

Mindfulness-based stress reduction: a non-pharmacological approach for chronic illnesses

Asfandyar Khan Niazi¹, Shaharyar Khan Niazi²

¹Shifa College of Medicine, Pitras Bukhari Road, H-8/4, Islamabad, Pakistan.

²Islamic International Dental College, Riphah International University, Islamabad, Pakistan.

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Abstract

Background: Mindfulness Based Stress Reduction (MBSR) therapy is a meditation therapy, though originally designed for stress management, it is being used for treating a variety of illnesses such as depression, anxiety, chronic pain, cancer, diabetes mellitus, hypertension, skin and immune disorders. **Aim:** The aim of this systematic review is to determine the efficacy of MBSR in the treatment of chronic illnesses; its mechanism of action and adverse effects. It describes an alternative method of treatment for physicians and patients that may help patients cope with their diseases in a more effective way. **Materials and Methods:** COCHRANE, EMBASE and MEDLINE were systematically searched for data on outcome of treatment with MBSR used alone or in conjunction with other treatments. The data available on prevention of diseases through MBSR was also analyzed. **Results:** All the 18 studies included in this systematic review showed improvement in the condition of patients after MBSR therapy. These studies were focused on patients with chronic diseases like cancer, hypertension, diabetes, HIV/AIDS, chronic pain and skin disorders, before and after MBSR therapy. **Conclusions:** Although the research on MBSR is sparse, the results of these researches indicate that MBSR improves the condition of patients suffering from chronic illnesses and helps them cope with a wide variety of clinical problems.

Keywords: Stress reduction therapy, chronic illnesses, chronic pain, depression.

Correspondence to: Asfandyar Khan Niazi, Shifa College of Medicine/Shifa International Hospital, Pitras Bukhari Road, H-8/4, Islamabad, Pakistan.

Introduction

Stress refers to the consequence of the failure of a person to respond appropriately to emotional or physical threats, whether actual or imagined [1]. Signs and symptoms of stress include a state of alarm and adrenaline rush, short-term resistance as a coping mechanism, exhaustion and irritability, muscular spasm, inability to concentrate and a variety of physiological reactions such as headache and increased heart rate [2]. An online survey carried out by American Psychological Association in September 2007 estimated stress levels among 1,848 adults [3]. The results showed that seventy-nine percent of people agreed that “stress is a fact of life”. One-third of the people reported experiencing extreme levels of stress, and nearly 17% reported that they experience their highest level of stress 15 or more days per month.

Mindfulness Based Stress Reduction (MBSR) program is a technique developed by Dr. Jon Kabat-Zinn in 1979 [4]. Although initially developed for stress management, it has evolved to encompass the treatment of a variety of health related disorders. These include anxiety, depression, skin diseases, pain, immune disorders, hypertension and diabetes. It employs mindfulness meditation to alleviate suffering associated with physical, psychosomatic and psychiatric disorders. Over 200 medical centers [4] across the world offer MBSR as an alternative treatment option to patients. It constitutes of 2.5 hour/week, 8-weeks course with a 1-day retreat [5]. Participants receive training in formal mindfulness meditation techniques involving simple stretches and postures. This article assesses the usefulness and applications of MBSR in the treatment of chronic diseases like depression, chronic pain, immune disorders, skin diseases, cancer, diabetes and hypertension.

Materials and Methods

A systematic literature search of MEDLINE, PUBMED, EMBASE, and COCHRANE was conducted to identify relevant randomized controlled trials (RCTs). The search was limited to English-language articles and human studies. In addition, we searched the reference lists of all identified relevant publications.

Study Selection Criteria:

The author identified articles eligible for further review by performing an initial screening of searched abstracts or titles. Articles were considered for inclusion in the systematic review if these reported the relationship between Mindfulness based stress reduction and any chronic disease. The articles were screened again by full text review. All original articles, written in English, which evaluated the effects of Mindfulness based stress reduction on depression, pain, diabetes or hypertension were included in the systematic review.

To judge quality, we abstracted information on population source; reason for Mindfulness based stress reduction therapy, it's duration, outcome ascertainment; and statistical methods. Additionally we extracted data on funding sources and intention-to-treat design, given their potential to induce bias. Our initial search generated 2607 results, out of these 32 were found relevant after the first screening, based on the titles and abstracts. These 32 articles were then screened again on the basis of full text, and 18 of these were found to match the inclusion criteria for this systematic analysis. The studies with either lack of original research or a report of incomplete results were excluded.

Evidence and Discussion

The research on MBSR and Chronic diseases is sparse, but some studies show promising results. Studies have shown significant decrease in anxiety, stress and depression and enhanced the quality of life in patients with chronic diseases like cancer, hypertension, diabetes, HIV/AIDS, chronic pain and skin disorders, after MBSR therapy. A study [6] of 14 patients was conducted in which the effects of MBSR on measures of blood pressure, body weight, and psychological symptoms, including anxiety, depression, somatization, and general psychological distress were observed. This study found a reduction in mean arterial pressure by 6 mmHg; decreases in depression, anxiety, and general psychological distress in patients undergoing MBSR therapy.

The relationship between MBSR and chronic recurrent depression was evaluated by a study [7] in which MBSR was introduced with the usual treatment in one group and compared it with another group of patients which being treated without MBSR. They found a decrease in reported symptoms in the MBSR group and no significant change in the usual-treatment group. Another study [8] examined the effectiveness of MBSR on depression, anxiety and psychological distress across populations with different

chronic somatic diseases. Eight published, randomized controlled outcome studies showed reduction of anxiety and depression in patients getting MBSR therapy.

Another study [9] examined the impact of MBSR on a population of chronically depressed patients. The outcome measure, relapse/recurrence, was assessed over a 60-weeks period. Patients had significantly reduced episodes of depression after MBSR therapy. MBSR therapy has also been used to decrease stress levels in pregnant women. A study of 27 pregnant women [10] participating in MBSR therapy during their third trimester of pregnancy showed statistically significant increases in mindfulness and positive effects and an improvement in pregnancy related anxiety and depression. Another study [11] measured distress and positive mood states in students and found that brief training in mindfulness meditation reduces distress and improves positive mood states.

In a study [12], 22 participants were screened and selected for generalized anxiety disorder or panic disorders. Repeated measures analyses of variance documented significant reductions in anxiety and depression scores after treatment for 20 of the subjects—changes that were maintained at follow-up. The number of subjects experiencing panic symptoms was also substantially reduced. A group mindfulness meditation training program can effectively reduce symptoms of anxiety and panic and can help maintain these reductions in patients with generalized anxiety disorder, or panic disorder.

MBSR therapy has also been found to relieve stress in patients with diabetes mellitus. Diabetes poses a major life stress that requires considerable physical, emotional, and psychological accommodation and coping. In a research [13], it was found that people with diabetes are 20% more likely to have an anxiety condition at some point in their lifetime than those without diabetes. About 25% of adults with diabetes will experience depression at some point. MBSR can help the patients in adapting to the daily treatment needs and managing the psychosocial issues associated with diabetes that are challenging and stressful for patients.

A study [14] carried out to assess the effect of Mindfulness-based stress reduction therapy on hypertension was carried out in African-Americans of age greater than 55 years. Initial eligibility criteria were diastolic BP 90 to 109 mm Hg and systolic BP less than or equal to 189 mm Hg. The participants showed significant reductions in systolic and diastolic BP values. Although this research cannot be classified conclusive because of the narrow target population, but it does give hope that MBSR meditation may help in lowering BP in hypertensive patients.

A clinical trial [15] tested the efficacy of an 8-week MBSR meditation program compared to a 1-day control stress reduction seminar, on CD4+ T lymphocyte counts in HIV infected adults. A diverse community sample of 48 HIV-1

infected adults was randomized and entered treatment in either an 8-week MBSR or a 1-day control stress reduction education seminar. The findings provided an initial indication that mindfulness meditation training can buffer CD4+ T lymphocyte declines in HIV-1 infected adults.

Organ transplant recipients must take immune suppressive medications that have side effects, cause complications, and lead to distressing symptoms leading to reduced health-related quality of life. Mindfulness meditation has been shown to alleviate these symptoms in other patients. A clinical trial [16] suggests that Mindfulness based stress reduction meditation increases the quality of life in transplant patients.

Another study [17] was to assess the effects of participation in a mindfulness meditation-based stress reduction program on mood disturbance and symptoms of stress in cancer outpatients. Patients in the treatment group had significantly lower scores on total mood disturbance and subscales of depression, anxiety, anger, and confusion and more vigor than control subjects. The treatment group also had fewer overall symptoms of stress; fewer cardiopulmonary and gastrointestinal symptoms; less emotional irritability, depression, and cognitive disorganization; and fewer habitual patterns of stress. Overall reduction in total mood disturbance was 65%, with a 31% reduction in symptoms of stress. This 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. The practice of MBSR has been found to improve patients' coping with prostate cancer, and to decrease stress and mood disturbances in a group of patients with mixed types of cancer. Shifts in immune system markers (reduction in T1 pro-inflammatory lymphocyte to T2 anti-inflammatory lymphocyte ratio) have also been found in patients with breast cancer and in patients with prostate cancer following an 8-week MBSR program.

A randomized, controlled study [18] was performed on the effects of an 8-week clinical training program in mindfulness meditation on brain functions. The electrical activity of brain was measured immediately before the meditation and then 4 weeks and 8 weeks after the meditation. At the end of the 8-week period a report suggested "first time significant increases in left-sided anterior activation", a pattern that is associated with positive effect, in the meditators. This finding demonstrates MBSR produces demonstrable effects on brain functions.

Thirty-seven patients with psoriasis about to undergo ultraviolet (UVB) phototherapy or PUVA photo-chemotherapy were randomly assigned to one of two regimens [19]: a mindfulness meditation-based stress reduction intervention guided by audio-taped instructions during light treatments, or a control condition consisting of the light treatments alone with no taped instructions. Psoriasis status was assessed and the analysis showed that

subjects in the tape groups reached the halfway point ($p = .013$) and the clearing point ($p = .033$) significantly more rapidly than those in the no-tape condition, for both UVB and PUVA treatments.

Fibromyalgia is a chronic illness characterized by widespread pain, fatigue, sleep disturbance, and resistance to treatment. A study [20] was carried out to evaluate the effectiveness of a meditation-based stress reduction program on fibromyalgia. Seventy-seven patients took part in the program. Patients were evaluated before and after the program. Outcome measures included visual analog scales to measure global well-being, pain, sleep, fatigue, and feeling refreshed in the morning. Although all the patients completing the program showed improvement, 51% showed moderate to marked improvement and were counted as "responders". These preliminary findings suggest that a meditation-based stress reduction program is effective for patients with fibromyalgia.

Comments

Although the number of researches conducted on Mindfulness based stress reduction therapy, to measure its effects on patients with chronic pain, is insufficient to establish MBSR as a proven intervention to help people suffering from chronic illnesses, the results suggest that MBSR may help a broad range of individuals to cope with their clinical and non-clinical problems. It is important to note that the interpretation of results of many researches was limited due to faulty study design, method or analysis. Still there is evidence that patients with chronic illnesses like diabetes, hypertension, cancer, immune disorders, chronic pain, sleep disorders, back pain, clinical depression, stress and anxiety may benefit from MBSR. An advantage of MBSR is that these interventions have little risk and can increase the capability of patients to have control over their pain, mood swings and lives, as well as enhance quality of their life. Research is warranted for investigation of the mechanism through which MBSR facilitates patients with chronic illnesses. This will lead to a better understanding of the applications of MBSR. Although MBSR still hasn't been accepted as standard medical treatment, physicians should give the patients with chronic illnesses an option to go for MBSR, which may help them cope with the difficulties resulting from chronic illness.

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