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Review

A systematic review and meta-analysis of mindfulness-based stress reduction for the fibromyalgia syndrome

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ABSTRACT

Objectives: This paper presents a systematic review and meta-analysis of the effectiveness of mindfulness-based stress reduction (MBSR) for FMS.
Methods: The PubMed/MEDLINE, Cochrane Library, EMBASE, PsychINFO and CAMBASE databases were screened in September 2013 to identify randomized and non-randomized controlled trials comparing MBSR to control interventions. Major outcome measures were quality of life and pain; secondary outcomes included sleep quality, fatigue, depression and safety. Standardized mean differences and 95% confidence intervals were calculated.
Results: Six trials were located with a total of 674 FMS patients. Analyses revealed low quality evidence for short-term improvement of quality of life (SMD = −0.35; 95% CI −0.57 to −0.12; P = 0.002) and pain (SMD = −0.23; 95% CI −0.46 to −0.01; P = 0.04) after MBSR, when compared to usual care; and for short-term improvement of quality of life (SMD = −0.32; 95% CI −0.59 to −0.04; P = 0.02) and pain (SMD = −0.44; 95% CI −0.73 to −0.16; P = 0.002) after MBSR, when compared to active control interventions. Effects were not robust against bias. No evidence was further found for secondary outcomes or long-term effects of MBSR. Safety data were not reported in any trial.
Conclusions: This systematic review found that MBSR might be a useful approach for FMS patients. According to the quality of evidence only a weak recommendation for MBSR can be made at this point. Further high quality RCTs are required for a conclusive judgment of its effects.

Contents

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Introduction

The fibromyalgia syndrome (FMS), a chronic condition characterized by chronic widespread pain, fatigue, cognitive disturbances, sleep disorders and a high amount of somatic and psychological distress [1,2] affects between 2.9 and 3.8% of the general population in Europe [3,4], with women being much more frequently affected than men [2]. Due to lack of data only a few complementary therapies can be recommended at the moment, although such therapies are frequently applied by the majority of FMS patients [5]. One treatment modality, which has been used for a variety of chronic pain conditions, is mindfulness-based stress reduction (MBSR).

MBSR has originally been developed as a behavioral medical intervention for patients suffering from chronic pain conditions and stress-related disorders [6] and received increasing attention within the past decade [7]. The original curriculum [6] applies a structured 8-week group program of 2.5 h weekly and an additional all-day silent retreat with the overarching aim of cultivating mindfulness, a special way of paying attention often described as moment-to-moment non-judgmental awareness. Key components of MBSR include different formal mindfulness practices (sitting meditation, walking meditation, body scan, and also yoga exercises) [8], daily homework, and also informal mindfulness practice aiming to increase awareness during routine activities in everyday life [9]. MBSR cannot be considered a causal therapy for any pain disorder; however it might help patients to improve their coping and thereby reduce suffering.

Systematic reviews have already shown that MBSR might be effective for chronic pain conditions [10–12] and for mental problems such as stress, depression and anxiety [13,14] however no review has been undertaken to determine the effects of MBSR for the treatment of FMS in particular. Therefore this systematic review and meta-analysis aimed to determine the short- and long-term efficacy and safety of mindfulness-based stress reduction compared to control interventions for patients suffering from FMS.

Materials and methods

Protocol and registration

This review was planned and conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines (PRISMA) [15], the recommendations of the Cochrane Musculoskeletal Group [16,17] and the GRADE recommendations (Grading of Recommendations Assessment, Development and Evaluation) [18]. The protocol was not registered in any database.

Eligibility criteria

To be eligible for review, studies were required to meet the following conditions:

1) *Types of study designs*: Randomized controlled trials (RCTs) and non-randomized controlled trials (nRCT) were eligible.
2) *Types of participants*: Studies of patients diagnosed with fibromyalgia were eligible, regardless of age, condition's duration or intensity. No restrictions regarding diagnostic procedures were applied.
   If studies included not only FMS patients but also other patients with chronic pain or functional disorders, the authors were asked to provide data for the FMS subsample. This procedure, however, was applied only in studies where at least 20 FMS patients were included.
3) *Types of interventions*: Studies that compared MBSR with either no treatment, usual care or any active treatment were eligible. Studies were included if MBSR was conducted in accordance with the original curriculum developed by Kabat-Zinn [6] or if an adaption was used. However, the intervention had to be of a comparable format, i.e. between 6 and 10 group sessions of 2–4 h with the cultivation of mindfulness as the key element. A cognitive behavioral program on the other hand was not included, when the main component was of psychotherapeutic nature. Co-interventions were allowed, but these studies were then excluded in the subsequent sensitivity analyses.
4) *Types of outcomes*: Studies were eligible if they assessed at least one major patient-centered outcome, namely quality of life or pain. Secondary outcomes were sleep quality, fatigue, depression and safety. Outcomes were chosen because they represent the key symptoms of fibromyalgia.
5) *Length of follow-up*: No restrictions regarding length of follow-up were applied. Short-term effects were defined as measures taken directly after the intervention and long-term effects as measures taken closest to 6 months post-randomization.