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Journal of Psychosomatic Research



Review article

Effectiveness of traditional meditation retreats: A systematic review and meta-analysis



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ARTICLE INFO

Article history: Received 8 September 2016 Received in revised form 2 November 2016 Accepted 17 November 2016

Keywords: Traditional meditation retreat Vipassana Mindfulness Compassion Meta-analysis

ABSTRACT

Background: An increasing number of studies are investigating traditional meditation retreats. Very little, however, is known about their effectiveness.

Objective: To evaluate the effectiveness of meditation retreats on improving psychological outcomes in general population.

Data sources: A systematic review of studies published in journals or as dissertations in PSYCINFO, PUBMED, CINAHL or Web of Science from the first available date until October 22, 2016.

Review methods: A total of 20 papers (21 studies, N = 2912) were included.

Results: Effect-size estimates of outcomes combined suggested that traditional meditation retreats are moderately effective in pre-post analyses (n=19; Hedge's g=0.45; 95% CI [0.35, 0.54], p<0.00001) and in analyses comparing retreats to controls (n=14; Hedge's g=0.49; 95% CI [0.36, 0.61], p<0.00001). Results were maintained at follow-up. No differences were observed between meditation styles. Results suggested large effects on measures of anxiety, depression and stress, and moderate effects on measures of emotional regulation and quality of life. As to potential mechanisms of actions, results showed large effects on measures of mindfulness and compassion, and moderate effects on measures of acceptance. In addition, changes in mindfulness levels strongly moderated clinical effect sizes. However, heterogeneity was significant among trials, probably due to differences in study designs, types and duration of the retreats and assessed outcomes, limiting therefore the implications of the results.

Conclusion: Meditation retreats are moderately to largely effective in reducing depression, anxiety, stress and in ameliorating the quality of life of participants.

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1. Introduction

Meditation has been employed as a spiritual and healing practice for >5000 years. One of the most ancient texts dealing with meditation is the *Yoga Sutra* [1]. According to the Yoga Sutras, meditation is the act of inward contemplation and the intermediate state between mere attention to an object and complete absorption within it [2]. Also, the Pāli and Sanskrit term *bhāvanā* that is commonly translated as meditation translates as "cultivating" and the translation of the Tibetan

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equivalent *sgom* may translate as "getting used to" or "familiarizing one-self" [3]. One of the most commonly cited classifications of meditation practices suggests a fundamental distinction between two main meditative styles, mindfulness meditations (MM)/open monitoring meditations and concentrative meditations (CM)/focused attention meditations, depending on how the attentional processes are directed [4,5]. While MM are characterized by open, non-judgmental awareness of the sensory and cognitive fields and include a meta-awareness or observation of the ongoing contents of thought, CM involve focused attention on a given object such as an image or a mantra, while excluding potential sources of distractions [6,7]. It is worth mentioning that both types of meditation share a common background of focused attention but they subsequently take different directions depending on the specific meditation form [5,8,9]. Although different traditional paths place

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different emphasis upon MM and CM, there is general agreement that both types of meditation should be cultivated and that they could lead not only to spiritual achievements but also to significant health outcomes (e.g., 10, 11).

Taking into account the long history of traditional meditation practices and the potential benefits for health outcomes, it is surprising that up to recently, very little effort has been directed toward the clinical investigation of health outcomes derived from these traditional meditation practices. Indeed, most studies dealing with meditation focused on recently developed standardized mindfulness-based programs such as Mindfulness-Based Stress Reduction (MBSR; 12, 13), Mindfulness-Based Cognitive Therapy (MBCT; 14), and other meditation programs closely linked to MBSR and MBCT, such as Mindfulness-Based Relapse Prevention (MBRP; 15). Despite the considerable variation among mindfulness-based protocols, multiple systematic reviews and meta-analyses were conducted and found similar positive effects on both physical and psycho-physiological outcomes among clinical and nonclinical populations [16-24]. A recent systematic review and meta-analysis of 20 systematic reviews of randomized controlled trials using the standardized MBSR or MBCT programs found significant improvements in symptoms of depression, anxiety, stress, quality of life, and physical functioning in comparison with control groups such as wait list and treatment as usual [25]. Similar results were found in a review of 16 meta-analyses investigating the effects of MBSR or MBCT in clinical populations [26].

While the mechanisms of action of these modern meditation-based treatments are not yet fully understood, many authors point toward the key role of attention and emotional regulation processes in their effectiveness (e.g., 27–29). A recent mediation analysis of 20 studies found strong, consistent evidence for reduced cognitive and emotional reactivity, moderate and consistent evidence for reduced rumination and worrying, and preliminary but insufficient evidence for increased self-compassion and psychological flexibility as mechanisms underlying mindfulness-based interventions [30].

As mentioned above, although most meditation studies focused on recent standardized mindfulness-based interventions, it is worth mentioning that for centuries meditation has been primarily taught within the context of traditional spiritual paths and/or in intensive retreats, mainly based upon Vipassana and Shamatha practices. It is therefore surprising that up to recently, only a few studies specifically addressed this topic.

Vipassana meditation (VM), typically acknowledged as one of the main MM practices [7], is supposed to be the meditation practiced by Gautama the Buddha > 2500 years ago and is the most ancient of Buddhist meditations [31]. Literally, Vipassana means "insight". Individuals practicing VM assume the role of an observer of their thoughts and sensations. In doing so, they learn to be less judgmental. The main aim is to remain aware in the present moment and to achieve increased equanimity and insight into the fleeting nature of the self, which, in this process, is acknowledged as an ever-changing flow of psychophysical phenomena, void of any lasting self [32]. VM is currently typically taught in the West in a standardized intervention in form of a 10-day retreat as in the tradition lead by S. N. Goenka [33]. Course attendees practice up to eleven hours of meditation each day and watch videotaped discourses delivered by Goenka, which explicate Buddhist views of suffering, attachment, and craving.

In Shamatha meditation (SM), typically acknowledged as one of the main CM practices [5], cognitive resources are directed toward a chosen target and away from uncontrolled, ruminative thoughts and cognitive perseverations [34]. During SM, the faculty of focusing attention on a given object such as the breath without distraction is trained. Shamatha includes introductory meditation practices in the Buddhist context for the development of a relaxed, stable, and clear mind [35]. Shamatha can be practiced for a few minutes daily or as an intensive meditation training – a retreat – for days, months, or even years. As the meditation

practitioner engages in Shamatha practice, it is thought that he/she can progressively improve the ability to develop focused attention [5,8].

In addition, in several Buddhist traditions, a third form of meditation, often referred to as "non-referential compassion", is frequently cultivated [36]. This form of meditation aims at cultivating an intensive state of loving-kindness and can be viewed as different from mindfulness meditation. However, loving-kindness meditation shares strong resemblances with mindfulness practices. In fact, loving-kindness meditation has no specific object or focus and aims at cultivating an objectless awareness. Accordingly, it is considered by many authors and Buddhist masters as a variation of the mindfulness/OM meditation (e.g. 36).

Most of traditional meditation programs are delivered in form of a retreat based on VM, SM, or on a combination of both techniques and might include at times cultivating benevolent mental states, namely loving-kindness, compassion, empathic joy, and equanimity [34,37]. An increasing number of studies investigated these traditional meditation retreats in the last two decades. However, no meta-analysis directly examined their effectiveness so far.

Previous reviews included a few studies using intensive meditation or retreats without focusing explicitly on the effects of meditation retreats. For example, a systematic review of three clinical studies in incarcerated populations [38] found that VM reduced alcohol and substance abuse but not post-traumatic stress disorder symptoms among prisoners. A meta-analysis [18] examined meditation programs globally including transcendental meditation, mindfulness-based interventions, and traditional MM, but did not separately report outcomes of traditional MM programs. Another meta-analysis [39], which comprised both mindfulness-based interventions and traditional MM programs, included three studies on meditation retreats. Results suggested that traditional MM programs might be less effective than mindfulness-based interventions. However, this meta-analysis as other reviews did not focus explicitly on the effectiveness of meditation retreats, which constitute the most traditional forms of MM programs.

2. Objectives

To address the current gap about the effectiveness of traditional meditation retreats, we conducted a systematic review and metaanalysis of studies using traditional meditation retreats. The objectives are as follows: [1] to quantify the magnitude of the effects of retreats on psychological outcomes; [2] to quantify the change of mindfulness levels, as well as of other possible moderators of outcomes, following the retreats and at the last follow-up; and [3] to explore moderator variables of the effectiveness of the retreats.

3. Method

3.1. Eligibility criteria

To be included in this meta-analysis, the publication had to meet the following criteria: [1] be published in the English language; [2] be included in the databases mentioned above; [3] include any type of traditional meditation retreat; [4] use any experimental or quasi-experimental design and [5] examine psychological outcome measures. Articles were excluded from this review due to the following criteria: [1] studies that did not evaluate the meditation program or implemented a qualitative design; [2] meditation retreat was part of a program or an intervention (e.g. MBSR); [3] they did not include psychological outcome measures; [4] data were already included in other papers comprised in the meta-analysis and thus redundant; and [5] reported data were not sufficient to compute effect sizes.

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