Mindfulness-based stress reduction and mindfulness-based cognitive therapy: a systematic review of randomized controlled trials

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CRD summary
The authors concluded that mindfulness-based stress reduction improved mental health and that mindfulness-based cognitive therapy prevented depressive relapses. The review appeared to have some methodological flaws in searching, the review process, presentation of results, and the quality of included trials. Given these limitations, the authors' conclusions are unlikely to be reliable.

Authors' objectives
To evaluate the effects of mindfulness-based stress reduction and mindfulness-based cognitive therapy.

Searching
MEDLINE, EMBASE, and PsycINFO were searched for published English language articles from 1980 to 2010. Keywords were reported. Reference lists were checked for additional studies.

Study selection
Eligible for inclusion were randomised controlled trials (RCTs) that contained at least 33 adult participants who received mindfulness-based stress reduction (eight weekly two to 2.5 hour sessions and a whole-day retreat between week six and seven) or mindfulness-based cognitive therapy (mindfulness-based stress reduction plus cognitive therapy over eight weekly sessions). Full intervention descriptions were reported in the paper. Mindfulness was defined as moment-to-moment non-judgemental awareness learned through practice. Trials with slightly modified versions of mindfulness-based stress reduction were accepted for patients with cancer, older adults with chronic low back pain, and medical students.

There was substantial variation among the included trials in population groups, conditions, mean ages, proportions of men and women, and outcome measures. Control groups were mainly waiting-list only; other control groups included active interventions or treatment as usual.

One reviewer selected the trials for inclusion.

Assessment of study quality
Trial quality was assessed using criteria for: intention to treat; primary outcome power calculation; evidence to support the effect size; number and competence of therapists; description of concomitant treatment; adherence to treatment manual; and description of homework practice. The Jadad scale was used to assess randomisation, blinding, and drop-outs.

The authors did not state how many reviewers carried out the quality assessment.

Data extraction
Where possible, data were extracted to permit the calculation of effect sizes.

The authors did not state how many reviewers extracted the data.

Methods of synthesis
A narrative synthesis was carried out. Results were grouped by non-clinical populations, clinical populations with physical illness, and clinical populations with psychiatric disorders. Trial differences were presented in tables.

Results of the review
Twenty-one trials (sample size range 37 to 172 participants) were included in the review. Follow-up ranged from the end of treatment to 15 months. Twelve trials scored 3 on the Jadad scale. Four trials reported the use of two or more
therapists. A number of trials reported independent assessment of adherence and competence of therapist (details unclear). About half of the trials used a power calculation. Intention to treat was used in 16 trials. Descriptions of concomitant treatments and adherence to treatment manual appeared to be poorly reported.

Medium effect sizes were reported in general.

**Non-clinical populations** (four trials): For mindfulness-based stress reduction in non-clinical populations, mental health was improved in all four trials. Physical health was improved in two trials.

**Clinical populations with physical illnesses** (11 trials): For mindfulness-based stress reduction in clinical populations with physical illnesses, six of nine trials showed significant improvements in mental health compared to control group. Two of six trials reported significant improvements in physical health.

**Clinical populations with psychiatric disorders** (six trials): For combined mindfulness-based stress reduction/cognitive therapy in clinical populations with psychiatric disorders (six trials), there were higher improvements in the mindfulness interventions where this was compared with active control in both mental and physical outcomes, but the higher effect was not sustained at four weeks follow-up.

Specifically, compared with control, mindfulness-based stress reduction was associated with reduced perceived stress and/or psychological distress (seven trials), reduced depressive symptoms (10 trials), and reduced anxiety symptoms (six trials).

The authors stated that publication bias could not be ruled out.

**Authors' conclusions**
Mindfulness-based stress reduction improved mental health and mindfulness-based cognitive therapy prevented depressive relapse.

**CRD commentary**
The review question was clear. Inclusion criteria for study design and interventions were clearly specified. Criteria for participants and outcomes were less clear, which led to substantial variation for these aspects in the selected trials. Appropriate data sources were accessed, but the restriction to published English language studies raised the possibility that relevant articles were overlooked. The study selection process was open to bias and error as it was conducted by one reviewer. The transparency of the remaining review process was unclear.

The quality of included trials appeared to be less than optimal. Adequate trial details were provided. A narrative synthesis seemed appropriate, given substantial clinical variation amongst the trials. However, in some places it was difficult to verify the authors' statements about intervention effects and some results were presented only as within group effect sizes.

This review appeared to have some methodological flaws, so the authors’ conclusions are unlikely to be reliable.

**Implications of the review for practice and research**
**Practice:** The authors did not state any implications for practice.

**Research:** The authors stated that future RCTs should include an active comparator, adequately trained instructors, and at least one-year follow-up. Trials should also seek to determine the relative influence of mindfulness as a mechanism of effect.

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