

Review

## Meditation Based Therapies—A Systematic Review and Some Critical Observations

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**Abstract:** This article systematically reviews the evidence for Mindfulness-Based Stress Reduction (MBSR) and Mindfulness-Based Cognitive Therapy (MBCT) and analyses the conditions around their rising popularity. MBSR, MBCT and Mindfulness Meditation were used as key words. The inclusion criteria were randomized controlled trials using the standard MBSR/MBCT program with a minimum of 33 participants. Twenty four studies were included. MBSR improved mental health in ten studies compared to waitlist control or treatment as usual. Moreover, MBSR was as efficacious as active control group in four studies, and showed a tendency over active control in one study. MBCT reduced the risk of depressive relapse in all five included studies. Evidence supports that MBSR improves mental health and MBCT prevents depressive relapse. It is interesting to observe that meditation based therapy programs are rapidly enjoying popularity. We discuss the cultural and theoretical implications.

**Keywords:** mindfulness meditation; mindfulness-based cognitive therapy; mindfulness-based stress reduction; systematic review; randomized controlled trials; sense of meaning

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## Abbreviations

MBSR: Mindfulness-Based Stress Reduction; MBCT: Mindfulness-Based Cognitive Therapy; RCT: randomized controlled trials; TAU: treatment as usual; TM: transcendental meditation; CBGT: Cognitive Behavioral Group Therapy.

## 1. Introduction

In recent years, literature on meditation based therapy programs has been rapidly growing. During the 1970s and 1980s, there was the first spike of interest with the transcendental meditation (TM) program being studied widely and showing promising effects compared to other relaxation or therapeutic techniques in anxiety [1], psychological health [2], and various other issues such as drug addiction and behavioral problems [3], blood pressure and cardiovascular risk factors [4,5] The TM program is a mantra-based concentration technique derived from the Vedic tradition and is heavily dependent on the whole TM-system with especially installed and approved teachers and a strong in-group with close relationships that have sometimes been likened to those of religious sects. Interest in this specific type of meditation program seems to have decreased following the death of its founder Maharishi Mahesh Yogi several years ago.

Meanwhile a new wave of interest in meditation based programs has swept across academic and medical culture. This time it is based on the concept of mindfulness. It was popularized by Jon Kabat-Zinn who, starting in the eighties, developed a secularized meditation program founded on the old Theravada-Buddhist practice of mindfulness meditation [6–8].

Mindfulness holds a special place within Buddhist teaching [9–11]. According to this teaching, the suffering humans experience in this world exists from the beginning. It happens due to our own shortcomings, mainly greed and other mental toxins or destructive emotions [12]. It can, however, and this is the good news, be overcome [13]. The path towards this liberation is known as the eightfold path. This can be separated into three main domains: some concern ethical conduct (right speech, right action, right livelihood), some refer to the culture of the mind (right intention, right concentration, right mindfulness), and from these, finally, grow wisdom and insight (vipassana) [12]. From this goal of the whole path, insight, vipassana, the whole meditation tradition takes its name, Vipassana-Meditation. This is the old Buddhist tradition that is reputed to go back to Gautama Buddha himself. It is mainly taught in South-East Asia in countries such as Sri Lanka, Myanmar, Thailand, Laos and Vietnam, while other countries have adopted different teachings or have developed their own traditions and see themselves as the “larger vessel—Mahayana”. Within the older or Theravada Buddhist tradition, insight—into the non-substantiality of the ego and the fact that we create our suffering through clinging and greed—is the prime goal of all actions and meditation, since it means the end of all suffering. To reach it, ethical conduct is a prerequisite, and cultivation of the mind through good intention, practice of concentration and mindfulness is the prime method. Hence the importance placed on meditation as a spiritual practice [12,13]. In the Vipassana tradition, concentration types of meditation are practiced to strengthen the mind. This happens through mindfulness of breathing, where the diligent observation of the breath predominates, or mindfulness of the body, where attention is directed towards physical sensations in the body. Only after the mind has become used to steadying

attention on objects are further techniques employed, such as observation and mindfulness of mental objects or mental activity. It is only after lengthy practice in Buddhist teaching often over many reincarnations, that wisdom and insight is reached, which finally leads to enlightenment and complete freedom. In this concept, concentration and mindfulness are interconnected: Concentration enables mindfulness, and the practice of mindfulness even outside meditation enhances concentrative power and thus makes mindfulness possible. Observe, further, that this whole edifice rests on ethical conduct as a prerequisite [13].

Out of this tradition, the new interest in meditation based techniques arose with Kabat-Zinn's training, which he called a "Mindfulness Based Stress Reduction" Program (MBSR). Kabat-Zinn was a long-term meditator and a student of Jack Kornfield, one of the first Vipassana teachers in the West [14]. His professed goal was to make this tradition available to Westerners without any religious context, to secularize it. From this, MBSR emerged as an eight week group program [15–18]. Participants have to be committed to practice meditation for at least half an hour a day, preferably 45–60 minutes, for at least the eight weeks of the program. Afterwards they may decide for themselves whether they want to continue or not. Once a week they meet for 2.5 hours in groups of 12 to 20, sometimes up to 40 people. They have the support of the group and their leader; they learn formal types of meditation such as sitting in mindful presence attending to the breath, or the body scan—a particular type of mindfulness of the body. They also learn mindful hatha yoga. They hear lectures about the connection between mind and body, how stress impacts physical systems and our immunity, and how mindfulness and meditation may combat these. This is in strict analogy to so called "Dharma Talks" in the Vipassana tradition or "Teishos" in the Zen tradition. These talks are intended to give a theoretical background, but even more importantly motivate the disciple to increase his efforts and keep on meditating. The lectures within MBSR programs are, of course, secular and also of a motivating nature, using obvious and well established knowledge about the importance of attention, the mind-body connection, and the psycho-neuro-immunological consequences of mental habits [15,17,18].

Kabat-Zinn developed the program from his own rich meditation experience [19] and offered it first to patients of pain clinics and other outpatients who had no treatment success within the conventional system. These patients were desperate and presumably happy to commit themselves to anything that could potentially help. This may also explain the success of the early studies. German language teachers first started offering courses in the nineties, and our group was among the first to start evaluating these programs in Germany [20] and to develop a measurement instrument [21,22]. Interest grew rapidly, publications were produced in an exponential growth curve and a general enthusiasm seemed to grip the community. We did a first meta-analysis in 2004 and found quite good, medium sized effect sizes, both in controlled and in uncontrolled studies, for MBSR in clinical populations [23]. Meanwhile, the body of literature is growing; mindfulness is becoming a concept used by many people in many different contexts and presumably with meanings different from the original ones. The discussion whether "mindfulness" is perhaps simply a psychological function that can be used outside religion [24–26] has already been raised. This is at least implied by the current classic definition that defines mindfulness as moment-to-moment awareness in a non-judgmental stance [27].

Thus, mindfulness has received interest from clinicians and researchers, perhaps because it seems to improve acceptance of symptoms that are difficult or impossible to change, installs a cognitive meta-reflective capacity [28] that enhances the degree of freedom of patients, and can help patients

change their focus by emphasizing experience of the present moment. Most therapeutic concepts see symptoms as defects that have to be changed, either pharmacologically or psychologically. Thus, pharmacological concepts try to counteract symptoms, and behavioral approaches try to change mental habits towards what is considered to be healthier. In contrast, mindfulness approaches teach one to simply observe, pass no judgment and accept things as they are. The paradoxical experience of patients seems to be that it is exactly this non-judgmental, even curious mental stance of observation that sometimes changes the symptoms, and sometimes just instills peace of mind in relation to them. The MBSR program starts by focusing on the body and reconnecting the mind to the body. In a second step the mind is itself the object of attention and awareness. This may finally lead to a stance of acceptance which also helps to experience compassion for oneself and for others. A state of connectedness and an experience of being, belonging and caring are strong pillars of this program.

Mindfulness-Based Cognitive Therapy (MBCT) [29] is an adaptation of the MBSR program. It incorporates elements of cognitive therapy facilitating a detached or decentered view of one's thoughts and is designed to prevent depressive relapse [30]. It is based on the clinical observation that decentering one's view and looking at one's own symptoms and mental activities with some detachment can help both alleviate symptoms and discover triggers for potential downward spirals of affect or mood. Long-term vulnerability to depression may be related to the presence of perceived discrepancies between the actual self and ideal self-guides, and MBCT might both protect against increases in self-discrepancy and facilitate a shift in the goals of self-regulation [31].

These maladaptive self-guides, rumination, avoidance and perfectionism are four characteristics that can be seen as different aspects of the same "mode of mind" and mindfulness training might allow people to recognize when this mode of mind is operating [32].

As a prevention program for those depressed patients who are at great risk of lifelong suffering from depressive relapses, MBCT is certainly an important potential addition to the therapeutic arsenal.

Due to the different approach to illness—acceptance rather than change—adopted by both MBSR and MBCT and due to the different potential mechanism—observing and non-reacting rather than acting and fighting—MBSR and MBCT pose a conceptual challenge to Western medical concepts.

It is therefore of special interest to see whether these treatments actually work, and if so, whether they work better than or similar to established treatments. We therefore decided to conduct a systematic review focusing only on randomized controlled studies, as only these offer a reasonable protection against bias. We have reported this systematic review in detail elsewhere [33]. Here we will summarize the main results with an update of new studies, and draw special attention to some conceptual, theoretical, practical and methodological consequences.

## **2. Methods**

### *2.1. Identification and Selection*

This review focuses on MBSR and MBCT because both treatments are well-defined and mindfulness training is their key element.

Studies were identified by systematic searches of Medline, PsychInfo and Embase from 1980 to October 2010, using "mindfulness-based stress reduction", "mindfulness-based cognitive therapy" and "mindfulness meditation" and appropriate abbreviations as keywords. Titles, abstracts and full-texts of

the identified papers were screened for eligibility by one reviewer. All abstracts were read, and when an indication of mindfulness and RCT was found, the entire article was retrieved. The reference lists of selected papers were checked for additional eligible papers. We included only randomized controlled studies on adults, published in English, on either MBSR or MBCT interventions, either in their original form or in appropriate adaptations for certain patient populations.

## 2.2. Analysis

To examine the effects on physical and mental health, studies were grouped according to study population in non-clinical populations and clinical populations with physical illness or psychiatric disorders. The update of new studies is presented in a table 1.

## 3. Results

Twenty four out of 72 studies fulfilled the criteria and were included. The main reasons for exclusion were too few participants and the intervention not being the standard MBSR or MBCT program.

### 3.1. Non-clinical Populations

Nyklicek *et al.* [34] compared the effects of MBSR to a wait-list control condition while examining potentially mediating effects of mindfulness. They found that well-being, quality of life, vital exhaustion and positive affect improved in the mindfulness but not in the wait-list control condition, whereas negative affect remained unchanged. Mindfulness might mediate this effect.

Davidson *et al.* [35] found that a mindfulness training offered to employees changed not only their anxiety level, but also their immunological functioning measured by higher antititers to vaccines when compared to a wait-list control group. Moreover, the change of anxiety was correlated to stronger frontal left-asymmetry in their EEG, which was correlated to improved immunity. Davidson interpreted this as an improved plasticity in dealing with emotional stress, an interpretation which is, however, contested [36].

Daily hassles, psychological distress and medical symptoms improved in self-selected community residents compared to a control group receiving educational materials [37]. The MBSR training improved medical students' depression and anxiety, and improved their empathy and their spirituality scores compared with wait-list controls [38].

Thus, in the four studies on non-clinical populations MBSR was demonstrated to improve mental and physical health without exception. Effect sizes were medium to large. None of the studies, however, used a strong, active control.

### 3.2. Clinical Populations with Physical Illness

In a large study of 150 patients suffering from multiple sclerosis, Grossman and colleagues [39] showed moderate to strong effects in all measures, especially in quality of life, when compared to treatment as usual (TAU).

Foley *et al.* [40] adapted the MBCT manual to the situation of cancer survivors in a wait-list trial and showed, in a mixed group of cancer patients, of which more than 50% were in late stages 3 and 4, significant improvements in depression and anxiety, as well as in distress and quality of life. Mindfulness improved, and effects sizes were medium to large.

Mularski *et al.* [41] were unable to see any improvement in a group of patients with chronic obstructive pulmonary disease who were taught mindful breathing, or an active control. A high drop-out rate of 40% suggests that the program was either not suited to the patients or that the patients recruited were not committed to really participating in the program.

A study with a similarly negative result was published by Wong who studied 100 patients with chronic pain [42]. MBSR was compared to a strong active control group and both groups improved about the same.

Monti *et al.* [43] tested the efficacy of Mindfulness Based Art Therapy in women with cancer, and observed reduction in symptoms of distress and improved health related quality of life when compared to a wait-list control group.

Creswell *et al.* [44] provided initial evidence that MBSR can buffer CD4+T lymphocyte declines in an ethnically diverse sample of HIV-1 infected adults. Additional analyses suggested that the MBSR treatment effects on CD4-T lymphocytes are independent of antiretroviral medication use. The control group received 1 day of MBSR intervention.

Morone *et al.* [45] conducted a pilot wait-list study to assess the feasibility of recruitment and adherence to an MBSR program for older adults with chronic low back pain, and to develop initial estimates of treatment effects. The completion rate for the intervention group was 68% and 78% for the control group after they crossed over to the MBSR program. Because it was a pilot study, they explored participant outcome on a variety of outcome measures. As a result, no final conclusion can be drawn.

Pradhan *et al.* [46] suggested after a wait-list controlled pilot study that MBSR may complement medical disease management by reducing psychological distress and strengthening well-being in patients with rheumatoid arthritis.

Sephton *et al.* [47] showed that MBSR alleviated depressive symptoms in patients with fibromyalgia when compared to a wait-list control group. All findings persisted when pain, sleep and antidepressant medication use were controlled for. Functional impairment, pain and sleep quality were measured prior to randomization. The results of these outcomes were not reported.

Astin *et al.* [48] was unable to show a difference between a treatment combining MBSR and Qi Gong, and an educational program. High drop-out rates of up to 49% make it difficult to draw final conclusions. While both groups improved, they showed no difference between them.

A similar finding was observed in our own recent study [49]. Being the largest and one of the few active controlled studies, it shows a small difference between MBSR and active control in fibromyalgia patients, which, however, is not significant, due to power problems. The wait-list group also improved significantly.

Specia *et al.* [50,51] concluded after a wait-list study that the modified MBSR program was effective in decreasing mood disturbance and stress symptoms in both male and female patients with a wide variety of cancer diagnoses, stages of illness and ages. These improvements were maintained at six-month follow-up.

Hebert *et al.* [52] compared the effectiveness of an intensive dietary intervention on diet and body mass in women with breast cancer to an MBSR program or usual supportive care. Results indicated that MBSR did not make women with breast cancer consume less fat.

Among the thirteen MBSR studies in clinical populations with physical illnesses included, eleven reported changes in mental health, six out of seven showed significant improvements compared to wait-list or TAU, three improved similar to active control conditions, and one did not improve either in the mindfulness or the active control condition. Three fibromyalgia studies were conducted and none of them showed convincing results, but gave some indications as to improvements. Disease activity was assessed in three studies and no effect was found in rheumatoid arthritis and COPD patients, whereas a positive effect was found in HIV patients.

### 3.3. Clinical Populations with Psychiatric Disorders

Cognitive Behavioral Group Therapy (CBGT) was superior to MBSR in the improvement of generalized anxiety disorder, although MBSR patients also improved and had similar results in depression and general symptoms [53].

Moritz *et al.* [54] suggested that a home study-based spirituality educational programme can affect mental health by improving mood and quality of life within the same range as reported by other mood intervention programs such as cognitive behavioral therapy and MBSR. The mindfulness intervention followed the modified program developed for cancer patients. Only 57% of the participants in the MBSR group completed the treatment, which is 20–40% lower than the figures reported by the other included MBSR/MBCT studies.

In their first study on MBCT, Teasdale *et al.* [55] suggested that MBCT offers a promising cost-efficient psychological approach to preventing relapse in recovered, recurrently depressed patients. This was replicated by Ma [56] and more recently by Kuyken and colleagues [57], who also added a cost-benefit analysis and could show that MBCT was the more cost-effective option long term. This was again replicated in principle by Segal and colleagues [58], who also showed superiority over placebo. It was concluded that MBCT offers protection against relapse on a par with that of maintenance antidepressant pharmacotherapy.

Although slightly better, Bondolfi and colleagues [59] did not see superiority of MBCT over psychiatric treatment in their Swiss sample of 60 patients. This might be mainly due to the fact that the conventionally treated patients had much better results than in the other studies. Teasdale *et al.* [55], Ma [56], and Bondolfi [59] compared MBCT to TAU, while Kuyken [57] and Segal [58] compared MBCT to maintenance antidepressant medication.

Thus, seven MBSR/MBCT studies in clinical populations with psychiatric disorders are included. All five MBCT studies reduced depressive relapse. The two MBSR studies were compared to active control conditions, the improvements were significantly higher in active control conditions at the end of treatment, but when four-week follow-up was assessed, mindfulness and active control conditions were equal.

Table 1. Update of new studies.

Author	Participants	Intervention	Control group	Follow-up	Measures	Results
Segal <i>et al.</i> 2010	Medicated patients with Major depression ( $\geq 2$ episodes) N = 160 mean age 44 58% female	MBCT: 8 weekly, 2-hour sessions and optional monthly meditation classed; plus medication taper	Antidepressant medication or placebo	18 months	Time to relapse Depressive Symptoms Hamilton Depression Rating Scale and Clinical Interview	<b>No significant difference overall between active components</b> MBCT relapse rate: 38%; Medication: 46%; Placebo: 60% Hazard Ratio relative to placebo: MBCT 0.26 (95%CI 0.09–0.79); Medication 0.24 (95%CI 0.07–0.89) Reduction of risk for unstable remitters in MBCT (p = 0.01) and Medication (p = 0.03) vs. Placebo
Schmidt <i>et al.</i> 2010	Women with fibromyalgia N = 177 mean age 52	MBSR, 8 weekly 2.5 hour session plus day of mindfulness	Active Control, 8 weekly, 2.5 hour sessions relaxation, group support and body work or Wait list	End of treatment 2 months follow-up	Health related Quality of Life Profile of Quality of Life for the Chronically Ill Fibromyalgia Impact Questionnaire  Depression CES-D  Anxiety STAI  Quality of Sleep Pittsburgh Sleep Quality Index	<b>No significant group x time effect. Significant improvement for all groups</b> MBSR preM = 11.7 SD = 2.9; PostM = 12.6 SD = 3.0; 2 month follow-up M = 12.8 SD = 3.1 Active control preM = 11.7 SD = 3.3; PostM = 12.9 SD = 3.4; 2 month follow-up M = 12.2 SD = 3.6 Wait list preM = 11.7 SD = 3.2; PostM = 11.8 SD = 3.5; 2 month follow-up M = 12.3 SD = 3.3 <b>No significant group x time effect. Significant improvement for all groups</b> MBSR preM = 5.8 SD = 1.4; PostM = 4.9 SD = 1.7; 2 month follow-up M = 5.2 SD = 2.0 Active control preM = 5.5 SD = 1.7; PostM = 5.1 SD = 1.6; 2 month follow-up M = 5.3 SD = 1.9 Wait list preM = 5.6 SD = 1.9; PostM = 5.3 SD = 1.6; 2 month follow-up M = 5.3 SD = 1.7 <b>No significant group x time effect. Significant improvement for all groups</b> MBSR preM = 11.31 SD = 3.4; PostM = 10.0 SD = 3.8; 2 month follow-up M = 10.0 SD = 3.8 Active control preM = 11.4 SD = 4.2; PostM = 10.1 SD = 4.2; 2 month follow-up M = 10.1 SD = 4.2 Wait list preM = 11.1 SD = 4.4; PostM = 10.7 SD = 4.4; 2 month follow-up M = 10.4 SD = 4.1 <b>No significant group x time effect. Significant improvement for all groups</b> MBSR preM = 35.5 SD = 9.4; PostM = 31.3 SD = 8.8; 2 month follow-up M = 30.8 SD = 9.2 Active control preM = 34.7 SD = 8.7; PostM = 32.0 SD = 9.0; 2 month follow-up M = 32.2 SD = 8.8 Wait list preM = 34.8 SD = 7.7; PostM = 33.1 SD = 7.8; 2 month follow-up M = 32.4 SD = 9.1 <b>No significant group x time effect. Significant improvement for MBSR and active control</b> MBSR preM = 11.31 SD = 3.45; PostM = 10.04 SD = 3.76; 2 month follow-up M = 10.01 SD = 3.6 Active control preM = 10.12 SD = 4.21; PostM = 10.12 SD = 4.21; 2 month follow-up M = 10.25 SD = 4.09

					<p><b>Pain Perception</b> Pain Perception Scale</p> <p>Wait list preM = 11.21 SD = 4.36; PostM = 10.68 SD = 4.42; 2 month follow-up M = 10.37 SD = 4.06</p> <p><b>No significant group x time effect. Significant improvement for all groups</b></p> <p>MBSR preM = 35.47 SD = 9.38; PostM = 31.26 SD = 8.78; 2 month follow-up M = 30.79 SD = 9.20</p> <p>Active control preM = 34.74 SD = 8.67; PostM = 31.96 SD = 9.02; 2 month follow-up M = 32.17 SD = 8.76</p> <p>Wait list preM = 34.78 SD = 7.66; PostM = 33.09 SD = 7.78; 2 month follow-up M = 32.38 SD = 9.07</p>
<p><i>Astin et al.</i> 2003</p>	<p><b>Women with fibromyalgia</b> N = 128 mean age 48</p>	<p><b>MBSR+ Quigong</b> 8 weekly, 2.5 hour sessions. 25.8% never attended, attrition up to 49%</p>	<p>Education program groups designed to match time spent and attention by a team of professional facilitator</p>	<p>End of treatment, 2 and 4 months after treatment</p>	<p><b>Total myalgic score</b></p> <p><b>Fibromyalgia Impact</b></p> <p><b>Depressive Symptoms</b> (Becks BDI)</p> <p><b>Pain</b> SF36 Subscales</p> <p><b>No significant group x time effect. Significant changes in MBSR group</b></p> <p>MBSR preM = 17.9, SD = 5; postM = 15.3, SD = 3.5; 4 month follow-up M = 15.7, SD = 4.3</p> <p>Education preM = 16.8, SD = 5.1; postM = 15.6, SD = 3.4; 4 month follow-up M = 15.9, SD = 4.5</p> <p><b>No significant group x time effect</b></p> <p>MBSR preM = 57.8, SD = 10.8; postM = 48.8, SD = 15.4; 4 month follow-up M = 46.4, SD = 19.5</p> <p>Education preM = 58.7, SD = 13.5; postM = 50.1, SD = 18.3; 4 month follow-up M = 50.0, SD = 18.2</p> <p><b>No significant group x time effect. Significant changes in both groups</b></p> <p>MBSR preM = 16.7, SD = 7.4; postM = 13.1, SD = 7.9; 4 month follow-up M = 12.3, SD = 7.7</p> <p>Education preM = 17.2, SD = 9.1; postM = 14.3, SD = 8.4; 4 month follow-up M = 14.0, SD = 9.2</p> <p><b>No significant group x time effect. Significant changes in both groups</b></p> <p>MBSR preM = 32.3, SD = 14.4; postM = 39.8, SD = 17.7; 4 month follow-up M = 41.6, SD = 22.2</p> <p>Education preM = 31.4, SD = 16.7; postM = 40.8, SD = 18.7; 4 month follow-up M = 42.4, SD = 22.5</p>

### 3.4. Quality of the Included Randomised Controlled Trials

Waiting-list control group is the weakest possible control, and is the design used in most of the MBSR studies included. MBCT/MBSR was compared to TAU in four studies. It is difficult to know whether TAU as used in these studies was a strong active control or a minimum treatment.

A treatment method that in previous research has been found effective for a specific disorder is the most stringent comparison condition to use, but this design was only used in three studies [52,56,57].

In order to avoid confounding therapist and treatment condition, treatment should be delivered by more than one therapist; five studies included reported the use of two or more therapists. To conclusively determine if authors actually apply the treatment they describe, independent assessors should rate recorded sessions for adherence to the treatment manual and competence of the therapists. This is reported only in the MBCT studies. Only about half of the studies included reported power calculation, primary outcome and effect sizes. Thus, the field clearly is still in the initial stage, and conclusions as to its efficacy cannot be considered final. What is also puzzling is that only half of all studies with reported homework practice show a positive correlation between homework and improvement [60]. This could indicate that mindfulness is only one, and perhaps not even the most important, component in this complex program. This would, however, certainly need further clarification.

Overall, studies provided evidence supporting that:

- MBSR is superior to waiting-list in improving mental health in self-selected clinical and non-clinical populations and
- MBCT can reduce the risk of depressive relapse among referred and self-selected recovered, recurrently depressed patients with three or more previous episodes.

#### 3.4.1. Compliance

The review showed that most patients randomized to the mindfulness interventions (75%–97%) did complete treatment, which was defined as attending at least four or five sessions.

#### 3.4.2. Limitations

Most studies did not include active control groups. Among the MBSR studies, nine only assessed end of treatment results, and seven reported one- to six-month post-treatment results. The lack of active control groups and long-term follow-up periods constitutes a limitation of many of the assessed studies. Publication bias cannot be ruled out because most studies have shown positive results.

## 4. Discussion

We tried to answer the question: Are meditation based interventions, especially those using mindfulness as a potential mechanism, effective? We conducted a systematic review of RCTs on MBSR/MBCT. Evidence supports that MBSR improves mental health in non-clinical and clinical populations. It remains unclear; however, whether it can also improve physical health. In clinical populations with physical illness, MBSR complements medical disease management by relieving

psychological distress and strengthening well-being. In clinical populations with psychiatric disorders, MBSR has some benefit as it reduces symptoms of distress, anxiety and depression, or teaches patients coping skills to handle these symptoms. MBCT is an effective and efficient way to prevent relapse in recovered, depressed patients with three or more previous episodes. It deserves further study and potentially even inclusion into public mental health schemes as a more sustainable alternative to pharmacotherapy, especially for those who do not reliably improve after medication. Overall, studies showed medium to large effect sizes, and improvement fell within the range reported in other psychosocial interventions.

The APA Division 12 Task Force has developed criteria that therapies must fulfill in order to be considered well-established and empirically supported [61]. MBSR meets these criteria. 17 of the MBSR studies included reported mental health outcomes and 14 found MBSR to be more effective than a waiting-list or equivalent to active control conditions. Experiments were conducted using treatment manuals and effects have been demonstrated by different investigators in large and clearly specified samples. MBSR thus meets the criteria for the “well-established” designation.

MBCT also approached the “well-established” designation regarding prevention of depressive relapse. Methodologically, the reviewed studies are strong, and they show MBCT to be superior to TAU and equivalent to continuing antidepressant medication when compared to MBCT plus support in discontinuing antidepressants in preventing relapse. Treatment manuals and large and clearly specified samples of formerly depressed patients were used, and the studies were conducted by independent investigators. MBCT did not prevent depressive relapse in patients with only two previous episodes, and the number of past episodes of depression is a determined characteristic that might predict differential benefit from MBCT.

Thus, we now know that implementation of the manuals of both MBSR and MBCT are effective for some people. But what is the mechanism? There are weak indications only that mindfulness itself is the “active ingredient” in the therapeutic programs. The fact that the intensity of the homework is weakly correlated only in half of the studies, that the increase of mindfulness is not always correlated to the improvement of symptoms, and that actively controlled studies show only small effect sizes, if at all, of mindfulness over active control, indicate that mindfulness is only partially involved. Hence it is likely that all the other components—group support, the novelty of the program, commitment and compliance, the cognitive restructuring—might play equally important roles. Research into mechanisms is only starting to emerge. Initial results point to the fact that mindfulness decreases automatic reactions [62], reduces the propensity for negative reinforcements [25], increases acceptance [63], fosters patients with a meta-cognitive viewpoint that allows for some freedom from established and potentially painful ways of reacting [28], and enhances self-compassion [64].

One culturally very interesting fact that has gone unnoticed so far is the following: Western medicine and psychotherapy has mainly focused on combating symptoms and has defined therapeutic success by absence of symptoms. Mindfulness based interventions however do not focus on symptoms, but on the conscious attitude towards them. By letting symptoms be and teaching patients a different mental stance, namely accepting what is and being attentive to the present moment instead of running away from their illness and trying to change it, these approaches provide patients in particular and the medical culture at large with a completely new viewpoint. Thus patients might not experience less symptoms, but experience decreased suffering from their symptoms and more freedom in relation

to them, manifesting as improved mental health and quality of life. One of the patients in our mindfulness study on fibromyalgia [48] expressed this beautifully by saying: “For 20 years I have been bullied by my illness, never took a week holiday because I felt I have to be close to a doctor. Now I don’t care. I simply go on holidays and have a good time.” Another patient who was in one of our mixed patient groups, who had suffered from severe agoraphobia and had not left the house for quite some year, suddenly started going out again, visiting her aunt hundreds of miles away. She was unable to say how it had happened, but all of a sudden, her anxiety was gone. By attending to the present moment, dysfunctional loops which keep patients either fixed to the past, such as in depression, or anxiously anticipating the future, as in anxiety, can be broken. What religions over the ages, not only Buddhism, have taught can then become experience for patients: The richness of present-moment experience is the richness of life itself [6]. With mindfulness this rather simple but very important truth comes back into our culture, clad in psychological and Buddhist clothes but, in fact, being quite universal. It is arguably not an easy task to catch this altered stance scientifically. So far it has escaped researchers it seems, except in anecdotes and vignettes.

Future research should primarily tackle the question of whether mindfulness itself is a decisive ingredient by controlling against other active control conditions or true treatments. Mindfulness is a systematic training of attention, awareness, compassion and wisdom. It may be useful because the Dharma is universal [65]. This universal quality may also, however, be present in other programs; in fact it may be this quality that is present when a psychosocial intervention is working. Further, this quality may be pointed to as common humanity, which makes it difficult to capture and investigate.

So far we have not discussed MBSR and MBCT separately. The following three books represent the MBSR manual: *Full Catastrophe Living: Using the Wisdom of Your Body and Mind to Face Stress, Pain, and Illness* [6], *Wherever You Go, There You Are: Mindfulness Meditation in Everyday Life* [66] and *Heal Thy Self: Lessons on Mindfulness in Medicine* [65]. What is very special about the MBSR program is that mindfulness has to be integrated in the teacher and that it includes periods of silence. Using the wisdom of the body and mind to face stress, pain and illness is very different from a traditional CBT perspective which focuses on fixing and problem solving. MBCT focus more on thoughts compared to MBSR, and MBSR teachers more often have a meditation background than MBCT teachers, who often have a psychotherapeutic background. The MBCT manual may look simpler describing mindfulness as attention control training, [29]but the authors behind the MBCT manual describe the mindful presence of the therapist as playing a crucial role in the efficacy of treatment. They themselves observed a shift from being problem solving therapists to roles as instructors empowering patients to relate mindfully to their experience [29].

It is clear that mindfulness is not a pill that can be prescribed. Patients must be ready to practice, be willing to engage and to take daily time out to keep practicing. Naturally, results apply only to this type of patient, and for them it seems to work.

We saw relatively few studies with negative outcomes. Since most clinical research in this field is either publicly or self-supported it is likely that the file-drawer problem of unpublished negative studies is small, but it cannot be excluded.

There is certainly a danger involved in the “hype” around mindfulness: If we take it out of its original context and see it only as a tool, similar to others, it might lose its impact. As explained in the Introduction, mindfulness has to be seen within a certain context. It is a habit and a way of being rather

than merely a psychological skill. It might well be the case that it only lives up to its original strength and power if it is incorporated as a habit into daily life and not just seen as a tool switched on and off according to symptom load. If that danger is heeded, however, then mindfulness based approaches might be able to reintroduce a much needed skill to people, which seems previously to have been within the remit of classical religions: that of focusing on the present moment and imbuing it with meaning. Perhaps the modern interest in mindfulness is part of the larger cultural shift which seems to be bringing back religious concepts in secular clothes. Spirituality is, after all, a human condition, and even very “secularly” trained people such as psychotherapists report on spontaneous spiritual experiences [66] and the importance of spirituality in psychotherapy. Thus we might be currently witnessing a transition of religious concepts into secular and scientific culture. Whether this is a beneficial process or not is difficult to say. It seems, at least from a scientific point of view, that the inclusion of concepts of mindfulness into therapeutic approaches is helpful for people.

## 5. Recommendations for Further Research

Future RCTs of MBSR and MBCT should use optimal design including the use of an active treatment as comparison, properly trained instructors, follow-up of at least one year and should describe attrition. In clinical populations, it is recommended to test the combination of mindfulness treatment and specialized treatment for the specific medical disorder in question. It is also recommended to explore the effect of longer treatment times, as several of the strong studies reviewed included 3–4 reinforcement classes.

## 6. Standardized Training

MBSR teachers from America and Europe have developed principles for training teachers. This non-exclusive list of essential elements of training programs to develop MBSR teachers would include [67]:

1. The MBSR teacher trainer needs to have a personal longstanding grounding in meditative practices and be a committed student of the dharma, as it is expressed both within the Buddhist meditation traditions and in more mainstream and universal contexts exemplified by MBSR. This has nothing to do with being or not being a Buddhist.
2. MBSR is a vehicle for embodying and transmitting the dharma in a wholly secular and universal idiom. It is a *recontextualizing* of dharma, not a decontextualizing of it.
3. MBSR instructors need to have their own personal meditation practice and attend retreats in the spirit of "continuing education" and the ongoing deepening of their practice and understanding.
4. MBSR instructors follow the principle that they never ask more of program participants than they do of themselves on a daily basis in terms of both formal and informal mindfulness practices. This also needs to be the case for MBSR teacher trainers.
5. The teaching of mindfulness is never a matter of merely teaching or operationalizing techniques. Mindfulness is a way of being in a wiser relationship to one's experience, not one particular mental state to be pursued and attained. Thus, the non-instrumental dimensionality of the work and of the practice of mindfulness is the foundation of effective practice and teaching.

6. Teaching MBSR is an opportunity for right livelihood. Thus, it is important to develop a fair and non-exploitative pricing structure for both MBSR implementation and teacher training.

Similar guidelines were established by the UK Network of Mindfulness-Based Teacher Trainers, along with a professional mental health training that includes the use of evidenced based therapeutic approaches (if delivering MBCT) [68].

## 7. Conclusions

Mindfulness based interventions work. They can be seen to be clinically validated. Further research is needed to clarify what the exact role of the mindfulness and meditation components in these interventions are. For patients who choose these interventions they seem to be beneficial because they foster within them a sense of control and self-efficacy, allowing them to take an active role in their condition without having to rely on external help.

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