

Comparing the Effectiveness of Mindfulness-based Stress Reduction and Intensive Short-term Dynamic Psychotherapy in Reducing Intolerance of Uncertainty and Depression in Women with Fibromyalgia

Mahta Farzadkia¹, PhD Candidate;  Abdolhassan Farhangi^{2*}, PhD;  Shahnam Abolghasemi¹, PhD

¹Department of Psychology, Tonekabon Branch, Islamic Azad University, Tonekabon, Iran

²Department of Psychology, Tehran North Branch, Islamic Azad University, Tehran, Iran

*Corresponding author: Abdolhassan Farhangi, PhD; Department of Psychology, Tehran North Branch, Islamic Azad University, Postal code: 16511-53311, Tehran, Iran. Tel: +98 21 77009836; Fax: +98 21 77317998; Email: abdolhasanfarhangi@gmail.com

Received: September 16, 2022; Revised: October 30, 2022; Accepted: December 01, 2022

Abstract

Background: Patients with Fibromyalgia, in addition to widespread pain, often complain of fatigue, sleep disorders, cognitive impairment, anxiety, and depression. The present study aimed to investigate the effectiveness of mindfulness-based stress reduction and intensive short-term dynamic psychotherapy on intolerance of uncertainty and depression in women with Fibromyalgia.

Methods: This was a quasi-experimental study with a pretest-posttest control design and a three-month follow-up. The study population included all women with Fibromyalgia visiting the rheumatology clinic at Hazrat-e Rasool-e Akram Hospital, in Tehran, Iran, in 2021. A total of 36 patients were recruited using purposive sampling and assigned to three groups, two experimental groups and one control group (n=12 patients in each group). The experimental groups 1 and 2 received mindfulness-based stress reduction therapy and intensive short-term dynamic psychotherapy, respectively, in eight 120-minute sessions (one session every week). Meanwhile, the control group did not receive psychotherapy intervention during this period. The Intolerance of Uncertainty Scale and the Beck Depression Inventory were used for data collection. The repeated measures ANOVA were used for analyzing the data in SPSS version 25. The significance level of the research was set at $\alpha=0.05$.

Results: The results indicated that both mindfulness-based stress reduction therapy and intensive short-term dynamic psychotherapy effectively reduced intolerance of uncertainty and depression in Fibromyalgia patients ($P<0.001$). However, intensive short-term dynamic psychotherapy proved to be significantly more effective than mindfulness-based stress reduction therapy; this difference was observed through the follow-up period ($P<0.001$).

Conclusion: Mindfulness-based stress reduction and intensive short-term dynamic psychotherapy were effective and practical methods for reducing intolerance of uncertainty and depression. It could be therefore recommended that psychotherapists and counselors employ these approaches in order to reduce depression and intolerance of uncertainty in women with Fibromyalgia.

Keywords: Uncertainty, Depression, Psychotherapy, Fibromyalgia, Women

How to Cite: Farzadkia M, Farhangi A, Abolghasemi S. Comparing the Effectiveness of Mindfulness-based Stress Reduction and Intensive Short-term Dynamic Psychotherapy in Reducing Intolerance of Uncertainty and Depression in Women with Fibromyalgia. Women. Health. Bull. 2023;10(1):44-51. doi: 10.30476/WHB.2023.97334.1206.

1. Introduction

Fibromyalgia (FM) is one of the most prevalent musculoskeletal disorders (MSDs) in adults. It is characterized by a chronic pain syndrome with unknown etiology, widespread pain, and generalized tender points, joint stiffness, headache, as well as emotional and cognitive disorders (1, 2). The most frequently reported complaint by patients with Fibromyalgia is pain all over the body. They often describe muscle and tissue pain in different forms, including dull, throbbing, and wound-like pain as well as tingling, numbness, and stabbing sensations (3). In addition to widespread pain, patients with Fibromyalgia often complain of fatigue, sleep disorders, cognitive impairment, anxiety, and depression (4). Studies showed that

patients with Fibromyalgia are more likely to be affected by emotional distress, including anxiety and depression, which can in turn increase pain and intensify the symptoms according to the gate control theory of pain (5, 6). Depression is a major factor in pain chronicity and chronic pain can also lead to depression (7). Together with emotional distress, such as anxiety and depression, patients with Fibromyalgia suffer more from alexithymia and suppression, which intensify their symptoms and pain (8). In this regard, de Jong-Meyer and colleagues (9) concluded that intolerance of uncertainty (IU) had a strong relationship with rumination, depression, and reduced mental health.

IU is defined as a cognitive bias that affects

how a person perceives, interprets, and responds to uncertain situations on a cognitive, emotional, and behavioral level (10). Individuals who cannot tolerate uncertainty describe uncertain situations as stressful, negative, and pressure. They try to avoid them as they may face functional problems in such situations (11). Along with the three other cognitive components, namely negative orientation towards a problem or disease, cognitive avoidance, and positive beliefs to concern, IU plays a key role in worry and anxiety acquisition and maintenance in patients. People with IU believe that uncertainty is distressing, and that doubt and uncertainty about the future are negative intolerable and unexpected events that should be avoided. In their view, doubt and uncertainty cause dysfunctions (12). Considering the occurrence of psychological disorders in patients with FM, such as intolerance of uncertainty and depression, the use of psychological interventions can help improve the psychological condition of these patients (5).

Mindfulness-based stress reduction (MBSR) therapy can help with depression, anxiety, and psychological adjustment (13). It can be argued that behavioral therapy has evolved over the last decade, expanding the field of behavioral psychology. Newer forms of cognitive-behavioral therapies, known as the “third wave” of behavioral therapies, emphasize full awareness, acceptance, relationship therapy, spirituality, values, meditation, living in the present moment, and emotional expression (14, 15). Full awareness refers to being aware of experiences welcomingly and performing activities based on non-judgmental awareness. In practicing full awareness, clients intentionally focus on the present experience and at the same time, keep their distance from it. Full awareness involves cultivating an attitude of curiosity and compassion toward the present experience. Clients learn to concentrate on one thing at every moment and bring their focus back to the present when they get distracted (16). Intensive short-term dynamic psychotherapy (ISTDP) is another psychotherapy intervention to help with the psychological problems of patients with FM (17).

In ISTDP, clients receive help to learn how to confront their emotions or conflicts to solve their problems. Such emotions and conflicts can stem from early deprivations and harms in life, and once activated by a present stressful incident, anxiety, and defenses, they are mobilized (17, 18).

The outcome is a combination of anxiety, corporealization, depression, avoidance, self-defeating patterns, and interpersonal problems. In ISTDP, clients receive help in order to regulate their anxiety and change it against their defenses to face the emotions they have avoided. By resolving their unconscious conflicts, clients find more satisfactory ways to solve their problems (19). Clinical evidence not only supports the effectiveness of ISTDP in resolving interpersonal conflicts and improving emotional distress, but also shows post-treatment continuation of progress and improvement (20, 21). The psychological needs of patients with FM and insufficient research with minimal methodological problems further highlight the necessity of conducting research in this field. Given the importance, prevalence, and widespread outcomes of chronic pain and lacuna in the literature, the significance of this study is attributable to determining the role of psychological factors involved in adapting to FM. Accordingly, the present paper aimed to compare the effectiveness of MBSR and ISTDP in IU and depression among women with FM.

2. Methods

2.1. Design and Participants

This was a quasi-experimental study with a pretest-posttest control design and a three-month follow-up. The study population included all women with FM visiting the rheumatology clinic at Hazrat-e Rasool-e Akram Hospital, in Tehran, Iran, in 2021. The participants were recruited via purposive sampling. The sample size consisted of 36 patients with FM, who consented to participate in the research (n=12 women per group); based on G*Power software with a significance level of 0.05, a test power of 0.90 and an effect size of 1.42 was set (22). The inclusion criteria were women with FM, in the age range of 20-50, with a minimum of middle school education, and without a history of neurologic disease, mental illness, or hospitalization. The exclusion criteria were noncooperation and failure to do weekly tasks, absence from more than two sessions.

2.2. Procedure

The sampling began after securing the approval of the officials at Hazrat-e Rasool-e Akram Hospital. Women with FM who met the

inclusion criteria entered the study after signing the informed consent and following the initial examinations by the researcher. The participants were selected based on the purposive sampling method and the inclusion criteria. Primarily, 36 of the interviewed women with FM in Hazrat-e Rasool-e Akram Hospital were randomly assigned to two experimental groups (MBSR and ISTDP) and a control group. In this study, the participants were divided into experimental and control groups through simple randomization method using a table of random numbers. Subsequently, they were briefed on the research objectives, stages, confidentiality of the obtained results, and the right to withdraw from the research anytime they wanted to. In the pretest stage, all the three groups completed the research questionnaires. The first experimental group then received the MBSR therapy (individually). This program was organized in eight 120-minute sessions (one session per week) based on Kabat Zinn's MBSR program (23). Table 1 presents a summary of the MBSR sessions. The second experimental group received the ISTDP program (individually). This treatment was organized in eight 120-minute sessions as well (one session per week) based on Dovanlo's ISTDP intervention, which was implemented according to the psychological structure and the ego strength and problems of each patient (24). Table 2 depicts a summary of the ISTDP sessions. The control group; however, did not receive any treatment during the therapeutic interventions for the experimental groups and until the end of the posttest stage. The intervention sessions in this study were conducted by the first author who had attended specialized courses and workshops. Following the treatment sessions, all the participants were re-evaluated

by the instruments (posttest stage). Afterwards, there was a follow-up test based on the research objectives, three months after the last intervention session. Ethically, there was no relationship between the control and experimental groups during the study. The control group was treated by a specialist according to the current protocol and without any researcher intervention. At the end of the study, the control group received either the MBSR or the ISTDP program in the form of a training package.

2.3. Instruments

2.3.1. (25). It is a 27-item scale for assessing IU and ambiguity that often leads to frustration, stress, and inability to act. The items are answered based on a 5-point Likert scale (1=never, 2=rarely, 3=sometimes, 4=often, 5=always), with the minimum score being 27 and the maximum score being 125. A higher score on this scale indicates greater intolerance of uncertainty (25). The Content Validity Index (CVI) (0.94) and Content Validity Ratio (CVR) (0.91) confirmed the IUS's content validity (26). Abdolpour and colleagues (26) reported a Cronbach's alpha of 0.69 for the scale.

2.3.2. Beck Depression Inventory - Second Edition (BDI-II): The BDI-II was developed by Beck and colleagues (27). The BDI-II is a self-report inventory measuring the severity of depression in people over the age of 13. It is a 21-item instrument for assessing the symptoms of depression (such as sadness and feelings of failure and guilt). The items are rated on a 4-point continuum from 0 (minimal or mild depression) to 3 (severe depression). The total score is calculated by summing up the scores of the items, ranging from 0 to 63 with higher

Table 1: A summary of the mindfulness-based stress reduction program

Session	Content
One	Introducing the automatic guidance system/using present-moment awareness of bodily sensations, thoughts, and emotions to reduce stress/the Raisin Exercise, giving feedback, and discussing the exercise/the three-minute breathing space
Two	Repeating the practice of body scan/giving feedback and discussing this practice/mindfulness meditation breathing exercise/yoga stretching exercise
Three	Sitting mindfully with awareness of breathing (sitting meditation)/yoga exercises/the three-minute breathing exercise
Four	Repeating the body scan exercise/mindfulness yoga exercises/conducting five-minute "seeing or hearing" exercises/repeating mindful sitting with breath and body awareness
Five	Doing breathing exercises/repeating mindful sitting (awareness of breath, body, sounds, thoughts)/explanations regarding stress and determining participants' reactions to stress/ examining awareness of pleasant and unpleasant events on feelings, thoughts, and bodily sensations/mindful yoga exercises/the three-minute breathing space exercise
Six	Doing mindful yoga/sitting meditation (awareness of sounds and thoughts)
Seven	Conducting mountain meditation/repeating exercises from previous sessions/preparing a list of enjoyable activities
Eight	Doing the body scan exercise/reviewing the entire program/examining and discussing the program/doing stone, bead, and marble meditation

Table 2: A summary of intensive short-term dynamic psychotherapy sessions

Session	Content
One	After the interview and obtaining preliminary information, there was a search for the symptoms and personal problems of the patients. The focus was on objective responses and feelings (encouraging the patients to experience authentic feelings). Vague and general answers by the respondents were expressed more objectively with appropriate speech intervention and problem description. Finally, the patients were helped to gain a better and more thorough understanding of their feelings and to express problems objectively and clearly. Taking the ego strength and insight of the participants into problems and feelings into consideration, the stages of ISTDP were pursued as thoroughly as possible.
Two	The personal problems of the patients were dealt with more objectively and in more detail. The deeper examination of internal problems and conflicts activated more psychological defenses. One of the most important goals of this session was to familiarize the patients with their defenses and change them from self-congruent to self-incongruent.
Three	When the participants faced deeper emotions and psychological defenses, more interpretations and investigations were made. Incongruent self-defenses were targeted again and challenged considering the patient's anxiety tolerance level. These challenges led to the emergence of transference resistance and provided appropriate content related to subconscious concepts. One of the most important objectives of this session was interpreting and revealing defenses for experiencing transference feelings.
Four	This meeting started with questions about the status quo and the problem raised by the patient. Given the increase in the capacity and insight of the patient and the experiences of previous sessions, the intervention continued more deeply and objectively. The pressure to experience and then interpret and analyze transitional feelings was one of the most important parts of this session.
Five	The problems and emotions of the patients were investigated in specific stages. The relationships between the patients' depression and intolerance of uncertainty and alexithymia and the severity of their fibromyalgia symptoms were explained to them. Then, the patients were asked to contemplate their life problems based on the new insight they gained from the sessions. During this session, the problems the patients faced were raised. In addition, exploration of feelings, neutralization of defenses, and attempts at experiencing authentic feelings continued.
Six	The discussed items were mostly an exploration of the feelings of the patients and a study of how these feelings were related to their relationships with the disease, the scanning process, defense, defense neutralization, and the feelings they experienced and their interpretation process. These items were carried out continuously taking into account the patient's ego strength.
Seven	In this ISTDP session also, the patients expressed their real-life problems. Any content expressed in the session was followed up and explored and finally, the feelings were really experienced. At the end of the session, the patient's thinking patterns in relation to their internal conflicts, and also with respect to their disease, were investigated and interpreted.
Eight	This session was devoted to summing up all the therapeutic content. Insight into one's underlying feelings, the revelation of defense mechanisms and thought patterns related to one's internal conflict, and the way these defense mechanisms were raised about one's disease and existing problems were investigated and analyzed during this session.

scores indicating greater severity of depression (27). The CVI (0.98) and CVR (0.96) confirmed the BDI-II's content validity (28). Ghassemzadeh and colleagues (28) reported an alpha Cronbach coefficient of 0.87 for the questionnaire.

2.4. Statistical Analyses

Descriptive and inferential statistics were used for data analysis in SPSS version 25. We utilized the Kolmogorov-Smirnov test to check the normality of the data. In addition, through the use of Levene's test, the homogeneity of variances was checked. Repeated measures analysis of variance (ANOVA) was also used for examining the significance of the differences concerning the IU and depression scores between the two experimental groups and the control group.

3. Results

The participants comprised 36 patients with

FM. The mean±SD age of the women in the MBSR, ISTDP, and control groups were 37.91±5.28, 41.77±6.21, and 38.26±5.63 years, respectively. Table 3 represents the demographic variables of patients with FM. Moreover, Table 4 shows the mean and standard deviation (pretest, posttest, and follow-up) of the research variables.

The results of the Kolmogorov-Smirnov test confirmed the normality of the data. Levene's test of homogeneity of variances demonstrated the equality of variances for the variables in the study groups in the pretest, posttest, and follow-up. The results of the repeated measures multivariate ANOVA revealed that the between-group effects were significant, indicating that at least one of the groups was different in at least one of the variables of depression and IU ($P < 0.001$). The within-group effects (time) were significant for the variables, suggesting over-time changes in at least one of the mean variables from the pretest to follow-up ($P < 0.001$).

Table 3: Demographic variables of the patients with Fibromyalgia

Groups	Mean±SD age (years)	Education		Marital status	
		High school education	College education	Married	Single
MBSR	37.91±5.28	4 (33.33%)	8 (66.67%)	8 (66.67%)	4 (33.33%)
ISTDP	41.77±6.21	5 (41.67%)	7 (58.33%)	10 (83.33%)	2 (16.67%)
Control	38.26±5.63	3 (25.00%)	9 (75.00%)	9 (75.00%)	3 (25.00%)
P	0.161	0.687		0.641	

MBSR: Mindfulness-based stress reduction; ISTDP: Intensive short-term dynamic psychotherapy

Table 4: Mean and standard deviation of the variables in experimental and control groups

Variables	Phases	MBSR	ISTDP	Control	P (between group)
		Mean±SD	Mean±SD	Mean±SD	
Intolerance of uncertainty	Pretest	76.33±2.06	77.00±1.76	76.42±1.31	0.369
	Posttest	73.58±1.67	71.35±1.17	75.78±1.30	0.001
	Follow-up	73.20±1.97	70.35±1.74	75.60±1.68	0.003
P (within group)		0.001	0.001	0.242	-
Depression	Pretest	44.66±1.79	45.61±2.32	45.29±1.88	0.409
	Posttest	40.11±1.41	36.39±1.59	44.31±1.80	0.001
	Follow-up	40.75±1.09	37.32±1.81	44.60±1.20	1.001
P (within group)		0.001	0.001	0.295	-

MBSR: Mindfulness-based stress reduction; ISTDP: Intensive short-term dynamic psychotherapy

According to the results, the ANOVA was significant for the within-group and between-group variables ($P < 0.001$). This revealed that the effect of time alone was significant considering the group effect. Moreover, the interaction effects of group and time were significant ($P < 0.001$).

Bonferroni post hoc test was used for paired comparison of the groups. Table 4 illustrates that compared with the control group, depression and IU in the posttest stage were lower in both MBSR therapy and ISTDP groups than those in the pretest stage. The comparison of the experimental groups demonstrated that the IU and depression scores differed significantly between the MBSR and ISTDP groups ($P < 0.001$). The results illustrated that ISTDP was more effective than MBSR therapy in improving depression and reducing the IU in women with FM.

4. Discussion

The present study aimed to compare the effectiveness of MBSR and ISTDP in IU and depression among women with FM. The MBSR therapy and the ISTDP proved to be effective in reducing depression and IU levels in patients with FM. However, ISTDP was significantly more effective than the MBSR therapy with a more persistent effect in the follow-up. This finding is consistent with the research results of previous studies (13, 21, 29). Perez-Aranda and colleagues (29) reported that

MBSR reduced anxiety and depression, perceived stress, and cognitive dysfunction in patients with FM. Additionally, Ajilchi and colleagues (21) showed that ISTDP significantly reduced depression severity both after treatment and at follow-up in patients with major depression.

ISTDP proved more effective in reducing IU and more persistent during the follow-up compared with the MBSR therapy. MBSR therapy can help patients deal better with stress, pain, and disease. It is a method that boosts mindfulness in people, which reduces stress and worry and IU in them by decreasing emotional avoidance and improving self-management behaviors. Therefore, MBSR therapy can be conducive to improving the quality of life both in physical and psychological dimensions (30). With a more in-depth approach, ISTDP can also help individuals find the root causes of worries, anxiety, and IU, and analyze them. Furthermore, ISTDP improves the client's emotional relationships with important people in one's life. The structures of emotional relationships, which are known as internal subject relationships in ISTDP, are formed in the conditions of the peak emotional state. The importance of these structures of emotional memory refers to their contribution to the foundations of the primary psychological arousal system that directs attempts to get close to, maintain, or increase opportunities to create positive emotional states and reduce,

avoid, or escape negative emotional states (31). ISTDP helps clients to reformulate what they experience more completely during the process of therapy and tolerate the resulting discomfort. The understanding that the therapist develop about these problems expands the awareness of the client and paves the way to finding new options for managing the conflict (17).

Perhaps, the main focus of ISTDP is on emotional or psychological pain where life is imagined as a difficult and intolerable process, the psyche is made in the struggle to confront and tolerate it; thus, defenses or pain avoidance mechanisms are created. Such unconscious efforts to avoid emotional pain often fail, often followed by avoidance of unexpected events behaviorally and on the conscious level. ISTDP is considered as one of the therapies that assist clients to confront their unconscious conflicts and emotions. In this way, the therapist helps the client to overcome their anxiety and defensive avoidance (18). During this process, the client learns to experience their intolerable emotions and tolerate painful feelings caused by events in their past life. Tolerating this emotional pain empowers the individual to tolerate unexpected and ambiguous events as well, and not see them as disasters (20). This process reduces IU in patients with FM.

ISTDP proved to be more effective in reducing depression and more persistent during the follow-up compared to MBSR therapy. In ISTDP, depression and anxiety are characterized by certain non-adaptive defense mechanisms. The purpose of ISTDP is to direct the client towards using more adaptive defense mechanisms. However, MBSR therapy usually helps the client to live in the present moment and focus on here and now, thereby stopping negative thoughts and rumination and reducing symptoms of depression. In ISTDP, acting more thoroughly and using the specific techniques of pressure and challenge, the therapist applies force for emotional experience on the one hand and confronts any defense and resistance that he meets on the other hand so that the patient improves their mental status by gaining insight into harmful defensive behaviors (undeveloped and neurotic defenses), expressing emotions, finding access to their emotions and self-awareness about them, using defense mechanisms, and strengthening their ego. The therapist's active interventions gently and empathetically help the client to confront depression, with the

help of the therapist, and resolve their depression by recognizing and experiencing activating and inhibiting emotions (21).

4.1. Limitations

The results of this study should be generalized to other populations with caution as the participants were limited to women with FM in Tehran, Iran. To increase the generalizability of the findings, it is recommended that future research investigate the effectiveness of the methods used in this research in larger samples, different regions, and areas with different cultures and among different sectors of the community.

5. Conclusions

The interventions with MBSR therapy and ISTDP proved to be effective in reducing depression and IU levels in women with FM in this study. Compared with the MBSR therapy, the ISTDP was more effective and persistent during the follow-up in reducing IU and depression. Given the fact that both methods were effective in reducing IU and depression in patients with FM, it is suggested that psychologists and clinicians use ISTDP and MBSR therapy to improve quality of life of patients with FM. As ISTDP is an efficient, practical, and effective method for reducing IU and depression, ISTDP sessions could be extensively held for patients with FM to help them resolve their problems. Health centers, psychotherapy clinics, and other related institutes could be advised to use ISTDP for emotional healing, increasing mental capacity, and improving the quality of life in patients with FM.

Ethical Approval

The study was approved by the Ethical Committee of Islamic Azad University- Tonekabon Branch with the code of IR.IAU.TON.REC.1400.038. Also, written informed consent was obtained from the participants.

Acknowledgement

This article was extracted from a part of the PhD dissertation of Ms. Mahta Farzadkia in the Department of Psychology, Tonekabon Branch, Islamic Azad University, Tonekabon, Iran. The researchers would like to thank all the individuals who participated in the study.

Conflict of Interest: None declared.

References

1. Siracusa R, Paola RD, Cuzzocrea S, Impellizzeri D. Fibromyalgia: Pathogenesis, Mechanisms, Diagnosis and Treatment Options Update. *Int J Mol Sci.* 2021;22(8):3891. doi: 10.3390/ijms22083891. PubMed PMID: 33918736; PubMed Central PMCID: PMC8068842.
2. Goebel A, Krock E, Gentry C, Israel MR, Jurczak A, Urbina CM, et al. Passive transfer of fibromyalgia symptoms from patients to mice. *J Clin Invest.* 2021;131(13):e144201. doi: 10.1172/jci144201. PubMed PMID: 34196305; PubMed Central PMCID: PMC8245181.
3. Coskun Benlidayi I. Role of inflammation in the pathogenesis and treatment of fibromyalgia. *Rheumatol Int.* 2019;39(5):781-791. doi: 10.1007/s00296-019-04251-6. PubMed PMID: 30756137.
4. Grayston R, Czanner G, Elhadd K, Goebel A, Frank B, Üçeyler N, et al. A systematic review and meta-analysis of the prevalence of small fiber pathology in fibromyalgia: Implications for a new paradigm in fibromyalgia etiopathogenesis. *Semin Arthritis Rheum.* 2019;48(5):933-940. doi: 10.1016/j.semarthrit.2018.08.003. PubMed PMID: 30314675.
5. Sitges C, González-Roldán AM, Duschek S, Montoya P. Emotional Influences on Cognitive Processing in Fibromyalgia Patients With Different Depression Levels: An Event-related Potential Study. *Clin J Pain.* 2018;34(12):1106-1113. doi: 10.1097/ajp.0000000000000637. PubMed PMID: 29975206.
6. Yepez D, Grandes XA, Talanki Manjunatha R, Habib S, Sangaraju SL. Fibromyalgia and Depression: A Literature Review of Their Shared Aspects. *Cureus.* 2022;14(5):e24909. doi: 10.7759/cureus.24909. PubMed PMID: 35698706; PubMed Central PMCID: PMC9187156.
7. Abbasian E, Faizi M, Mohammadmoradi A, Erfanian Omidvar A, KhosrowAbadi R. The Effectiveness of Landscape Architecture Components on Women's Reactions to Reduce Depression Symptoms. *Women Health Bull.* 2020;7(3):42-53. doi: 10.30476/whb.2020.86229.1055.
8. Henao-Pérez M, López-Medina DC, Arboleda A, Bedoya Monsalve S, Zea JA. Patients With Fibromyalgia, Depression, and/or Anxiety and Sex Differences. *Am J Mens Health.* 2022;16(4):15579883221110351. doi: 10.1177/15579883221110351. PubMed PMID: 35818673; PubMed Central PMCID: PMC9280828.
9. de Jong-Meyer R, Beck B, Riede K. Relationships between rumination, worry, intolerance of uncertainty and metacognitive beliefs. *Personality and Individual Differences.* 2009;46(4):547-551. doi: 10.1016/j.paid.2008.12.010.
10. McEvoy PM, Hyett MP, Shihata S, Price JE, Strachan L. The impact of methodological and measurement factors on transdiagnostic associations with intolerance of uncertainty: A meta-analysis. *Clin Psychol Rev.* 2019;73:101778. doi: 10.1016/j.cpr.2019.101778. PubMed PMID: 31678816.
11. Jenkinson R, Milne E, Thompson A. The relationship between intolerance of uncertainty and anxiety in autism: A systematic literature review and meta-analysis. *Autism.* 2020;24(8):1933-1944. doi: 10.1177/1362361320932437. PubMed PMID: 32564625; PubMed Central PMCID: PMC7539603.
12. Cowie J, Clementi MA, Alfano CA. Examination of the Intolerance of Uncertainty Construct in Youth With Generalized Anxiety Disorder. *J Clin Child Adolesc Psychol.* 2018;47(6):1014-1022. doi: 10.1080/15374416.2016.1212358. PubMed PMID: 27654145; PubMed Central PMCID: PMC7364664.
13. Zhang Q, Zhao H, Zheng Y. Effectiveness of mindfulness-based stress reduction (MBSR) on symptom variables and health-related quality of life in breast cancer patients-a systematic review and meta-analysis. *Support Care Cancer.* 2019;27(3):771-781. doi: 10.1007/s00520-018-4570-x. PubMed PMID: 30488223.
14. Abbasi F, Shariati K, Tajikzadeh F. Comparison of the Cognitive Behavioral Therapy (CBT) and Mindfulness-Based Stress Reduction (MBSR): Reducing Anxiety Symptoms. *Women Health Bull.* 2018;5(4):1-5. doi: 10.5812/whb.60585.
15. Kriakous SA, Elliott KA, Lamers C, Owen R. The Effectiveness of Mindfulness-Based Stress Reduction on the Psychological Functioning of Healthcare Professionals: a Systematic Review. *Mindfulness (N Y).* 2021;12(1):1-28. doi: 10.1007/s12671-020-01500-9. PubMed PMID: 32989406; PubMed Central PMCID: PMC7511255.

16. Schell LK, Monsef I, Wöckel A, Skoetz N. Mindfulness-based stress reduction for women diagnosed with breast cancer. *Cochrane Database Syst Rev.* 2019;3(3):CD011518. doi: 10.1002/14651858.CD011518.pub2. PubMed PMID: 30916356; PubMed Central PMCID: PMC6436161.
17. Driessen E, Dekker JJM, Peen J, Van HL, Maina G, Rosso G, et al. The efficacy of adding short-term psychodynamic psychotherapy to antidepressants in the treatment of depression: A systematic review and meta-analysis of individual participant data. *Clin Psychol Rev.* 2020;80:101886. doi: 10.1016/j.cpr.2020.101886. PubMed PMID: 32650213.
18. Caldiroli A, Capuzzi E, Riva I, Russo S, Clerici M, Roustayan C, et al. Efficacy of intensive short-term dynamic psychotherapy in mood disorders: A critical review. *J Affect Disord.* 2020;273:375-379. doi: 10.1016/j.jad.2020.04.002. PubMed PMID: 32560931.
19. Rocco D, Calvo V, Agrosi V, Bergami F, Busetto LM, Marin S, et al. Intensive short-term dynamic psychotherapy provided by novice psychotherapists: effects on symptomatology and psychological structure in patients with anxiety disorders. *Res Psychother.* 2021;24(1):503. doi: 10.4081/ripppo.2021.503. PubMed PMID: 33937111; PubMed Central PMCID: PMC8082537.
20. Abbass A. Intensive Short-term Dynamic Psychotherapy in a private psychiatric office: clinical and cost effectiveness. *Am J Psychother.* 2002;56(2):225-32. doi: 10.1176/appi.psychotherapy.2002.56.2.225. PubMed PMID: 12125299.
21. Ajilchi B, Nejati V, Town JM, Wilson R, Abbass A. Effects of Intensive Short-Term Dynamic Psychotherapy on Depressive Symptoms and Executive Functioning in Major Depression. *J Nerv Ment Dis.* 2016;204(7):500-5. doi: 10.1097/nmd.0000000000000518. PubMed PMID: 27065106.
22. Mohammadi H, Khalatbari J, Abolmaali K. The Effect of Integrating Cognitive-Behavioral Therapy and Mindfulness Therapy on Lifestyle of Women with Irritable Bowel Syndrome. *Women Health Bull.* 2021;8(4):220-227. doi: 10.30476/whb.2021.91397.1124.
23. Kabat-Zinn J. Mindfulness-based stress reduction (MBSR). *Constructivism in the Human Sciences.* 2003;8(2):73-83.
24. Johansson R, Town JM, Abbass A. Davanloo's Intensive Short-Term Dynamic Psychotherapy in a tertiary psychotherapy service: overall effectiveness and association between unlocking the unconscious and outcome. *PeerJ.* 2014;2:e548. doi: 10.7717/peerj.548. PubMed PMID: 25210661; PubMed Central PMCID: PMC4157301.
25. Freeston MH, Rhéaume J, Letarte H, Dugas MJ, Ladouceur R. Why do people worry? *Personality and Individual Differences.* 1994;17(6):791-802. doi: 10.1016/0191-8869(94)90048-5.
26. Abdolpour G, Nasiri M, Mafakheri M, Mansouri K, Abdi R. Structural Equation Modeling of Intolerance of Uncertainty and Symptoms of Depression and General Anxiety Disorder: Investigation of the Mediating Role of Rumination. *IJPCP.* 2019;24(4):400-415. doi: 10.32598/ijpcp.24.4.400.
27. Beck AT, Steer RA, Brown GK. *Beck Depression Inventory-II.* San Antonio. 1996;78(2):490-498. doi: 10.1037/t00742-000.
28. Ghassemzadeh H, Mojtabai R, Karamghadiri N, Ebrahimkhani N. Psychometric properties of a Persian-language version of the Beck Depression Inventory--Second edition: BDI-II-PERSIAN. *Depress Anxiety.* 2005;21(4):185-92. doi: 10.1002/da.20070. PubMed PMID: 16075452.
29. Perez-Aranda A, Feliu-Soler A, Montero-Marín J, García-Campayo J, Andrés-Rodríguez L, Borràs X, et al. A randomized controlled efficacy trial of mindfulness-based stress reduction compared with an active control group and usual care for fibromyalgia: the EUDAIMON study. *Pain.* 2019;160(11):2508-2523. doi: 10.1097/j.pain.0000000000001655. PubMed PMID: 31356450.
30. Kriakous SA, Elliott KA, Lamers C, Owen R. The Effectiveness of Mindfulness-Based Stress Reduction on the Psychological Functioning of Healthcare Professionals: a Systematic Review. *Mindfulness (N Y).* 2021;12(1):1-28. doi: 10.1007/s12671-020-01500-9. PubMed PMID: 32989406; PubMed Central PMCID: PMC7511255.
31. Alanne C, Heinonen E, Knekt P, Rissanen J, Virtala E, Lindfors O. Predicting improvement of work ability in modalities of short- and long-term psychotherapy: The differential impact of reflective ability and other aspects of patient suitability. *J Clin Psychol.* 2021;77(9):1905-1920. doi: 10.1002/jclp.23128. PubMed PMID: 33638220.