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Mindfulness Based Cognitive Therapy in Bipolar Disorder
Bipolar Bozuklukta Farkındalık Temelli Bilişsel Terapi

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Abstract
Although cognitive behavioral therapy (CBT) is commonly utilized as a psychotherapy approach for bipolar disorder, empirical findings do not always support the effectiveness of CBT on bipolar disorder. Therefore, the need for different psychotherapy approaches that can be applied to bipolar disorder has arisen. Recently, the effectiveness of Mindfulness-Based Cognitive Therapy (MBCT) on bipolar disorder has begun to be investigated. In the present review, studies investigating the effects of MBCT on bipolar disorder were gathered to investigate whether the MBCT, which was examined for many disorders recent years, is also effective or not in bipolar disorder. Therefore, 12 studies reached via databases were examined in terms of sample characteristics, methodological backgrounds, and results. In the reviewed studies, it has been found that MBCT provides a reduction in anxiety, depression or mania/hypomania symptoms and an increase in mindfulness levels of people with bipolar disorder. Moreover, participants were tended to indicate that they benefited from MBCT. It was also observed increase in the participants' attention, information processing, memory, emotion regulation, and positive affect. However, it was seen that these findings were not supported in all studies. Because these studies were mostly conducted with people who were in remission period, whether MBCT leads reduction in manic and hypomanic symptoms was not totally clear.
Keywords: Bipolar disorder, mindfulness-based cognitive therapy, cognitive behavioral therapy

Öz
Psikoterapi yaklaşımı olarak bilişsel davranışçı terapinin (BDT) bipolar bozuklukta kullanımı yaygın olsa da ampirik bulgular BDT'nin etkililiğini her zaman desteklememektedir. Bu durum, başka terapi yaklaşımları ile ilgili arayışlara yol açmaktadır. Son dönemlerde ise Farkındalık Temelli Bilişsel Terapinin (FTBT) bipolar bozuklukta etkililiğinin incelenmeye başlandığı görülmektedir. Mevcut gözden geçirme çalışmasında FTBT'nin bipolar bozukluk üzerindeki etkilerini inceleyen çalışmalar bir araya getirilmiştir. Çünkü son yıllarda birçok bozuklukta etkisi incelenen FTBT'nin bipolar bozuklukta etkin olup olmadığını ve nasıl bir etkisi olduğunu inceleyen çalışmalar biraraya getirilerek alanyazına katkı sağlamak amaçlanmıştır. Bu nedenle yapılan incelemeler sonucunda ulaşılan 12 çalışma örneklem özellikleri, yöntemsel arka planları ve sonuçları bakımından incelenmiştir. Bu çalışma kapsamında gözden geçirilen araştırmalarda FTBT'nin bipolar bozukluk tanısı olan kişilerde kaygı, depresyon ya da mani/hipomani semptomlarında azalma sağlayabildiği, katılımcıların bu psikoterapi yönteminden fayda gördüklerini belirtme eğiliminde oldukları ve farkındalık düzeylerinde artışa sebep olduğu görülmüştür. Ayrıca katılımcıların dikkat, bilgi işlemleme, bellek, duygu düzenleme ve olumlu duygulanımlarında artış olduğu gözlenmiştir. Fakat tıpkı BDT araştırma sonuçları gibi bu bulguların her çalışmada desteklenmediği, FTBT'nin manik ve hipomanik semptomlarda azalma sağlayıp sağlamadığı bilgisinin ise araştırmaların genellikle remisyon dönemindeki kişilerle yürütülmesi sebebiyle netleştirilemediği görülmektedir.
Anahtar sözcükler: Bipolar bozukluk, farkındalık temelli bilişsel terapi, bilişsel davranışçı terapi

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BIPOLAR DISORDER is an important psychiatric disorder which is characterized by mood changes between the episodes of mania, hypomania or depression (Stange et al. 2011) with a severe and chronic course (Kilbourne et al. 2004) and with high recurrence and comorbidity rates (Williams et al. 2008). Although there are many evidence-based treatments options for bipolar disorder, it is a progressive disease with relapses and transitions between the episodes and, has high mortality rates (Kilbourne et al. 2004). When DSM-5 (American Psychiatric Association; APA 2013) is examined, it is seen that there is a classification as Bipolar I Disorder, Bipolar II Disorder, Cyclothymic Disorder, Substance/Medication-Induced Bipolar Disorder, Bipolar Disorder Due to Another Medical Condition, Other Specified Bipolar and Related Disorder and Unspecified Bipolar and Related Disorder under the title of 'Bipolar and Related Disorders' (APA 2013). According to DSM-5 criteria in order to diagnose Bipolar I, one should experience at least one manic episode and also hypomania and depression episodes should be accompanied by it. In the case of Bipolar II disorder, mania criteria are never met and experiencing hypomania and depression episodes is reported as sufficient for diagnosis. Although bipolar disorder is divided into categories in DSM-5 classification, studies in literature show that they are conducted with the general category of bipolar disorders.

When evaluated in general, the prevalence of bipolar disorders is 1-1.5% and is characterized by recurrent mania, depression or a mixture of both phases (Bebbington and Ramana 1995). In a study conducted by Kessler et al. (2005), it was concluded that bipolar disorders influence 2% of the general population. A cohort study conducted with a relatively large sample (n= 1469) showed that 58% of patients with the diagnosis of bipolar I and II disorder recovered, but approximately half of patients who have recovered experienced relapse within 2 years (Perlis et al. 2006). The interpersonal relationships of patients with bipolar disorder are reported to be highly affected by the dramatic changes in manic/hypomanic and depressive mood cycles. As can be seen, bipolar disorder is a psychiatric disorder that progresses with recurrent periods and may cause serious impairment of psychosocial and cognitive functions within the process even if these functions of patients are good originally (Kapczinski et al. 2009).

Considering hereditary and biological factors underlying bipolar disorders, it is possible to say that pharmacological treatment is an essential part of bipolar disorder treatment. However, there are research findings showing that patients getting psychotherapy in combination with pharmacological treatment have more effective results compared to pharmacological treatment alone (Miklowitz 2006). Psychosocial intervention programs such as Cognitive Behavioral Therapy (CBT), Family-Based Therapies, Interpersonal and Social Rhythm Therapy (IPSRT) have been developed in addition to mood stabilizing drugs for the treatment of bipolar disorders (Deckersbach et al. 2014). Although the type of psychotherapy most commonly used for people with bipolar disorder is CBT, research findings show that there are conflicting results regarding the success of preventing relapse and the effect of treatment on mood fluctuations in general (Deckersbach et al. 2014). The complexity of the empirical data obtained from the research conducted so far and the fact that the expected effect in treatment of bipolar disorders has not been achieved yet has led to the search for new psychosocial treatments. Recently, it has been observed that Mindfulness-Based Cognitive Therapy (MBCT) is being implemented in patients with bipolar disorder and promising findings have been obtained (Deckersbach et al. 2014).

When the history of CBT is examined, it is observed that there are 3 waves in theory and practice. In the first wave therapies; it is attracted to attention that behavioral approaches are at the forefront and observing, changing and predicting the behavior are concerned in psychotherapy and practice processes. In addition, this period consists of practices dominated by classical and operant conditioning theories (Vatan 2016). In second wave therapies; it is seen that cognitions and behaviors are examined together, the role of non-functional cognitions in psychopathologies is noticed and changing non-functional cognitions is targeted (Schultz and Schultz, 2008). In the third wave therapies; terms such as mindfulness, insight, acceptance and metacognition come to the forefront in addition to cognitions and behaviors. The main purpose of the third wave therapies is to focus on inner experiences, to be aware of internal experiences and to accept the internal senses without judgment instead of changing them (Herbert and Forman, 2011). Mindfulness which is an important component of the third wave therapies, in its most basic form, means that one can focus his/her attention and perceptions on those 'at present' without judgment and in an acceptance manner (Kabat-Zinn, 2005). Although the term of mindfulness takes its origins from the eastern meditation tradition, it has been used in various fields in the west for nearly 30 years and has recently taken place as a component in psychotherapy. It is possible to say that the concept of mindfulness as a separate approach in psychotherapy started with Kabat-Zinn (1982). MBCT is a psychotherapy method in a group format which is a combination of CBT and Mindfulness-Based Stress Reduction (MBSR), has an 8-session practice guide and consists of skill training (Sipe and Eisendrath 2012). This approach also includes some contents such as body scan, focusing on breath, sitting meditation and yoga exercises. Each of these 8 sessions is structured with separate contents and that the techniques taught are used both during the sessions and between the sessions as homework (Segal et al. 2002). In this kind of therapy, it is aimed to gain the ability to move away from one's own mental contents by the so-called as decentering ability (Chiesa and Serretti 2014).

Although MBCT is a type of psychotherapy that is primarily intended to prevent recurrence of depression in individuals with the diagnosis of recurrent depression, it has been used in psychosocial treatment of different psychopathologies in the process (Segal et al. 2002, Sipe and Eisendrath 2012). Recently, it has been observed that MBCT is being used in people with a diagnosis of bipolar disorder (Williams et al. 2008, Weber et al. 2010). When the literature was reviewed, it was determined that there were two different practice types of MBCT consisting of 8 or 12 sessions which were modified specifically for bipolar disorders. In a modified practice type specific to bipolar disorders of MBCT, some of the components particular to disorder are included in the treatment. As examples of these components; daily mood monitoring, recognizing the elements (such as interpersonal conflicts, disturbances in the sleep-awake cycle, deterioration in social routines) that trigger mood fluctuations, learning to avoid extremes in manic/hypomanic or depressive episodes, recognizing early warning signs before mood changes can be given (Deckersbach et al. 2014). In addition, it is observed that the duration of the exercises such as body scan and sitting meditation, which are included in the practice of MBCT, is shortened for people with bipolar disorder who have difficulty in maintaining their attention and emotion-focused meditations are added in order to be aware of especially strong emotions (Deckersbach et al. 2014). When the practices of MBCT modified specific to bipolar disorders are examined in more detail, it is seen that primarily the components particular to mania and hypomania episodes as well as depression are inclu-

ded in the components of psychoeducation and relapse prevention (Deckersbach et al. 2012). It consists of monitoring the mood, problem solving, managing mood symptoms in emergency situations and psychoeducation for bipolar disorder. In addition, mindful body exercises, body scanning, being aware of breathing, sitting meditations, short breathing breaks, being aware of compulsive emotions, self-compassion are also included in modified MBCT. In the first sessions, participants are taught mindfulness and attention concepts, exercises about being aware of activities in daily routine (such as eating, tooth brushing, and taking shower) and ability to follow daily mood. In the following sessions, it is aimed to be able to recognize the early signals of the changes in mood and to teach the skills of developing a plan in emergency situations. Then, it is emphasized to be aware of the triggers that cause mood fluctuations and to provide stimulus control of these triggers. When the person feels anxious or depressed, psychoeducation which aims to teach recognizing the vicious cycles in situations that cause these emotions emerge and persist is given. Additionally, audio and video recordings containing the exercises taught are given to the participants and they are asked to practice between the sessions as homework. Due to the difficulty in maintaining attention, the easy distractions and the difficulties in performing the exercises on a regular basis in individuals with bipolar disorders, the duration of body scanning and sitting exercises are shortened in the first sessions and progressively extended by taking into consideration the ability of people to participate in these exercises in the following sessions. In the following sessions, exercises about self-compassion, tending to amusing activities and being aware of positive emotions are prioritized. As the sessions progress, it is aimed to increase the number of activities that give the person a sense of relaxation and comfort (Otto et al. 2009).

In recent years, it is seen that what other psychotherapy methods other than CBT may be effective in people with bipolar disorder is an issue of concern. Therefore, the purpose of the present review study is to examine the MBCT studies conducted in people with bipolar and related disorders. The aim is to examine the intended use of MBCT in bipolar disorder, which psychological variables are taken, what the research patterns are, the characteristics of sample and the research findings.

Method

In this respect, Web of Science, PubMed, SAGE Journals and Science Direct databases were scanned with the key words of "mindfulness-based cognitive therapy", "mindfulness based cognitive therapy" and "bipolar disorder or bipolar or manic depression". While reviewing the literature, there is no time limitation since MBCT is a relatively new method. 82 researches in total were reached in these 4 databases (PubMed= 29, Web of Science= 10, SAGE Journals= 18, Science Direct= 25). For the purpose of this study, it was taken into consideration that MBCT was administered and the sample group consisted of people with bipolar disorder in 82 studies which are reviewed. The abstracts of reviewed researches were examined firstly; the researches which were thought to be unrelated to the subject or the researches consisting of the participants who were not diagnosed with bipolar disorder were excluded.

After the exclusion of publications which are part of the book, review or review studies, it was determined that 12 studies were appropriate for the purpose of the present study. It was determined that 7 were open-label trial, 3 were randomized controlled trial (RCT), 1 was a cohort study and the other one was cross-sectional study of these 12

studies. These studies will be discussed in the following section. Table 1 summarizes the general characteristics and research findings of these 12 studies.

Table1. Basic characteristics of the research studies included in the review study

Research Study	Type of Study	Characteristics of Participants	Control Group	Type of MBCT Program	Number of Participants Completed Treatment	Follow-up Evaluation	Taken Measurements	Basic Results
Miklowitz et al. 2009	OLT	Bipolar I and II (N= 22)	None	Non-modified 8-week MBCT	16	None	Depression Anxiety Mania Suicidal thoughts	There was no significant change.
Weber et al. 2010	OLT	Bipolar I, II and not otherwise specified bipolar (N= 23)	None	Modified 8-week MBCT	15	3 months	Mindfulness Mania Depression	There was no significant change. However, it is found that there was a decrease in depression scores as individuals' mindfulness levels increased.
Stange et al. 2011	OLT	Bipolar I and II (N= 12)	None	Modified 12-week MBCT	10	3 months	Measurements about executive functions (BRIEF, FrSBe) Mania Worry Mindfulness	It was found that there was an improvement in executive functions, memory and the skills of starting and completing the tasks. These mentioned changes were in a positive relationship with the increased mindfulness but did not relate with the depression.
Deckersbach et al. 2012	OLT	Bipolar I, II N= 12	None	Modified 12-week MBCT	10	3 months	Mindfulness Depression Mania Worry Attention Emotion Regulation Well-being Positive Affect Psychosocial Functionality	It was reported that there was a decrease in depression and worry levels and also less attention difficulty after treatment, an increase in mindfulness, emotion regulation skills, psychological well-being, positive affect and psychosocial functionality. Treatment gains were maintained in follow-up evaluation.
Howells et al. 2012	OLT	Bipolar I (N= 12)	Healthy adults without any intervention (N= 9)	Modified 12-week MBCT	12	None	EEG records during resting and performing Anxiety Depression Mania	It was determined that there was an increase in attentional readiness and a decrease in processing of unrelated information. There was any significant change in the anxiety, mania and depression levels.
Howells et al. 2013 (see Howells et al. 2012)	OLT	Bipolar I (N= 12)	Healthy adults without any intervention (N= 9)	Modified 12-week MBCT	12	None	ERP and HRV records	It was determined that there were significant improvements in the emotional processing.
Miklowitz et al. 2015	OLT	Participants with the diagnosis of bipolar disorder (I, II, unspecified	None	Non-modified 8-week MBCT	7	6 months	Depression Hypomania Anxiety	It was stated that there was no significant change in depression, anxiety and hypomania levels. However, it was determined that the decrease in depression levels

		and cyclothymia) in perinatal period (N= 12)						was positively related to the increase in the tendency of mindfulness.
Williams et al. 2008	RCT	Participants with the diagnosis of bipolar disorder in remission period and who have a history of suicide attempt (N= 9)	Waiting Controlled Group (N= 8)	Non-modified 8-week MBCT	7	None	Anxiety Depression	It was determined that there was a significant decrease in anxiety symptoms compared to the waiting control group; similarly, there was a decrease in depression symptoms but there was no difference between the groups compared to the waiting control group.
Ives-Deliperi et al. 2013	RCT	Bipolar I and II (N= 16)	Waiting Controlled Group (N= 7) Healthy adults (N= 10)	8-week MBCT (There is no information about the modification)	16	None	Attention Mindfulness Anxiety Stress Working memory test	It was identified that there were significant improvements in measurements of attention, anxiety and emotion regulation and in working memory, spatial memory and verbal fluency tests.
Perich et al. 2013a	RCT	Bipolar I, II (N= 48)	Group who has received a treatment-as-usual (N= 47)	Modified 8-week MBCT + treatment-as-usual	34	12 months	Number of recurrences of depression, mania and hypomania episodes Anxiety	There was no significant difference between the groups in terms of the number of recurrences of episodes; but it was determined that there was a significant decrease in the anxiety level of the group receiving MBCT and also treatment-as-usual together compared to the other group.
Perich et al. 2013b	Cohort	Bipolar I, II (N= 48)	None	Modified 8-week MBCT	34 However, 23 of them gave information about their meditation process and included in analyses	12 months	Anxiety Stress Depression Hypomania Mania Mindfulness	In the follow-up evaluation, participants who did meditation practices regularly showed less anxiety and depression symptoms; however, it was determined that the level of mindfulness did not change according to whether to do meditation regularly or not.
Weber et al. 2017	Cross-sectional	Participants with the diagnosis of Bipolar I or II and who have a history of 8-week MBCT at least 2 years ago and attended in at least 4 MBCT sessions (N= 71)	None	8-week MBCT (There is no information about the modification)	-	None	In the survey study, the perceived change after therapy, the level of benefit from MBCT and the frequency of doing meditation practices at present taught during the therapy are evaluated.	Participants showed that there was a moderate benefit in terms of relapse prevention and the tendency to think that gains are long-lasting and permanent. They also stated that most positive change is about being aware of the ability to heal one's own health. Participants rated the MBCT for preventing the depression as 5 point, the hypomania or mania as 6 point (over 10-rating scale)

OLT: Open-Label Trial, MBCT: Mindfulness-Based Cognitive Therapy, N: Sample Size, RCT: Randomized Controlled Trial

Results

Open label trials

In an open-label trial conducted with 22 people diagnosed with Bipolar I and II, unmodified 8-week MBCT was performed. The participants who were in remission period and who continued their medication on a regular basis were evaluated for their depression, suicidal thoughts, manic symptoms and anxiety levels before MBCT. MBCT sessions were started with 19 participants, but 16 of them were able to complete all sessions. In this study which had any follow-up evaluation, last measurement was taken immediately after MBCT was completed. Decreases in depression, suicidal thoughts, manic symptoms and anxiety levels of participants were determined after MBCT, but the decreases were not statistically significant (Miklowitz et al. 2009).

In an open-label trial conducted with 23 people diagnosed with Bipolar I, II and unspecified bipolar disorder; measurements for mindfulness, mania and depression levels were taken before modified 8-week MBCT, immediately after completion of therapy and 3 months later from the therapy. In this study where any measurement was taken for anxiety level, no control or comparison group was used. Of 23 subjects included in the study, 21 could give measurements before therapy, 15 of them stated that they attended at least 4 MBCT sessions and the follow-up evaluation was completed with 9 participants. It was concluded that there was no significant decrease in the depression and mania levels of the participants after therapy or during follow-up evaluation. Similarly, there was no significant change in their mindfulness levels. However, it was determined that the increase in people's mindfulness levels was significantly related to the decrease in their depression levels, in other words, as the people's levels of mindfulness increased, their depression levels decreased (Weber et al. 2010).

In an open-label trial conducted with 12 patients with bipolar I and II disorder who were in euthymic phase (not in manic or hypomanic phase), the effect of modified 12-week MBCT on cognitive processing of patients was investigated. In this study without any control group, measurements were taken before the therapy, at the end of the therapy and 3 months after the end of therapy. In basic measurements taken before the therapy, it was determined that people with bipolar disorder had lower scores in FrSBe (The Frontal Systems Behavior Scale) and BRIEF (The Behavior Rating Inventory of Executive Function) which are self-report scales related to executive functions than normative values. Although there was no significant change in total/combined scores taken from both measurement instruments after MBCT, there were some significant improvements when evaluated as subscales. For example, significant improvements in 2 of 9 subscales of BRIEF (initiation and working memory) and also in 2 subscales of FrSBe (apathy and executive functioning) were determined. These observed improvements were maintained in the follow-up evaluation after 3 months. There was no significant change in the already low mania scores in pre-therapy evaluation, and it was determined that there were significant decreases in worry scores obtained from basic measurement after the therapy and also during the follow-up evaluation. In addition, there was an increase in psychosocial functioning levels of patients in both post-treatment and follow-up evaluations (Stange et al. 2011).

In an open-label trial conducted with people with Bipolar I or II disorder, 12-session MBCT modified to bipolar disorder was administered for the purpose of investigating

whether MBCT may increase patients' mindfulness levels, emotion-regulation skills, psychological well-being, positive affect and psychosocial functioning, and whether a decrease in residual mood symptoms. In this study without any control group, measurements were taken from 12 patients with bipolar disorder just before the therapy, immediately after the end of therapy and at the third month after the therapy ended. After the pre-therapy evaluation, 2 people left the study, therapy sessions were completed with 10 people and 9 people participated in the follow-up evaluation. After the therapy, the participants had decreased residual depressive mood symptoms and worry levels and experienced less difficulty in attention compared to pre-therapy; their levels of mindfulness, emotion-regulation skills, psychological well-being, positive affect and psychosocial functioning levels were reported to be increased. In addition, it was concluded that the results obtained were also maintained in the follow-up evaluation after 3 months from therapy. It was found that there was no significant decrease in post-therapy or follow-up evaluation for mania scores that were not very high before the therapy (Deckersbach et al. 2012).

In an open-label study conducted with 12 people who had a diagnosis of Bipolar I disorder and was in euthymic phase and with 9 healthy adults, records were taken via EEG and in the records of the group diagnosed with bipolar disorder, it was intended to examine whether there would be any change after MBCT. In this study, the healthy group was not exposed to any intervention and the group with bipolar disorder had modified 12-session MBCT specific to bipolar disorders. Measurements were taken just before and immediately after the therapy and no follow-up evaluation was made. In this study where the rate of completion of therapy was 100%, EEG recordings were taken from each person while both resting (eyes open or closed) and also giving performance tasks requiring continuity. When the basic measurements taken before therapy were examined, in EEG recordings taken when eyes were closed, decreased theta and increased beta band strength in cingulate and frontal cortex were observed in patients with bipolar disorder compared to healthy adults. However, it was reported that there was no difference in parietal cortex between the groups. The authors interpreted this finding as a sign of reduce in attentional readiness in people with bipolar disorder. Significant differences were found in the responses to P300-like waves on the anterior cortex when faced with the target stimulus for the group with bipolar disorder compared to healthy group in the basic measurement of attention task ERP (Event-Related Potential). The authors interpreted this finding as the differences in processing unrelated information. In the group with the diagnosis of bipolar disorder, there was a decrease in the beta band power in the frontal cortex after MBCT. Similarly, it was determined that the differences in responses to P300 waves decreased after MBCT. The authors interpreted this finding as an increase in attentional readiness and the decrease of progressing the unrelated information. In addition; before treatment, the group with the diagnosis of bipolar disorder had a higher mania score than the healthy control group and there was no significant difference between the groups in terms of anxiety and depression. After treatment, any significant decrease in the mania, depression or anxiety scores of the group with bipolar disorder could not be found. In individuals with bipolar disorder, weaknesses were determined in the activation of the attentional readiness and unrelated information processing during the attention processes compared to healthy group and it was found that these weaknesses decreased significantly after MBCT. This study is important for being the first research reaching to this conclusion (Howells et al. 2012).

Other findings of the same study mentioned above were published after 1 year (see Howells, Ives-Deliperi, Horn and Stein 2012). The aim of this study was to investigate the effect of MBCT on emotional processing in the group with bipolar disorder on the basis of the information that there are impairments in emotional processing of the group with bipolar disorder. In the pre-treatment evaluations, it was determined that there was an increase in the width of the ERP N170 and were increases in HRV (heart-rate variability) during the affective tasks (such as matching, labeling) in the bipolar disorder group compared to the healthy control group. ERP and HRV recordings were taken from people during visual matching tasks (object matching, affect matching, and affect labeling). It was observed that there were significant decreases in increases mentioned above for people with bipolar disorder after MBCT. These research findings were interpreted by the authors as suggesting that MBCT improves emotional processing in people with bipolar disorder (Howells et al. 2013).

Perinatal period (usually the period starting from 28th gestational week to the end of the 4th week after birth) is a risky period for people who experience mood-related problems. In an open-label study based on this information, individuals with major depression and bipolar disorder (I, II, unspecified and cyclothymia) were underwent unmodified 8-week MBCT specific to bipolar disorders. In this study, which was composed of a sample with 39 patients, 27 of them were diagnosed with depression and 12 of them were diagnosed with bipolar disorder. Of the participants, 12 were in the period of pregnancy, 11 were planning pregnancy and 16 were in the postpartum period (6-8 weeks after birth). In the basic measurements taken just before the start of therapy, information about the depression, hypomania and anxiety levels of participants were obtained by semi-structured interviews and self-report tools. Measurements were repeated immediately after the completion of MBCT and at the 6th month after the therapy. The rate of completion of the therapy was higher in patients with depression and only 7 (58,3%) of 12 patients with bipolar disorder had completed the therapy. While there was a significant decrease in the depression levels of participants in the group with the diagnosis of depression, there was no significant improvement in the mood of participants in the group with the diagnosis of bipolar disorder. However, when the sample was evaluated in general, it was determined that decreases in depression levels were associated with an increase in mindfulness tendency. When the groups with depression and bipolar disorder were compared with each other, it was concluded that there was an increase in depression scores of the group with bipolar disorder but there was no significant difference between the groups in terms of anxiety levels. In addition, measurements taken at the 6th month showed that 4 of the people in the group with bipolar disorder had hypomanic attack (Miklowitz et al. 2015).

Randomized controlled trials (RCTs)

In a randomized controlled trial, Williams et al. (2008) intended to investigate the efficacy of MBCT in patients with bipolar disorder who were in remission phase but had a history of suicide attempt or suicidal thoughts. In this study, participants got 8-week MBCT, but this treatment was not modified for bipolar disorders. The type of bipolar disorder in the participants was not mentioned in the study. In the study which included 68 participants in total; there were 24 people with depression and 9 people with bipolar disorder in MBCT intervention group, while there were 27 people with depression and

8 people with bipolar disorder in waiting control group. 21 people with depression and 7 people with bipolar disorder in MBCT intervention group and 20 people with depression and 7 people with bipolar disorder in waiting control group completed the treatment process. In the study, basic measurements were taken before the therapy and last evaluation was made immediately after the therapy was completed, no follow-up evaluation was made. These measurements included anxiety and depression levels of participants. According to study findings, anxiety levels of participants with bipolar disorder in MBCT group decreased significantly after the therapy was completed compared to the participants with bipolar disorder in waiting control group. It was stated that depression levels of participants in MBCT decreased after therapy but there was no significant difference between the groups when compared with the waiting control group (Williams et al. 2008).

In a RCT conducted with patients with the diagnosis of bipolar I and II disorder who had mid-level or subthreshold level mood symptoms, fMRI recordings were taken before and after MBCT. The sample of the study consisted of 23 patients with bipolar disorder and 10 healthy adults. Sixteen of the patients with bipolar disorder and all of the healthy adults got 8-week MBCT, and 7 people with bipolar disorder were randomly assigned to the waiting control group. Measurements were taken before therapy, during the therapy and immediately after the therapy was completed. Before MBCT, it was determined that anxiety and stress symptoms were significantly higher in patients with bipolar disorder, these subjects had lower scores in working memory test compared to healthy adults and during a mindfulness task, a significant decrease in BOLD (Blood Oxygen Level Dependent) signal was detected in the middle of the prefrontal cortex of these participants. In other words, people with a diagnosis of bipolar disorder had poorer performance compared to healthy adults. Following MBCT, it was determined that the treatment group with bipolar disorder had significant improvements in attention, anxiety and emotion-regulation measurements and working memory, spatial memory and verbal fluency tests compared to the waiting control group with bipolar disorder (Ives-Deliperi et al. 2013). This study is the first study to be conducted in patients with bipolar disorder using fMRI and it is important in terms of showing the changes in brain regions after MBCT.

In a RCT, it was investigated that if there was a difference between the group which got both treatment-as-usual for bipolar disorder treatment and modified 8-week MBCT and the group which got treatment-as-usual alone in terms of recurrence of depressive, manic and hypomanic episodes and anxiety levels of participants. 95 patients with bipolar I and II disorder were included in the study which is conducted in order to compare the efficacy of treatments. 48 people received both treatment-as-usual and MBCT, while 47 people received only treatment-as-usual. Follow-up evaluation was made 12 months later from the end of therapy process. As a result of the study, it was reported that there was no significant difference between the groups in terms of the recurrence numbers of depressive, manic and hypomanic episodes both after treatment and during follow-up evaluation. However, it was concluded that the group underwent both treatment-as-usual and MBCT had a significant decrease in anxiety levels compared to the group received treatment-as-usual alone (Perich et al. 2013a).

Studies with other methodological backgrounds

In a sample of outpatients with bipolar I and II disorder, a cohort study was conducted to examine the effect of doing meditation homework regularly on the outcomes of modified 8-week MBCT specific to bipolar disorders. The participants were randomly assigned to MBCT group or treatment-as-usual (TAU) group. It was also recorded whether everyone in MBCT group did meditation practices on a weekly basis. In order to measure the anxiety, stress and depression levels self-report tools were used and for the hypomania, mania and depression levels, measurement tools including clinician evaluation were used. These measurements were taken before therapy, immediately after therapy and 12 months later from the end of the therapy repeatedly. In MBCT group completed with 34 people, 23 of the participants gave information about their homework regularly. After 12 months, 22 people were participated in follow-up evaluation. According to study findings, anxiety and depression scores in the follow-up evaluation after 12 months were found to be lower in those who did their meditations more regularly (at least 3 days a week) during MBCT. It was concluded that mindfulness levels in the follow-up evaluation were not related to regularity of meditation practices during program (Perich et al. 2013b).

In a cross-sectional study, 71 people with bipolar disorder (66.4% of the available sample) accepted to participate the study which is conducted to investigate the long-term effects of MBCT on patients with bipolar I or II disorder who had taken 8-week MBCT at least 2 years ago and attended at least 4 MBCT sessions. In the survey study, the perceived change by patients in the post-therapy period, the level of benefit from MBCT and the frequency of practicing meditation taught during therapy were evaluated. Mindfulness practices were divided into formal (such as body scan, sitting meditation, mindful walking and mindful movements) and informal (becoming mindful in everyday activities, being able to generalize the mindfulness skills to daily life) and were evaluated by this distinction. 54.9% of participants stated that they did formal practices at least once a week, while 57.7% stated that they did informal practices at least once a week. Participants stated that their benefit from therapy in terms of relapse prevention was moderate and therapy gains were long-lasting and permanent. It was found that doing formal meditation practices at least once a week is positively related to the long-lasting effects of treatment. It was determined that there was a positive relationship between doing informal practices regularly and permanent changes in daily life, and between mindful breathing exercises and prevention of depression recurrence. Mostly stated positive change by participants was in the area of "becoming mindful about his/her ability of healing one's own health". In addition, the perceived benefit from the therapy was measured with a 10-likert-scale (1= none, 10= excessive) and participants gave 5 points on an average for the prevention of depression and 6 points on an average for the prevention of hypomania or mania (Weber et al. 2017).

Discussion

The aim of the present study is to review the scientific studies in the literature which examined the effectiveness of MBCT in people with bipolar disorder. For this purpose, the related literature has been reviewed and 12 researches have been reached. These studies were examined in terms of research purpose, characteristics of sample, methodological background and research findings. In the reviewed studies, it is usually seen that

changes in mindfulness, depression, mania and hypomania scores before and after MBCT were examined. When the aims of the studies are looked over, it is seen that their common aim is to investigate whether MBCT has an effect on depression, mania, hypomania, anxiety and mindfulness levels in bipolar disorder. In some studies, it was concluded that MBCT creates a decrease in depression (Deckersbach et al. 2012, Weber et al. 2017), anxiety (Williams et al. 2008, Perich et al. 2013a, Perich et al. 2013b) and worry (Stange et al. 2011, Deckersbach et al. 2012) levels of patients. However, in some studies, there was no significant decrease in depression (Weber et al. 2010, Miklowitz et al. 2015), mania (Weber et al. 2010, Stange et al. 2011, Deckersbach et al. 2012) or anxiety (Miklowitz et al. 2015) levels after MBCT. Studies usually reached a common conclusion that there was an increase in mindfulness characteristics of participants after MBCT (Weber et al. 2010, Deckersbach et al. 2012). As is known that as people's mindfulness levels increase, their psychological distress levels decrease. Showing that this finding is also the same for the people with bipolar disorder is important for mental health professionals working with the people with bipolar disorder. Including the components which help the patients in this group for improving mindfulness skills in the treatment seems to bring positive fertility for their treatment. Based on this information, it is possible to say that MBCT has effective results in people with bipolar disorder, but this is not supported in every study.

Of the 12 studies reviewed, 7 were open-label studies, 3 were RCT, 1 was a cohort study and 1 was a cross-sectional follow-up study. As is known, RCTs are one of the most important research methods giving information about the effectiveness of therapies. Therefore, it is thought that there is a need for more RCTs in this area in order to have a better idea about the effectiveness of MBCT in bipolar disorder. Although studies usually consist of people with the diagnosis of bipolar I, II or unspecified bipolar disorder, some studies have not reported the type of bipolar disorder in patients (Williams et al. 2008, Weber et al. 2010, Miklowitz et al. 2015). In addition, it is observed that participants were usually in the inter-attacks or in the remission periods and continued to their medical treatment regularly. As it is known, the attack periods in bipolar disorder may have devastating effects on the person and his/her surrounding environment and may negatively affect the treatment. Attack periods are also important and challenging for clinicians working in this field. Especially if manic or depressive attacks are very severe, the person may be resistant to suggestion and cognitive change. Although conducting cognitive or mindfulness-oriented therapies is challenging in these periods, behavioral interventions may be at the forefront. It is considered that examining the findings may be useful by making a revision on content of MBCT for these periods. In these studies, reviewed, it is generally observed that the participants were in remission period or in a period without any attack. Therefore, it is observed that the mania/hypomania levels of participants were not very high at the measurements taken before the therapy and for that reason, no significant decrease was determined after therapy (Stange et al. 2011, Deckersbach et al. 2012). Additionally, it is thought that the finding which there was no significant increase in mania levels after MBCT and in follow-up evaluations is an also important finding, even a therapy gain.

It is noteworthy that studies had usually small sample groups (min: 10, max: 95). This complicates the generalizability of the results obtained. It is thought that studies to be conducted with larger and homogeneous sample groups (such as separate evaluation

of each sub-diagnostic group) will contribute to the literature by providing more specific and generalizable findings about bipolar disorder.

In some studies, it is seen that MBCT has been modified to be specific for bipolar disorder, but there are also some studies in which the modification has been ignored. Although MBCT is a structured psychotherapy method that has a guideline, each psychopathology may need different intervention type during the therapy process. For example, it is critical to understand the preliminary signals of mood fluctuations, coping with these fluctuations and following the daily/social routines in bipolar disorder (Deckersbach et al. 2014). Modifying the therapy by adding these components into MBCT is a variable that is thought to be effective on therapy outcomes. Therefore, it is suggested that MBCT should be modified for bipolar disorder in future studies. This modification will increase the comparability and generalizability of the treatment results.

In the studies reviewed, it is observed that follow-up evaluation usually was made after 3 months (Weber et al. 2010); in some studies, follow-up evaluation was made after 6 months (Miklowitz et al. 2015) and 12 months (Perich et al. 2013a). In addition, it is noteworthy that there are also some studies in which there was no follow-up evaluation and results are reported with measurements taken immediately after therapy (Williams et al. 2008, Miklowitz et al. 2009). Follow-up evaluations are important in terms of showing whether the results obtained from therapy have continuity and persistency. Considering that the longest follow-up evaluation is made after 12 months, it can be concluded that it remains unclear to the researchers whether the effects of therapy continue for longer periods. Although reaching the same participants again after therapy is time consuming and costly, it is clear that some practical ways should be found to eliminate this obscurity.

In the studies, it is seen that evaluations of diagnosis and situations such as anxiety, mania, hypomania, mindfulness and depression are made usually with self-report instruments and in some studies, it is seen that measurements are taken with self-report instruments and clinician's evaluations together. Studies in which only self-report tools are used are always open to possible confounding situations (such as social desirability, manipulation, effort to satisfy the therapy team). These possible situations should be considered when generalizing or reporting research findings. In the future studies, it is recommended to use measurement tools which allow both self-report instruments and clinician evaluation.

Recently, it has been observed that increasing technological developments also affect the studies investigating the efficacy of MBCT in bipolar disorder. More objective measurements can be taken from the participants by using methods such as EEG, fMRI, and these results can be compared with the results obtained after therapy. In addition, studies conducted with these methods have shown that there are differences in cognitive and affective processing in patients with bipolar disorder, and in these studies, the possible effects of MBCT could be determined by using more objective assessment tools. It is thought that there is a need for further research to obtain more objective measurements, which are enabled by technological developments. In a study conducted by Strawn et al. (2016), participants consisted of 9 adolescents who have parents diagnosed with bipolar disorder and experience social and general anxiety or separation anxiety. In this study, 12-session MBCT was applied and repeated measurements were taken with fMRI. After MBCT, increased activation was determined in regions such as bilateral insula, lentiform nucleus and anterior cingulate after the tasks related to emotional sti-

muli. In addition, increased activation in brain regions were found to be positively related to decrease in anxiety levels. Since these brain regions are related to focus on internal sensations and experiences, it has been concluded that MBCT provides a reduction in anxiety and an increase in the processing of internal stimuli. In addition to individuals with bipolar disorder, it is known that there are high risk groups in terms of developing this disease. The diagnosis of affective or schizoaffective disorder in family history and the emergence of the first signals of disruption in psychosocial functioning may be risk factors for this psychopathology. It is generally known that the first clinical signs and symptoms emerge in adolescence or early adulthood, and these individuals are at risk of misdiagnosis or delay for treatment. In a study conducted with people thought to be in the risk group for bipolar disorders, CBT was modified specific to people at risk of developing bipolar disorder and the results were compared with those attending unstructured group meetings (Pfennig et al. 2014). The findings of the study showed that there were significant improvements in the psychosocial functioning and a decrease in the affective symptoms of the people in the CBT group compared to the other group. It is thought that MBCT for people at risk of developing bipolar disorder should be also examined whether or not to show similar results. In the future, it is thought that MBCT studies should be carried out with the people in the risk group in terms of developing bipolar disorder and such studies are important in terms of preventive mental health.

Conclusion

When the results of the researches in the review study are evaluated in general, it can be said that findings such as the results of CBT in bipolar disorders may show variability. Although some studies have shown a decrease in depression, anxiety, manic and hypomanic symptoms, these results are not supported in other studies. When the literature is reviewed, the results of the most of the other review studies are similar (Stratford et al. 2015, Lovas and Schuman-Oliver 2018). With more studies to be carried out in this area and with larger samples, it should be determined particularly which kind of patients gets most benefit from MBCT (Miklowitz et al. 2009, Deckersbach et al. 2014). Increasing the number of studies to be carried out may make it possible to conduct a meta-analysis on this issue, and it can be evaluated statistically whether MBCT is effective in bipolar disorders.

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