Research Paper

Efficacy of Mindfulness-Based Cognitive Therapy on Headache Considering the Moderating Role of Alexithymia: A Randomized Controlled Trial

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**Abstract**

Mindfulness-based intervention has been found efficacious in reducing primary headaches and negative cognitive-related pain. However, little is known about the potential moderators in this regard. One of the most important moderators affecting the headaches is Alexithymia.

**Objective**

The present study investigated the moderating role of Alexithymia on the effect of Mindfulness-Based Cognitive Therapy (MBCT) on pain intensity in patients with primary headache.

**Method**

A clinical trial was conducted in 2017 and 2018 at Imam Hossein Hospital of Tehran City, Iran. Using judgment sampling method, of 94 inpatients with chronic headache, 85 were selected and randomly assigned into the two groups of MBCT (43 patients) and control (42 patients). The Numerical Rating Scale (NRS) of Pain Self-Efficacy Questionnaire (PSEQ) and Pain Catastrophizing Scale (PCS) were applied to collect data. The obtained data were analyzed by Independent Samples t-test and Chi-squared test; longitudinal data were analyzed using linear mixed model analysis.

**Finding**

Statistically significant time×group interactions were found for pain intensity (P<0.001), self-efficacy (P<0.001), and catastrophizing (P<0.001). The obtained results indicated a significant reduction in pain, pain catastrophizing and increased self-efficacy.

**Conclusion**

MBCT is a potentially efficacious approach for individuals with headache. Alexithymia may have clinically relevant factors for identifying the patients who may benefit most from MBCT as a pain intervention.

**Keywords:** Mindfulness-Based Cognitive Therapy, Primary headache, Alexithymia

**Citation**


**Extended Abstract**

1. Introduction

Chronic pain is a prevalent annoying condition in humans. Primary headaches are among the most commonly reported complaints in neurological clinics leading to high annual healthcare costs [1]. Studies using applied technologies such as Magnetic Resonance Imaging (MRI) have reported that in the brain, the sensitive and important paths related to pain sensation pass along the cognitive and emotional paths. Thus, such neuromatrix have the capacity to increase or decrease the sensory flow of painful stimuli through cognitive activities [2].

Such studies have suggested that psychological processes can actually develop painful stimulus pathways in the brain;
thus, provide evidence that psychological interventions have a strong potential for chronic pain management. Numerous studies have revealed that ineffective cognitive skills play a key role in the persistence of negative emotions and initiate maladaptive behavioral responses, resulting in continued pain-related outcomes [3].

One of the treatments that target negative cognition is Mindfulness-Based Cognitive Therapy (MBCT), recognized in several studies conducted over the past 15 years of effective pain relief [4-8]. A modern psychological approach (MBCT) has recently devised a comprehensive model to explore the impact of cognitive process on perception and pain management, specifically for chronic pain [9]. Randomized clinical trials indicated the effectiveness of MBCT on chronic pain [10, 11].

Individual differences in the clinical profiles of psychological traits in patients with chronic pain have been proposed as one of the potential sources of various respondents to treatment [12, 13]. However, little attention has been paid to the association between individual characteristics and MBCT, as well as specific moderators that maximize treatment outcomes. Alexithymia is identified as a key factor in chronic headache. Alexithymia is a persistent personality trait, defecting the cognitive processing of emotions. Additionally, high levels of Alexithymia may predict headache severity [14].

This clinical feature is associated with the inability to identify and name the emotions, as well as pain severity in patients [15]. Its high levels are considered as one of the headache severity predictors [16]. It is assumed during mindfulness practices (due to interaction with body sensations and affective distress) emotions are cognitively processed [17]. Alexithymia can be considered as one of the predictors of mindfulness-based interventions effects on headache. Some clinical trials have indicated the moderating role of Alexithymia on therapeutic outcomes [18]. However, little is known about the moderating role of Alexithymia in the MBCT effects [19]. Therefore, based on the aforementioned contents, the present study investigated the effect of MBCT on pain intensity and the moderating role of Alexithymia on the same effect in patients with primary headache.

2. Methods and Materials

Data from the current experimental study is extracted from a single blind Randomized Controlled Trial (RCT) that was performed to compare the effect of MBCT with Attention Placebo Control (APC) group. The sample population consisted of 85 patients with a primary headache referring to the Neurology Department of Imam Hossein Hospital. Of 94 eligible participants, 4 have discontinued the research, 5 people did not attend the baseline assessments and the remaining 85 participants (after completing the baseline questionnaire using the random sequencing website1) were allocated to treatment (MBCT, n=43) and control (APC, n=42) groups.

In the experimental group, 6 participants discontinued the study before the intervention and 9 participants discontinued it during the intervention. Thus, a total of 28 people completed the questionnaire by the end of the eighth week of intervention. In the control group, 8 cases were missed and by the end of the eight weeks, 34 patients remained in this group. To measure changes related to the duration of treatment, the study participants were evaluated at 4 stages from the onset of treatment to the end of the eight weeks. SPSS was used for data analysis.

To evaluate the efficacy of pain intensity, self-efficacy and pain catastrophizing and its comparison with the APC group, Linear Mixed Models were used. At first, the interactive effect of time (4 steps) x group (MBCT and APC groups) was obtained to evaluate the effectiveness of MBCT. Then, the interactive effect of the moderator variable (Alexithymia) x time (4 steps) x group (MBCT and APC groups) was investigated.


Figure 1. Raw score’s changes in pain intensity from baseline to the end of the eighth week (measured in 4 sessions)
3. Results

The interactive effect of treatment group×time in all variables was only significant in the MBCT group (P<0.001). The pain intensity changes are shown in Figure 1. According to Figure 2, this significant difference is explained by the trend of pain reduction from the second assessment step (the third week of intervention) with a steep slope to the cut-off point of the middle pain (numerical value: 5); then has been reduced until the last assessment step in the alexithymic participants of MBCT group.

The non-alexithymic participants of MBCT group have reached moderate pain level in the fourth step with a mild slope. It indicates that MBCT gradually improves the condition of healthy and non-alexithymic participants. Moreover, these groups have obtained statistically significant results compared to the control group; however, after receiving MBCT sessions, they demonstrated less therapeutic benefits than those with Alexithymia.

4. Conclusion

It is important to distinguish between the individuals with and without Alexithymia. Such distinction must be considered in the treatment trend of chronic pain management. In addition, the obtained results can explain the effect of MBCT on adjustment with primary headache.

Ethical Considerations

Compliance with ethical guidelines

This study was approved by the Ethics Committee of Islamic Azad University, Karaj Branch (Ethical code: IR.IAU.K.REC.1397). The Iranian Center for Clinical Trials has registered this study with the code IRCT20141012019511N4.

Funding

The financial support was provided by Islamic Azad University, Karaj Branch.

Authors' contributions

Study concept and design: Sara Namjoo, Mohammad Reza Seirafi; Original Draft, Analysis and interpretation of data: Sara Namjoo; Manuscript preparation: Sara Namjoo, Mohammad Reza Seirafi, Ahmad Borjali, Farhad Assarzadegan; Data collection: Mohammad Reza Seirafi, Ahmad Borjali, Farhad Assarzadegan; Critical revision: Ahmad Borjali, Mohammad Reza Seirafi.

Conflicts of interest

The authors declared no conflict of interest.

Acknowledgments

We are grateful for the cooperation and assistance of the Research Deputy, the officials and members of the Imam Hossein Hospital and the executive staff.

Figure 2. Inter-group results of interactive effects of Alexithymia on pain (Time×Group×Moderator)
اثر شناخت درمانی مبتنی بر ذهن آگاهی بر سردرد اولیه: یک کارآزمایی بالینی تصادفی با بررسی تعداد گری الکسیتایمیا

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چکیده

目的: ارتباط شناخت درمانی مبتنی بر ذهن آگاهی با سردرد اولیه و همچنین تعداد گری الکسیتایمیا در سطح کلینیکی ناشناخته است. این مطالعه کارآزمایی بالینی در بیمارستان امام خمینی (ع) استان تهران انجام شد. با استفاده از نمونه‌گیری تصادفی از ۸۵ بیمار مبتلا به سردردی و گروه کنترل از ۹۴ بیمار به صورت تصادفی جای‌گذاری شدند. در هشت جلسه شناخت درمانی با هدف بهبود کاهش سردرد این دو گروه مورد بررسی قرار گرفتند.

نتایج: گروه آزمایشی از نظر شدت سردرد و همچنین اثر تعاملی زمان بر سطح الکسیتایمیا و دقت در شناسایی درد، بیشتر بودند. همچنین تعداد گری الکسیتایمیا بین گروه‌های آزمایشی و کنترل نارسایی نداشت.

کلیدواژه‌ها: شناخت درمانی مبتنی بر ذهن آگاهی، سردرد (اولیه)، الکسیتایمیا.

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