

Mindfulness Therapies for Medically Unexplained Somatic Symptoms: A Systematic Review

Tıbben Açıklanamayan Somatik Semptomlar için Bilinçli Farkındalık Temelli Terapiler: Sistematik Bir Gözden Geçirme

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Abstract

Mindfulness is a new therapeutic approach. Over the last years, it is found to be effective in treating many psychological and somatic symptoms. Somatic symptom disorder was characterized by chronic, recurring and clinically significant somatic symptoms. It is known that these symptoms cannot be fully explained by general medical condition and might significantly interfere with a person's general functioning. It is understood that some somatic symptoms which can not medically explained but thought having a psycho-somatic based are also provided from psychological treatments like somatic symptom disorder. Surprisingly, mindfulness-based intervention studies of somatic symptom disorder are especially focused on these medical conditions including chronic fatigue syndrome, irritable bowel syndrome and fibromyalgia. To systematically review these studies, PsycINFO and PsycARTICLES databases were assessed.

Keywords: Mindfulness, somatic symptom, fibromyalgia, chronic fatigue syndrome.

Öz

Bilinçli farkındalık (mindfulness) yeni bir terapötik yaklaşımdır. Son yıllarda, pek çok psikolojik ve somatik semptom tedavisinde etkili olduğu kanıtlanmıştır. Somatik Semptom Bozukluğu kronik, tekrarlayan ve klinik olarak anlamlı somatik semptomlar olarak tanımlanmaktadır. Bu semptomların genel tıbbi durumlarla açıklanamadığı ve kişinin işlevselliğini önemli ölçülerde etkilediği bilinmektedir. Bununla birlikte, tıbben açıklanamayan ve psikosomatik bir temeli olabileceği düşünülen bazı tıbbi durumların da somatik semptom bozukluğuna benzer içerikte psikolojik tedavilerden yarar sağladığı görülmektedir. Şaşırtıcı bir şekilde, somatik semptom bozukluğuna ilişkin bilinçli farkındalık temelli tedavi çalışmalarının fibromiyalji, huzursuz bağırsak sendromu ve kronik yorgunluk sendromunu içeren tıbbi durumlara odaklandığı belirlenmiştir. Bu çalışmaları sistematik olarak gözden geçirmek amacıyla, PsycINFO ve PsycARTICLES veritabanları incelenerek bir değerlendirme yapılmıştır.

Anahtar sözcükler: Bilinçli farkındalık, somatik semptom, fibromiyalji, kronik yorgunluk.

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MINDFULNESS is a new therapeutic approach and takes its roots from Buddhist meditative practices. Some of the Buddhist principles like loving-kindness, non-self and compassion were integrated into the psychological treatment intervention in the last five years and mindfulness is one of those new-wave interventions (Shonin et al. 2014). The term mindfulness was first conceptualized by Kabat-Zinn and is a systematic approach which is based on our inner capacities for relaxation, paying attention, awareness, and insight (Savel and Munro 2017). Mindfulness is defined by Kabat-Zinn (2003) as “the awareness that emerges through paying attention on purpose, in the present moment, and non-judgmentally to the unfolding of experience moment by moment”.

By detach from feelings related to the event and emotional reactions, mindfulness techniques help to regulate emotional reactivity and help the person to recover from unpleasant experiences and emotions (Ho et al. 2017). To simplify, mindfulness is the process of awareness and acceptance of the present moment, which also includes awareness of feelings, sensations and environment in a nonjudgmental way. The term nonjudgmental means, accepting the present moment by not trying to reject or ignore them and let it go without using labels (Griffiths et al. 2014).

While mindfulness was firstly used to prevent depression and help clients with depression to recover, today it is used in many areas (Norouzi et al. 2017). Moreover, many programs started to emerge related to mindfulness such as Mindfulness-based stress reduction (MBSR), Mindfulness-Based Cognitive Therapy (MBCT) and Mindfulness-Based Addiction Treatment (MBAT). Over the last years, mindfulness therapies is used to treat lots of physical and psychological disorders and were found to be effective in treating many psychological disorders like anxiety (Miller et al. 1995) and somatic syndrome disorders (Lush et al. 2009; Fjorback et al., 2013).

Somatic symptom disorder is defined as chronic, recurrent, clinically significant somatic symptoms according to DSM-5. It is known that these symptoms cannot be explained by general medical conditions and significantly affect one's functioning. In DSM-IV, this diagnosis is indicated as somatization disorder. It is seen that “somatization disorder” is still more frequently used in the studies. When the literature is examined, it can be seen that some medical conditions, which cannot be explained medically or directly by Somatic Symptom Disorder but which may have a psychosomatic basis, benefit from psychological therapies similar to somatic symptom disorder. In fact, mindfulness-based treatment studies related to somatic symptom disorder have been found to focus on medical issues including fibromyalgia, irritabl bowel syndrome (IBS) and chronic fatigue syndrome (Lakhan and Schofield 2013). Fibromyalgia includes chronic pain and fatigue (Davis and Zautra 2013), IBS is defined as a functional disorder of the lower gastrointestinal tract that may be affected by stress, including abdominal pain, bloating and altered bowel habits (Drosman 1995) and in chronic fatigue syndromes, fatigue needs to be lasting at least 6 months (Fukuda et al. 1994).

There are studies showing that cognitive behavioral therapy (CBT) has a moderate effect on treating somatic symptoms and some patients have no benefit (Veehof et al. 2011). Therefore, there is an increasing interest in examining the CBT and other interventions together, in order to increase the efficacy of treatment in somatic symptoms (Price et al. 2008).

This study aims to review mindfulness-based studies in the treatment of somatic symptoms, which cannot be identified medically but also cannot be identified as somatic symptom disorder. Thus, it will be possible to understand the effectiveness of mindfulness in the treatment of these disorders and to present a new application area for clinicians.

Method

The databases of PsycINFO and PsycARTICLES, were searched to find articles by using the following keywords: “somatic symptom disorder” and “mindfulness”, “somatization disorder” and “mindfulness”, “fibromyalgia” and “mindfulness”, “irritable bowel syndrome” and “mindfulness”, “chronic fatigue syndrome” “mindfulness”. Studies were considered acceptable for systematic review if they met the following criteria: 1) any kind of mindfulness therapy like MBRS or MBCT 2) if study sample participants more than 18 years old and 3) if study sample participants had received at least one of the diagnoses like fibromyalgia, IBS or nonspecified /mixed somatization disorder. Articles which are published as review or meta-analysis, not written in English and had study participants under age 18 were excluded. Also, Turkish Psychiatry Index was screened for “mindfulness and somatization” however, no studies were found.

Fifteen studies that meet the inclusion criteria were included in the review and each article was evaluated separately in terms of the diagnoses of the patients, applied procedure for the mindfulness, the number of patients, the diagnosis criteria, information on the methods such as treatment modalities and also the presence of randomization. Table 1 shows the information about articles which were included to the study and they were listed according to the names of the authors. The characteristics of the reviewed studies were described below.

Results

Samples of Studies

The population of studies consist of adult sample who are 18 years and older. For each study a diagnosis of IBS, fibromyalgia or chronic fatigue syndrome is required for participants to be included in the study. For the diagnosis of IBS, the Rome III criteria was used by researchers (for example, Zernicke et al. 2013, Gaylord et al. 2011). Patients were usually diagnosed with fibromyalgia according to the American College of Rheumatology diagnostic criteria (for example, Weissbecker et al. 2002). Participants were also eligible for the study if they meet the diagnostic criteria for chronic fatigue syndrome. The sample sizes of the studies ranged from 24 (Vago and Nakamura 2011) to 119 (Fjorback et al. 2012).

Treatment Method and Comparison Groups

In three studies mindfulness-based stress reduction technique was compared with wait-list group ((Weissbecker et al. 2002, Fjorback et al. 2012, Cash et al. 2014), and in three studies with control group (Davis and Zautra 2013, Parra-Delgado and Latorre-Postigo 2013, Zernicke et al. 2013). In the study that compared to the control group, the participants in the control group went on their routine medical treatment with their gastroenterologists (Zernicke et al. 2013).

Table 1. Methodology and characteristics of mindfulness studies

Studies	Sample	Treatment Groups	Treatment Duration	Treatment Frequency	Independent Assessor	Randomization	Measures	Measurement	Drop-out	Results
Weissbucker et al., 2002 (Psy-dNFO)	American College of Rheumatology Diagnostic Criteria - 91 patients	MBRS and wait list	9 weeks	Weekly 2.5 hours	No	Yes	Pre test - post test - 2 month follow up	BDI- Childhood Trauma Q. -The Perceived Stress Scale- Visual Analog Scale- Stanford Sleep Q.- The Fatigue Symptom Invent. - Fibromyalgia Impact Q.	MBRS(2 month follow up); 10- Wait list (2 month follow up); 13	MBRS treats lots of fibromyalgia symptoms
Grossman ve ark. 2007	Diagnoses of fibromyalgia- 58 female patients	MBSR- Active social support	8 weeks	Weekly 2.5 hours	No	No	Pre test- post test	visual analog pain, pain perception, coping with pain, a symptom checklist and QoL	6 during study	MBSR provides significantly greater benefits on coping with pain, depression, somatic complaints
Lush et al., 2009 (Psy-dNFO)	Diagnoses of fibromyalgia- 43 patients	MBRS	8 weeks	Weekly 2.5 hours	No	-	Pre test - Post test- 6 month follow up	Structured Clinical Interview for DSM-IV -Beck Anxiety Inventory- BDI	Before MBRS : 5	After MBRS decreased activation in SCL
Ljotson et al. 2010a (Psy-dNFO)	IBS- 34 female patients	Group therapy- Exposure+MB	10 weeks	Weekly 2.5 hours	No	Yes	Pre test - Post test- 6 month follow up	The GI symptom diary, VSI, IBS- QOL, The Montgomery Asberg Depression Rating Scale	16%	Anxiety, depression, pain symptoms; TG<CG
Ljotson et al., 2010b (Psy-dNFO)	Rome-III criteria: IBS- 86 patients	Internet delivered CBT based on exposure and mindfulness-control group	10 weeks	Interaction with therapist- 8 to 315 min	No	Yes	Pre test - Post test- 3 month follow up	The GI symptom diary, The Gastrointestinal Symptom Rating S., The Irritable Bowel Syndrome QOL Instrument, The Visceral Sensitivity	CBT: 1 Post test (DBT): 4	HBS, DBT<KG, Decreased in level of depression, anxiety and improvement in general functioning

								Index, The Montgomery Asberg Depression Rating Scale, The treatment credibility, The Sheehan Disability S.		
Garland et al., 2011 (Psy-dINFO)	Rome-III criteria: IBS-75 female patients	Mindfulness Training(MT) Social Support group	8 weeks	Weekly 2hours	-	Yes		BS Severity Scale, IBS-Quality of Life, Five-Way Caution Questionnaire, Coping Strategy Survey, Visceral Susceptibility Index, Short Symptom Inventory-18	Mindfulness Training Group(MT) 5; Social support group 4	MT was found to target and heal the basic pathogenic mechanisms of IBS and lead to improvement in quality of life
Gaylord et al., 2011 (Psy-dINFO)	Rome II-criteria: IBS-75 female patients	Mindfulness-support group	8 weeks	One half-day intensive sessions	No	Yes	Pre test -Post test- 3 month follow	IBS-quality of life (IBS-QOL) - The Visceral Sensitivity Index-The Brief symptom inventory-18	Before treatment: 9 months after treatment:3	IBS symptoms M<BG, quality of life, psy_stress, anxiety equal in post test- improvement in 3 month follow up
Ljotsonve ark. 2011 (Psy-dINFO)	Rome-III criteria: HBS-86 patients	Internet delivered CBT based on exposure and mindfulness-control group	10 weeks	-	No	Yes	Long term results-18 month follow up (CBT), 15 month follow up (CG)	Gastrointestinal Symptom Rating Scale-The Irritable Bowel Syndrome Quality of Life Instrument - The Visceral Sensitivity Index.	4	Improvement in gastrointestinal symptoms, quality of life & visceral sensitivity
Vago & Nakamura (Psy-dINFO)	Fibromyalgia- Control group-24	Mindfulness Based Meditation-control group	8 week	Weekly 1.5 hours	No	No	6 weeks after intervention	Dot-probe task	-	MMT reduces avoidance of pain-related threat at early levels of processing, and facilitates disengagement from threat at later stages of processing
Fjorback et al. 2012 (Psy-dINFO)	Somatization disorder, functional	MBSR-enhanced treatment as	8 weeks	1 3 ½ hours weekly	No	Yes	Pre test -Post test (3 month follow	SF-36 Physical Component Summary	1	15 month follow up: improvement in physical function & life quality

	onal somatic syndromes-119 patients	usual					up), 9-15 month follow up	(PCS)		
Rimes & Wingrove, 2013 (Psy-clNFO)	Chronic Fatigue Syndrome-37 patients	MBCT-Control Group	8 weeks	CBT- Two times a week -MF-8 weeks-2.25 h.	-	Yes	Pre test -Post test -2 & 6 month follow up	Chalder Fatigue Scale-The Work and Social Adjustment Scale - Physical Functioning Scale - The Beliefs about Emotions Scale-The Self-Compassion Scale-The Five-Facet Mindfulness Questionnaire- The Hospital Anxiety and Depression Scale- Cognitive and Behaviour Responses to Symptoms Questionnaire	6 month follow up: 2	Level of fatigue, MBCT<KG
Davis Zautra 2013 (Psy-clNFO)	Fibromyalgia patients-79	Mindfulness and Acceptance-Control - Health Tips (HT)	6 weeks	12 module online	No	Yes	Pre test -Post test -6 month follow up	Pain Coping Efficacy, Fibromyalgia Impact Questionnaire, Positive and Negative Impact List, Perceived Social Relations	HT; post test:11, 6 month izlem:26 Mindfulness; post-test:19, 6 month follow up:4	Developments in dealing with loneliness, pain and stress. Improvement Mindfulness>HT
Parra-Delgado ve Latorre-Postiog 2013 (Psy-clNFO)	Fibromyalgia patients-33	Mindfulness-Based Cognitive Therapy (MBCT)	8 week	8 group sessions in 3 months -2.5 hours	No	Yes	Pre test -Post test -3 month follow up	Fibromyalgia Impact Questionnaire, Beck Depression Inventory and Visual Analogue Scale.	2	Reduction of the impact of fibromyalgia after treatment and in the decrease in depressive symptoms decrease in the follow-up.
Zernicke et al.	Rome-III	TAU-MBRS	8 weeks	1.5 hours	No	Yes	Pre test -Post	IBS Severity	TAU; post test:11, 6	Decrease in symptom severity MBRS >

2013 (Psy- dNFO)	criteria: Irritable bowel synd- rome- 90 pati- ents						test - 6 month follow up	Scoring System – QOL – Profile of Mood States – Symptoms of Stress Inventory – The Functional Asses- ment of Chronic Illness Therapy- Spiritual Wellbeing Scales	month follow up:26 - MBRS; post test:19, 6 month follow up:4	TAU
Cash et al., 2014 (Psy- dNFO)	Women diagno- sed with fibrom- yalgia- 91 pati- ents	MBRS and Wait list	8 weeks	Weekly 2.5 hours	No	Yes	Pre test - post test - 2 month follow up	BDI - Childhood Trauma Q. - The Perceived Stress Scale - Visual Analog Scale - Stanford Sleep Q.- The Fatigue Symptom Invent - Fibromyal- gia Impact Q.	MBRS(2 month follow up): 10- Wait list (2 month follow up): 13	MBRS treats lots of fibromyalgia symptoms

In addition, in another study, mindfulness-based acceptance therapy and control group was compared (Rimes and Wingrove 2013). In three studies, internet-based mindfulness based therapies and control groups were compared (Ljotson et al. 2010a, 2010b, 2011). In three studies, researchers compared mindfulness-based therapies and support groups (Grossman et al. 2007, Garland et al 2011, Gaylord et al. 2011). Finally, the control group was compared with mindfulness based meditation studies (Vago and Nakamura 2011). Only one study did not use control group (Lush et al. 2009).

Randomization Method

In studies involving multiple intervention groups (12), randomization was used as the assignment method. There were no randomized assignments in three studies (Grossman et al. 2007, Lush et al. 2010, Vago and Nakamura 2011).

Measures

In 9 studies, measurements were based solely of the participant's self-report (Weissbecker et al. 2002, Grossman et al. 2007, Ljotson et al. 2010, Garland et al. 2011, Gaylord et al. 2011, Ljotson et al. 2011, Davis and Zautra 2013, Rimes and Wingrove 2013, Zernicke et al. 2013). In addition, for five study both self-report and clinician measurements were obtained (Lush et al. 2009, Ljotson et al. 2010, Fjorback et al. 2012,

Parra-Delgado and Latorre-Postigo 2013, Cash et al. 2014). Only one study depends on the clinician measurement (Vago and Nakamura 2011).

Therapy Characteristics

MBSR

The most frequently used intervention was MBSR. It was used in 6 studies (Weissbecker et al. 2002). The duration of sessions in the studies was evaluated, it can be concluded that the duration was 2.5 hours and intervention was implemented on weekly basis. There are both formal and formal practices in MBSR. Informal practices can be listening, breathing, or even movements; formal practices might include sitting meditation, body scans and yoga. Participants introduced the techniques like the body scan and sitting meditation. During the body scan technique, while in a relaxed state, clients start from one body part and bring his/her attention systematically to other parts of the body (usually from toes to head) while he or she is lying down (Weissbecker et al. 2002). Participants also taught several yoga positions like 'Hatha Yoga as a mean of encouraging relaxed and focused movement' (Cash et al. 2014). Participants are also encouraged for home practices which require 45 min for 6 days and they are guided by several workbook and audiotapes (Lush et al. 2009).

MBCT

Another technique that used in articles was MBCT (Rimes and Wingrove 2013). While CBT and Mindfulness have some similarities, they also have some differences and it was thought that due to this reason combination of these two-treatment approach might be helpful for different group of people. MBCT design to help people who suffer from depression or unhappiness and the aim was to prevent relapse of depression by withdraw from ruminative thinking It was developed by Segal et al. in 2002 based on MBRS and it is a manualized eight weeks interventions (Segal et al. 2013). Sessions last 2 hour. From first to forth session the aim is improving attentional processes, everyday awareness and prevent ruminative thinking. During five and six sessions, the purpose is to help people to improve emotional regulation as well as observation of negative emotional and physical experiences. Also, sessions 7 and 8 is intended to creation of "action plan" in terms of any recurrence of symptoms.

Results of Studies

Irritable Bowel Syndrome (IBS)

To examine the beneficial effects of psychological interventions that may contribute to the treatment of IBS, mindfulness therapies are seeming to be a reasonable treatment approach for this condition. It is assumed that mindfulness therapy, which is a complementary group program may help reduce symptoms of stress, anxiety and depression associated with the disorder and may decrease the experiential avoidance (Ljotson et al., 2010). In the treatment of IBS, some studies include both mindfulness and exposure practices (Ljótsson et al. 2010a, 2010b, 2011) and some studies include MBSR and cognitive techniques (Gaylord et al. 2011, Fjorback et al. 2012).

Gaylord et al. (2011) study shows that awareness interventions help to improve quality of life and improvements in psychological symptoms. In addition, there are two studies show that online awareness and exposure therapies can be useful in the treatment of IBS patients (Ljótsson et al. 2010a, 2010b). There have been major effects on

the measurement of comorbid symptoms and improvements in the quality of life, anxiety levels and measures of depression in the treatment group; furthermore, these interventions have long-term beneficial effects for IBS patients (Ljotson et al. 2010b). In addition, there are conflicting results in the study of Fjorback et al. (2012). No difference was observed in physical symptoms between awareness and exposure treatment and standard treatment. However, improvement was obtained towards the end of the treatment and these developments were maintained at 15 months follow-up. Another study showed that mindfulness interventions had significant effects on IBS symptoms by not causing reactivity against intestinal anxiety (Garland et al. 2011).

Chronic Fatigue Syndrome

In recent studies, treatment that is considered for use with CBT are mindfulness-based therapies for chronic fatigue syndrome. In the study of Rimes and Wingrove (2013), 8-week MBCT was applied to patients suffering from chronic fatigue after CBT. According to the results, individuals receiving MBCT reported symptoms of fatigue less than the waiting group and were superior in terms of deterioration, depressive mood, catastrophic thoughts about fatigue, all or non answers, non-functional thoughts about emotions, awareness and self-compassion..

Fibromyalgia

The use of mindfulness techniques in the treatment of fibromyalgia helps us to achieve a few results. In some articles, mindfulness therapies found to be related with significant improvements in fibromyalgia patients (Weissbecker et al. 2002, Grossman et al. 2007, Lush et al. 2009, Cash et al. 2014). Cash et al. (2014) showed that fibromyalgia symptoms were significantly improved when the MBSR group was compared with a waiting list group. Furthermore, Lush et al. (2009) have examined the psychophysiological relationships of MBSR in patients with fibromyalgia, and the findings suggest that MBSR leads to a decrease in the skin conductance level. MBSR has been used in many studies to treat fibromyalgia (eg, Weissbecker et al. 2002). It is important to note that studies target different characteristics other than the improvement of fibromyalgia symptoms. For example, a study by Weissbecker et al. (2002) focused on feelings of coherence in patients with fibromyalgia and aimed to develop consistency feelings through MBSR. Parra-Delgado and Latorre-Postigo (2013) have shown that MBCT both reduces the effects of fibromyalgia and lead to a decrease in depressive symptoms. However, no change in pain levels was observed in this study. In a study, it was observed that mindfulness-based meditation studies were effective in preventing and eliminating pain-related threat in patients with fibromyalgia, compared to the control group (Vago and Nakamura, 2011). Finally, Davis and Zautra (2013) showed that there were significant improvements in the social functioning, positive affect, stress and coping with pain of the participants who participated in mindfulness intervention.

Follow-up Evaluations

Two of the studies that included follow-up evaluations for fibromyalgia indicate that progress in people with awareness therapies or techniques is not preserved or developed further (Lush et al. 2009; Vago and Nakamura, 2011). In other studies with follow-up data, fibromyalgia was developed from awareness therapy practices (Weissbecker et al. 2002, Grossman et al. 2007, Lush et al. 2009, Parra-Delgado and Latorre-Postigo

2013, Cash et al. 2014,). irritable bowel syndrome (Fjorback et al. 2012, Zernicke et al. 2013) and chronic fatigue syndrome (Rimes and Wingrove 2013)..

Discussion

In this review, articles published between 2000 and 2018 (May) were reviewed. The oldest article was found dated back to 2002 (Weissbecker et al. 2002). In literature, there were no studies conducted before 2000's and this gives us a chance to mention that, studies, which are conducted on mindfulness and somatization, can be seen as a recent phenomenon and the interest has been increasing in this area from the last several years. It is known that mindfulness-based therapies are also a very new approach and have rarely used for the treatment of somatization disorders in Turkey. When the existing databases were searched, a study on this subject was not found in our country, and when the Turkish Psychiatry Index was reviewed, there was no research using a mindfulness based approach in the treatment of somatic symptoms. One of the most important aims of this review is to highlight the effectiveness of mindfulness-based therapies in attracting the attention of Turkish clinicians and treating somatization disorder.

The effect of mindfulness-based therapies (MBSR, MBCT), compared to control groups (waiting list, treatment as usual or support group) on somatization disorders was found to be significant. For both patients with fibromyalgia, chronic fatigue syndrome and irritable bowel syndrome a reduction observed in symptoms and their severity after receiving the interventions. When other variables are taken into consideration, for irritable bowel syndrome, anxiety, stress, depression and quality of life scores are improved. For participants experiencing fibromyalgia, symptom severity was reduced, and improvement observed in skin conductance levels. Lastly, for participants with chronic fatigue syndrome, fatigue symptoms; depressed mood, anxiety and pain were improved as well.

Mindfulness-based therapies have been found to be effective in reducing the problems associated with psychological disorders such as sleep disturbance, perceived stress and fatigue (Cash et al. 2014). In addition, MBSR has been shown to contribute to the quality of life of the participants in other studies (Zernicke et al. 2013). According to the results of this study, the quality of life scores of the participants in the MBSR group were found to be better than the baseline scores at the 8-week and 6-month evaluation. Considering follow-up assessments, it is possible to show that benefits from awareness interventions are maintained after treatment is completed (eg, Weissbecker et al. 2002, Zernicke et al. 2013).

When we evaluated the studies in terms of effectiveness, mindfulness-based therapies were found to be effective in most of the studies. A possible explanation for the effect of mindfulness studies on somatic symptoms is the idea that awareness can have a common mechanism of effect with exposure method used in cognitive-behavioral therapies (Kabat-Zinn 2003). In particular, internal exposure causes the somatic symptoms of anxiety to be expressed in a voluntary and controlled manner, and this includes focusing on somatic sensations. Focusing on bodily sensations, impulses, emotions and thoughts can lead to acceptance of these experiences. Without focusing on internal stimuli, focusing and observation can reduce the emotional distress caused by these stimuli (Baer 2003). Another possible explanation is that many pathological disorders,

including somatization disorder, are due to reduced psychological flexibility (Masuda and Tully 2012). Conscious awareness-based interventions aim to increase psychological flexibility, and increase psychological well-being by providing open and flexible contact with one's own environment (Hayes et al. 2006).

Although there is no study in our country where mindfulness techniques are used to interfere with somatic symptoms, there are many academic studies showing that mindfulness techniques have positive effects on individuals. For example, in a study by Demir (2015), the effect of mindfulness-based cognitive therapy program on depression of the participants was investigated, and the results of the study showed that there was a significant decrease in the depression levels of the individuals participating in the program. In another study by Deniz et al. (2017), the role of emotional intelligence in the relationship between the mindfulness levels and psychological well-being of university students was examined. According to results, it is predicted that the participants who increase their mindful awareness may increase their emotional intelligence and their psychological well-being may be strengthened with the increase of their emotional intelligence.

The common points in the studies mentioned in this review is that, in addition to focusing on psychological symptoms, it also suggests that processes such underlying mechanisms such as mindfulness should be addressed. Considering the results of the studies, it is suggested to add mindfulness based therapies to the treatment of somatic symptoms. Because, mindfulness-based therapies are easy to implement, and there is less emotional and physical risk compared to other interventions and drugs (Piet et al. 2012). According to researches, it was emphasized that if pharmacological treatment was stopped, discomfort could be repeated and mindfulness based therapies could be used without drug treatment (Teasdale et al. 2000). It also requires less time and requires active participation of the patients as it is a group-based intervention. It helps to improve psychological distress, strengthen physical and mental flexibility, and give a chance to better manage health-related challenges. As a result, there is also a need for applying and evaluating mindfulness-based interventions in Turkey, which are demonstrated to be beneficial in somatic symptoms in foreign literature.

References

- Cash E, Salmon P, Weissbecker I, Rebholz WN, Bayley-Veloso R, Zimmaro LA et al. (2014) Mindfulness meditation alleviates fibromyalgia symptoms in women: results of a randomized clinical trial. *Ann Behav Med*, 49:319-330.
- Çatak D, Ögel K (2010) Farkındalık temelli terapiler ve terapötik süreçler. *Klinik Psikiyatri Dergisi*, 13:85-91.
- Davis C, Zutra J (2013) An online mindfulness intervention targeting socioemotional regulation in fibromyalgia: results of a randomized controlled trial. *Ann Behav Med*, 46:273-284.
- Demir V (2015) Bilinçli farkındalık temelli kognitif terapi programının bireylerin depresif belirtileri üzerine etkisi. *Psikoloji Çalışmaları Dergisi*, 35:15-26.
- Deniz E, Erus M, Büyükebeci A (2017) Bilinçli farkındalık ile psikolojik iyi oluş ilişkisinde duygusal zekanın aracılık rolü. *Türk Psikolojik Danışma ve Rehberlik Dergisi*, 7:17-31.
- Drossman DA, McKee DC, Sandler RS, Mitchell, CM, Cramer EM, Lowman BC et al. (1988) Psychosocial factors in the irritable bowel syndrome: a multivariate study of patients and nonpatients with irritable bowel syndrome. *Gastroenterology*, 95:701-708.
- Fjorback LO, Arendt M, Ørnbøl E, Walach H, Rehfeld E, Schröder A et al. (2013). Mindfulness therapy for somatization disorder and functional somatic syndromes—Randomized trial with one-year follow-up. *J Psychosom Res*, 74:31-40.
- Fukuda K, Straus SE, Hickie I, Sharpe MC, Dobbins, JG, Komaroff A (1994) The chronic fatigue syndrome: a comprehensive approach to its definition and study. *Ann Intern Med*, 121:953-959.
- Garland L, Gaylord A, Palsson O, Faurot K, Mann D, Whitehead, W. E. (2012). Therapeutic mechanisms of a mindfulness-based

- treatment for IBS: effects on visceral sensitivity, catastrophizing, and affective processing of pain sensations. *J Behav Med*, 35:591-602.
- Gaylord SA, Palsson OS, Garland EL, Faurot KR, Coble RS, Mann JD et al. (2011). Mindfulness training reduces the severity of irritable bowel syndrome in women: results of a randomized controlled trial. *Am J Gastroenterol*, 106:1678-1688.
- Grossman P, Tiefenthaler-Gilmer U, Raysz A, Kesper U. (2007). Mindfulness training as an intervention for fibromyalgia: evidence of postintervention and 3-year follow-up benefits in well-being. *Psychother Psychosom*, 76:226-233.
- Hayes SC, Luoma JB, Bond FW, Masuda A, Lillis J. (2006) Acceptance and commitment therapy: model, processes and outcomes. *Behav Res Ther*, 44:1-25.
- Ho RT, Wan AH, Chan JS, Ng SM, Chung KF, Chan CL (2017). Study protocol on comparative effectiveness of mindfulness meditation and qigong on psychophysiological outcomes for patients with colorectal cancer: a randomized controlled trial. *BMC Complement Altern Med*, 17:390.
- Kabat-Zinn J (2003) Mindfulness - based interventions in context: past, present, and future. *Clin Psychol*, 10:144-156.
- Lakhan E, Schofield L (2013) Mindfulness-based therapies in the treatment of somatization disorders: a systematic review and meta-analysis. *PLoS One*, 8:e71834.
- Ljótsson B, Andréewitch S, Hedman E, Rück C, Andersson G, Lindfors N (2010a) Exposure and mindfulness based therapy for irritable bowel syndrome—an open pilot study. *J Behav Ther Exp Psychiatry*, 41:185-190.
- Ljótsson B, Falk L, Vesterlund AW, Hedman E, Lindfors P, Rück C et al. (2010b) Internet-delivered exposure and mindfulness based therapy for irritable bowel syndrome—a randomized controlled trial. *Behav Res Ther*, 48:531-539.
- Ljótsson B, Hedman E, Lindfors P, Hursti T, Lindfors N, Andersson G et al. (2011) Long-term follow-up of internet-delivered exposure and mindfulness based treatment for irritable bowel syndrome. *Behav Res Ther*, 49:58-61.
- Lush E, Salmon P, Floyd A, Studts JL, Weissbecker I, Sephton SE (2009) Mindfulness meditation for symptom reduction in fibromyalgia: psychophysiological correlates. *J Clin Psychol Med Settings*, 16:200-207.
- Masuda A, Tully E (2012) The role of mindfulness and psychological flexibility in somatization, depression, anxiety, and general psychological distress in a nonclinical college sample. *J Evid Based Complementary Altern Med*, 17:66-71.
- Miller JJ, Fletcher K, Kabat-Zinn J (1995) Three-year follow-up and clinical implications of a mindfulness meditation-based stress reduction intervention in the treatment of anxiety disorders. *Gen Hosp Psychiatry*, 17:192-200.
- Norouzi H, Rahimian-Boogar I, Talepasand S (2017) Effectiveness of mindfulness-based cognitive therapy on posttraumatic growth, self-management and functional disability among patients with breast cancer. *Nursing Practice Today*, 4:190-202.
- Parra-Delgado M, Latorre-Postigo M (2013) Effectiveness of mindfulness-based cognitive therapy in the treatment of fibromyalgia: A randomised trial. *Cognitive Ther Res*, 37:1015-1026.
- Piet J, Wurtzen H, Zachariae R (2012) The effect of mindfulness-based therapy on symptoms of anxiety and depression in adult cancer patients and survivors: A systematic review and meta-analysis. *J Consult Clin Psychol*, 80:1007–1020.
- Price JR, Mitchell E, Tidy E, Hunot, V (2008) Cognitive behaviour therapy for chronic fatigue syndrome in adults. *Cochrane Database Syst Rev*, (3):CD001027.
- Rimes KA, Wingrove J (2013) Mindfulness - based cognitive therapy for people with chronic fatigue syndrome still experiencing excessive fatigue after cognitive behaviour therapy: a pilot randomized study. *Clin Psychol Psychother*, 20:107-117.
- Savel RH, Munro CL (2017) Quiet the mind: mindfulness, meditation, and the search for inner peace. *Am J Crit Care*, 26:433-436.
- Segal ZV, Williams JM, Teasdale JD (2013) Mindfulness-based cognitive therapy for depression. New York, NY, Guilford Press.
- Shonin E, Van Gordon W, Griffiths MD (2014) The emerging role of Buddhism in clinical psychology: Toward effective integration. *Psycholog Relig Spiritual*, 6:123-127.
- Teasdale JD, Segal ZV, Williams JMG, Ridgeway VA, Soulsby JM, Lau MA (2000) Prevention of relapse/recurrence in major depression by mindfulness-based cognitive therapy. *J Consult Clin Psychol*, 68:615-623.
- Vago R, Nakamura Y (2011) Selective attentional bias towards pain-related threat in fibromyalgia: preliminary evidence for effects of mindfulness meditation training. *Cognitive Ther Res*, 35:581-594.
- Veehof MM, Oskam MJ, Schreurs KM, Bohlmeijer ET (2011) Acceptance-based interventions for the treatment of chronic pain: a systematic review and meta-analysis. *Pain*, 152:533-542.
- Weissbecker I, Salmon P, Studts JL, Floyd AR, Dedert EA, Sephton SE (2002) Mindfulness-based stress reduction and sense of coherence among women with fibromyalgia. *J Clin Psychol Med Settings*, 9:297-307.
- White PD, Goldsmith KA, Johnson AL, Potts L, Walwyn R, DeCesare JC et al. (2011) Comparison of adaptive pacing therapy, cognitive behaviour therapy, graded exercise therapy, and specialist medical care for chronic fatigue syndrome (PACE): a randomised trial. *Lancet*, 377:823-836.
- Zernicke KA, Campbell TS, Blustein PK, Fung TS, Johnson JA, Bacon SL et al. (2013) Mindfulness-based stress reduction for the treatment of irritable bowel syndrome symptoms: a randomized wait-list controlled trial. *Int J Behav Med*, 20:385-396.

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