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Mindfulness-based cognitive therapy for the treatment of headache pain: A mixed-methods analysis comparing treatment responders and treatment non-responders

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Abstract

Objectives: Our recent pilot study demonstrated mindfulness-based cognitive therapy (MBCT) is a potentially efficacious headache pain treatment; however, it was not universally effective for all participants. This study sought to explore patient characteristics associated with MBCT treatment response and the potential processes of change that allowed treatment responders to improve and that were potentially lacking in the non-responders.

Design: We implemented a mixed-methods analysis of quantitative and qualitative data. The sample consisted of 21 participants, 14 of whom were classified as treatment responders ($\geq$50% improvement in pain intensity and/or pain interference) and seven as non-responders (<50% improvement).

Setting: The study was conducted at the Kilgo Headache Clinic and the University of Alabama Psychology Clinic.

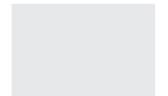*Intervention:* Participants completed an 8-week MBCT treatment for headache pain management.

Measures: Standardized measures of pain, psychosocial outcomes, and non-specific therapy factors were obtained; all participants completed a post-treatment semi-structured interview.

Results: Quantitative data indicated a large effect size difference between responders and non-responders for pre- to post-treatment change in standardized measures of pain acceptance and catastrophizing, and a small to medium effect size differences on treatment dose indicators. Both groups showed improved psychosocial outcomes. Qualitatively, change in cognitive

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processes was a more salient qualitative theme within treatment responders; both groups commented on the importance of non-specific therapeutic factors. Barriers to mindfulness meditation were also commented on by participants across groups.

Conclusions: Results indicated that change in pain related cognitions during an MBCT intervention for headache pain is a key factor underlying treatment response.

Summary

This study explored factors associated with treatment response during a MBCT for headache intervention. Results offer suggestions regarding the processes underlying change in pain outcomes and provide preliminary data on patient characteristics associated with MBCT treatment response. Continued mechanism research will lead to streamlined interventions that efficiently maximize patient benefit.

Introduction

Approximately 45 million Americans suffer chronic or recurring headaches.[1–3] Headache disorders are among the ten most disabling conditions for both genders combined, and among the five most disabling for women.[2] Notably, the most frequently identified headache trigger is stress[4,5] which suggests tremendous potential for psychosocial approaches for headache pain management.

A substantial literature documents cognitive-behavioral therapy (CBT) is efficacious for headache pain. Benefits of CBT include reduced headache frequency, intensity, duration, and medication use.[e.g.,6,7] CBT theory purports that a key treatment mechanism is change in maladaptive cognitions, such as pain catastrophizing. Many professional organizations endorse CBT for headache;[8] however, CBT is not universally effective for all individuals and effect sizes are modest.[9] Thus, additional treatment options are needed.

A promising trend has been the application of mindfulness-based stress reduction (MBSR)[10] for chronic pain management. MBSR is associated with significant improvement in pain perception, pain coping, and affect.[e.g.,11–13] Theoretically, meditative therapies operate via engendering change in mindfulness and pain acceptance.

Recently we adapted mindfulness-based cognitive therapy (MBCT)[14] for the management of headache and pilot tested this approach.[15] Theoretically, MBCT for pain integrates key CBT and MBSR interventional strategies to directly target change in mindfulness, and pain acceptance, which subsequently indirectly leads to change in maladaptive cognitions. Completer analyses found that compared to a wait-list control, the MBCT group reported statistically significant, large effect size improvement in pain interference, pain catastrophizing, pain acceptance, and self-efficacy. Although these results are promising, just as with past research examining CBT and MBSR for headache,[e.g.,6,7,13] MBCT was not effective for all treatment completers.

At a time when healthcare resources are limited, there is an urgent need to advance our ability to match patients to the treatment most likely to efficiently, and cost-effectively, maximize benefit. Recently there has been a call from experts in the field to examine treatment mechanisms.[16,17]

Thus, in the current study we conducted a mixed methods analysis of the quantitative and qualitative data obtained during our MBCT pilot study[15] to: (1) examine the characteristics associated with MBCT headache treatment responders and non-responders; and (2) seek clues regarding the potential processes of change that allowed the treatment responders to improve and that may have been lacking in the non-responders.

Methods

Design

The original pilot study was a parallel-group, un-blinded, randomized controlled trial comparing MBCT to a medical treatment as usual, delayed treatment (DT) control within a headache pain sample. The study was conducted at the Kilgo Headache Clinic and the University of Alabama Psychology Clinic (located in Alabama, U.S.A.). Data collection took place over a two year time frame (between May, 2010 and May, 2012) commensurate with the funding period of the study. Data analyzed in the current study was obtained from a pre-treatment quantitative assessment battery, a daily online meditation practice diary (during treatment), and a post-treatment quantitative and qualitative assessment. Interviews were transcribed verbatim and thematically analyzed. This study was approved by the Institutional Review Board at the University of Alabama, and informed consent was obtained with all patients.

Participants

Participants were adult patients with a primary headache pain type recruited through referral by a physician or self-identified via posted brochures and public service announcements.[18] Data from all nine participants completing the immediate treatment condition and all 12 participants completing treatment after crossing over from the delayed-treatment control was analyzed. Implementing established treatment response criterion,[19] participants were classified into two groups: treatment responders (≥50% improvement in pain intensity and/or pain interference; $n = 14$) and non-responders (<50% improvement in either pain intensity or pain interference; $n = 7$). A complete data set was not available for participants that did not complete treatment, hence this data was not possible to include in the analyses.

Therapists

MBCT treatment groups were conducted by the first author (an advanced graduate student in clinical psychology at the