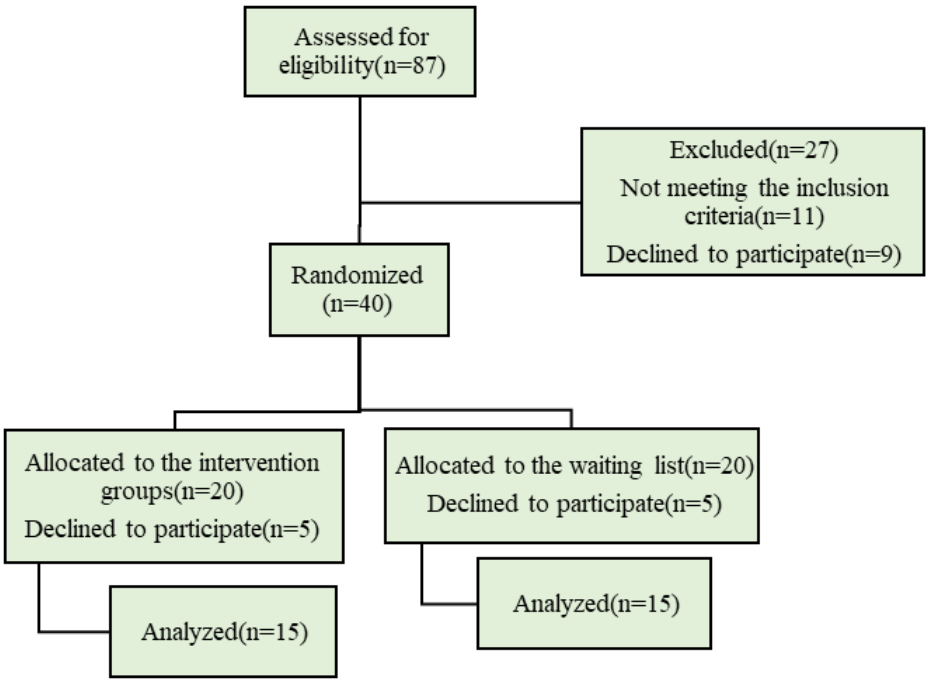

Figure 1. Consort model

Measures

Toronto Alexithymia Scale (TAS-20): Bagby et al. discovered in their research that the TAS-20, a self-report measure with 20 items, includes three structural components related to alexithymia (24). These include difficulty recognizing and expressing feelings and a tendency towards external thinking. Respondents rate the items on a 5-point Likert scale, ranging from 1 for complete agreement to 5 for complete disagreement. The minimum possible score on the questionnaire is 20, while the maximum is 100. A higher total score on the scale indicates a greater degree of

alexithymia. Besharat (2007) found Cronbach's alpha coefficients of 0.85 for the overall TAS-20 scale and 0.82, 0.75, and 0.72 for difficulty identifying feelings, difficulty describing feelings, and externally-oriented thinking subscales, respectively (25).

Connor-Davidson Resilience Scale (CDRS): This 25-item scale was developed by Connor and Davidson (26). The items are rated on a five-point Likert scale, ranging from zero (never) to four (always). In this scale, there is no reverse scoring. In this scale, resilience is measured on a scale from zero to 100, with zero being the lowest and 100 being the highest score possible. A participant's resilience is determined by their score, with higher scores indicating greater resilience. The threshold for resilience in this questionnaire is set at 50. Scores above 50 signify individuals with resilience; the higher the score above 50, the stronger the individual's resilience. The reliability and validity of the Persian version of this scale have been established through initial research with both normal and patient populations. Jowkar et al. (2007) examined the reliability of this scale among students and reported a reliability of 0.93 (27).

Method of data description and analysis

The collected data was analyzed using descriptive statistics, while inferential statistics were utilized to test the research hypotheses. Descriptive statistics were applied to determine central tendency indices, dispersion measures, and frequency distribution tables. In addition, the data were analyzed using analysis of covariance (ANCOVA), a hierarchical regression analysis aimed at removing the effects of specific variables from the dependent variable before examining the remaining variance. This method is commonly used in experimental research. Notably, certain assumptions must be fulfilled when using ANCOVA, including a normal distribution of scores (assessed by the Kolmogorov-Smirnov test), the equality of variances between experimental and control groups, and the equality of regression slopes between the two groups. Independent samples t-tests and chi-square tests were used to examine the differences in demographic characteristics between the groups based on the type of variable scale. Nonetheless, no significant differences were found between the two groups regarding age, education, and illness type. Therefore, these variables were controlled and not included in the statistical calculations. Moreover, gender was controlled from the beginning by selecting only female participants. Data analysis was conducted using SPSS software (version 19) for descriptive and inferential analysis.

4. Results

The study involved 30 participants, all female, within the age range of 30-45 years. The mean age scores were 37.80 and 37.47 in the experimental and control groups. The participants had varying levels of education, including a high school diploma, associate's degree, and bachelor's degree. In the experimental group, 10 participants had a high school diploma, 3 had an associate's degree, and 2 had a bachelor's degree. In the control group, 9 had a high school diploma, 5 had an associate's degree, and 1 had a bachelor's degree. Regarding psychosomatic illnesses, 9 participants in the experimental group had digestive disorders, and 6 had heart disease, while in the control group, 10 had digestive disorders and 5 had heart disease.

Table 2 displays the mean scores of alexithymia and resilience in the pre-test and post-test for control and experimental groups. The results indicate no notable difference in the levels of alexithymia (65.87±3.90) and resilience (60 ± 5.18) between the intervention group's pre-test scores. However, a significant change is observed in the post-test scores for the intervention group, with a decrease in

alexithymia (47.20±7.77) and an improvement in resilience (61.20±9.17). As illustrated in Table 3, the significance level for both alexithymia and resilience variables was 0.000 (P<0.05), indicating a significant difference between pre-test and post-test groups with 95% confidence. The effect size was calculated to be 47%, signifying that 47% of the variation in post-test alexithymia and 58% of post-test resilience can be attributed to mindfulness training. In conclusion, the mindfulness intervention reduced alexithymia and improved resilience in psychosomatic women. It can be inferred that mindfulness training had a greater impact on enhancing resilience in these women.

In Table 4, it is evident that the mean value of the experimental group is 58.89, which is lower than the mean value of the control group (63.84), suggesting the notable impact of mindfulness training on alexithymia. Furthermore, the mean value of the experimental group is 63.17, higher than the mean value of the control group (51.02), indicating the significant effect of mindfulness training on resilience.

Table 2. Mean and standard deviation of variables

Variable	Group	Pre-test	Post-test
		M ± SD	M ± SD
Alexithymia	Control	63.80 ± 5.33	62.73 ± 6.10
	Experimental	65.87 ± 3.90	60 ± 5.18
	Total	64.83 ± 4.71	61.37 ± 5.73
Resilience	Control	51.40 ± 6.24	53 ± 7.44
	Experimental	47.20 ± 7.77	61.20 ± 9.17
	Total	49.30 ± 7.25	57.10 ± 9.20

Table 3. Results of the univariate analysis of covariance

Dependent variable	Source	SS	df	MS	F	P-value	Eta	Power
Alexithymia	Pre-test	703.43	1	703.43	98.15	000.0	78.0	1
	Group	174.54	1	174.54	24.35	000.0	47.0	1
	Error	193.49	27	7.16				
	Total	113929	30					
Resilience	Pre-test	1227.94	1	1227.94	45.63	000.0	62.0	1
	Group	1010.19	1	1010.19	37.54	000.0	58.0	1
	Error	726.45	27	26.90				
	Total	100271	30					

Table 4. The adjusted mean of the variables

Group	Adjusted mean	Standard deviation
Alexithymia (Experimental)	89.58	7.0
Alexithymia (Control)	84.63	7.0
Resilience (Experimental)	17.63	37.1
Resilience (Control)	02.51	37.1

5. Discussion

The effectiveness of MBSR training on alexithymia and resilience in psychosomatic patients was examined in the study. The findings pointed out that the intervention can significantly improve these patients' alexithymia and resilience. A noticeable discrepancy regarding alexithymia and resilience was observed between the two groups. The results of covariance analysis revealed a notable distinction between the experimental and control groups in post-test alexithymia. The independent variable of mindfulness training was found to positively impact alexithymia, resulting in a decrease in the experimental group. These outcomes align with previous studies by Norman et al. (28) and Farzadkia et al. (29).

A meta-analysis revealed that

mindfulness-based treatment significantly impacted alexithymia, as measured by the Toronto Alexithymia Scale. Subgroup analysis was carried out to explore the differences further. A meta-analysis highlighted a marked decrease in heterogeneity, focusing only on interventions lasting three months or less (28). In their study on the consequences of mindfulness, Farzadkia et al. stated that mindfulness skills training effectively mitigated alexithymia and improved mental health in fibromyalgia patients (29). Mindfulness is a psychological-educational approach that helps individuals practice mindfulness meditation in mental-physical treatment. Mindfulness training is an experiential exercise that enables people not to be captive to the circumstances of events and have the capacity for choice and influence. In addition to the role of mindfulness training, complex emotional interactions within groups provide the opportunity to model successful behaviors and enable individuals to discover their value, usefulness, and uniqueness by helping others, thereby experiencing better well-being and finding new meaning in their lives (17).

The role of mindfulness in emotion and mood indicates that mindfulness predicts self-regulatory behavior and positive emotional states; moreover, it can cause positive changes in happiness and well-being by combining joy and clear perception of experiences (16,17). In addition, this intervention reduces anxiety symptoms and significantly improves cognitive impairment and emotional processing (15,18). The previous results illustrated that mindfulness is associated with psychological well-being, high positive emotions, low negative emotions, and life satisfaction. Mindfulness skills help self-regulatory behavior and positive emotional states; moreover, an increase in mindfulness is associated with a decrease in mood disturbance and stress (20,21).

Based on the current research, MBSR training enhanced resilience in the experimental group compared to the control group. This finding is consistent with the results of the studies conducted by Godara et al. (31), Demir (32), Kumari Adelian et al. (34), and Baumgartner and Schneider (35). Godara et al. (31) found that mindfulness training positively affected mental health, resilience, and social capacities during the COVID-19 pandemic. Other studies also indicate that mindfulness training leads to reduced psychological distress, anxiety, and depression (32), improved mental, physical, emotional, and spiritual well-being (33), improved sleep quality (34), and reduced physical symptoms (35).

In justifying the effectiveness of mindfulness training in resilience, it can be stated that mindfulness training techniques focus attention on neutral stimuli and intentional awareness of the body and mind through encouraging individuals to engage in repeated, helps psychosomatic individuals detach from mental preoccupation with threatening thoughts and concerns about their illness, and enables them to disengage from automatic thinking patterns. In other words, increasing individuals' awareness of present-moment experiences and redirecting attention to cognitive processing and more efficient information processing reduce anxiety and physiological tension (34). Since mindfulness is a non-judgmental and balanced state of awareness that assists in seeing and accepting emotions and physical phenomena as they arise, teaching it to psychosomatic individuals who experience psychological problems allows them to acknowledge their emotions and weaknesses. Moreover, accepting and embracing these emotions reduces excessive attention and sensitivity to disease symptoms in them (35).

While breathing meditation,

transcendental meditation, and clinical meditation emphasize focus as a key component of mindfulness, mindfulness emphasizes non-judgmental awareness. Mindfulness, emphasizing non-judgmental awareness, is presented as a different meditation approach to health and illness. These practices allow the individual to change their physical and psychological experiences, which are the subject of meditation (17). The emphasis on the impact of mindfulness on individuals' physical and psychological states has led to widespread attention to the role of meditation exercises in clinical settings. Particularly due to its emphasis on stress and stress reduction, it has opened up a new avenue in the use of meditation in psychological and physical domains (31,32).

There are limitations in this study, including the use of self-reporting measures. Participants may have consciously or unconsciously distorted their responses. Nonetheless, participants were asked not to provide their full names to prevent this limitation and were assured that their answers would remain confidential. In this study, controlling variables, such as psychiatric history, personality traits, and environmental factors, was impossible. The cross-sectional design used in this study limits the opportunity to examine causality. The small sample size should also be noted. As the study sample only included patients with digestive disorders and cardiac patients, great caution should be exercised when generalizing the results to other psychosomatic conditions. There was no possibility of complete randomization of participants. Therefore, the findings may have been affected by the sampling method. Therefore, caution should be exercised when generalizing the results of this study. The lack of a follow-up period due to time constraints should also be acknowledged. The application of the MBSR method in other clinical populations should also be investigated. The impact of the MBSR method should be studied in psychosomatic women and psychosomatic men, and the effectiveness should be compared between genders. It is recommended to investigate the impact of the MBSR method on other psychosomatic conditions and compare its effectiveness with different diseases and even with healthy individuals.

6. Conclusion

The findings of this research indicate the necessity of integrating various branches of science to solve problems that have physical, psychological, and social aspects. Such therapeutic approaches bring meaning to life and can be utilized in specialized clinics and psychosomatic disorder service centers to solve the problems of these individuals. It is also recommended that mental health professionals implement a consistent and comprehensive program using mindfulness training to improve individuals' alexithymia and resilience to prevent the consequences of these psychological variables. Training courses on mindfulness concepts should be conducted for nurses and therapists in psychosomatic disorder treatment centers to facilitate patient knowledge transfer.

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Conflicts of interests: Not Applicable

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the Consent to Publish form.

Ethics approval and consent to participate: This article was extracted from a thesis submitted by the author (code of ethics: IR.IAU.GARMSAR.REC.1398.224). This study was conducted following the principles of the Declaration of Helsinki.

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