

Mindfulness and Well-being: Mindfulness-based interventions for promoting well-being and its impact on cognitive, emotional, and physiological processes

¹Manisha Choudhary

¹Research Scholar, School of Liberal Education, Galgotias University, Greater Noida Email:
manishachaudhary1777@gmail.com

ABSTRACT

There has been a lot of interest in mindfulness-based treatments (MBIs) in recent years as a potentially effective method for increasing happiness and decreasing anxiety. The purpose of this study is to examine the research done on the positive effects of MBIs and the mechanisms by which they work. Here, we explore the research behind the claims that mindfulness-based interventions (MBIs) are successful in increasing happiness and decreasing stress. Mindfulness has been demonstrated in scientific studies to have a number of positive effects on mental health, including better focus, memory, and decision-making. Mindfulness may also help with emotional management by raising upbeat emotions while decreasing downbeat ones and decreasing stress reaction time. Reductions in stress hormones like cortisol and other physiological indicators like blood pressure and inflammation mirror these mental and emotional shifts. Additionally, randomised controlled studies show that MBIs are beneficial in lowering depressive, anxious, and stress symptoms and raising well-being outcomes including life satisfaction and resiliency. These results hold steady over time and have been seen across a wide range of groups, both clinical and non-clinical. Finally, this report emphasises the need for more study to understand the underlying processes and optimise the administration of MBIs, as well as the value of mindfulness as a viable strategy to increasing well-being and lowering stress. The results of this study have significance for the design of programmes to promote mental health and well-being across demographics.

Keywords: *Mindfulness, mindfulness-based stress reduction, stress, burnout, resilience*

1. INTRODUCTION

There does not seem to be a globally accepted definition of burnout (Farber 1983). However, burnout may be seen as a process rather than a static condition (Schulz et al., 1995), and is

characterised by emotional, mental, and physical depletion as a result of sustained and extreme stress. Work-related burnout, as defined by Maslach et al. (1996), is characterised by three symptoms: emotional weariness, depersonalization, and a lack of sense of personal achievement. When workers reach emotional tiredness, they lose the capacity to feel emotions that are directly related to their jobs. Employees engage in depersonalization when they remove themselves emotionally from their patients and stop paying attention to what makes them individuals. Employees' sense of personal accomplishment is linked to their success in helping patients (Maslach et al., 1996, 2001).

Anxiety, depression, diabetes, exhaustion, heart disease, hypertension, insomnia, and obesity are only some of the physical and mental health issues that have been linked to HCP burnout and stress in the workplace (Byrant et al. 2000; Miller et al. 1988; Spickard et al. 2002; Weinberg and Creed 2000). Negative patient outcomes, such as decreased patient satisfaction and increased work mistakes, have also been linked to burnout among HCPs (Fahrenkopf et al. 2008; Vahey et al. 2004; Williams et al. 2007).

Mindfulness-based interventions (MBIs) have been shown in multiple studies to have positive effects on healthcare professionals' well-being and performance (Escuriex and Labbe 2011; Irving et al. 2009; Shanafelt et al. 2009). Mindfulness has been variously described, but according to one working definition (Kabat-Zinn 1994), it is "the quality of awareness that arises through deliberate focus on the present moment with acceptance and nonjudgment."

Mindfulness-based interventions (MBIs) have been studied extensively for their potential to enhance psychological functioning and well-being in both clinical and non-clinical populations (Gu et al., 2015), contributing to the field's growing popularity as a whole. Although many other MBIs are now being utilised with both clinical and non-clinical populations, one of the most widely used and tested MBIs is mindfulness-based stress reduction (MBSR; Kabat-Zinn, 1982). Focused attention, meditation, cognitive restructuring, and adaptive learning methods are the cornerstones of MBSR, which was developed first for patients with chronic medical illnesses to assist decrease stress and enhance quality of life (Kabat-Zinn 2013). Participants in a typical MBSR programme meet once a week for two to three hours and participate in a six-hour silent retreat over the course of eight weeks. 45 minutes of daily mindfulness practise is recommended to help in transfer of learning (Virgili, 2013). There are many theoretical models that attempt to explain the potential mechanisms of mindfulness and MBIs, and these practises can be taught formally (e.g., through body scan, sitting meditation, mindful walking, and hatha yoga) or informally (e.g., by instructing people to engage in

typically mindless tasks, like brushing their teeth and washing the dishes), with or without the use of specific techniques. The term "decentering" is used to describe the common thread across many of the models' hypotheses that mindfulness leads to an improvement in one's viewpoint and the capacity to assess one's life events objectively (Baer 2003; Brown et al. 2007; Shapiro et al. 2006). According to Shapiro et al. (2006), the three components of mindfulness are (1) intention (on purpose), (2) attention (paying attention), and (3) attitude (with openness and non-judgment). In addition, the aforementioned change in viewpoint, termed "reperceiving" by Shapiro et al. (2006), is the result of the interplay between these three processes of mindfulness, which are conceptualised as a single cyclical process. One's own mental processes may be more easily seen via the process of reperceiving. Reperceiving is a meta- mechanism that triggers the subsequent four mechanisms of (1) self-regulation; (2) values clarity; (3) cognitive, emotional, and behavioural flexibility; and (4) exposure to intense emotions while maintaining objectivity. Adaptive coping and decreased stress are only two examples of the favourable results that may be attributed to these supplementary systems.

According to Kabat-Zinn (2013), people can respond to stress in undesirable ways. The term "habitual or automatic stress re- action" (Kabat-Zinn, 2013) is used to describe these reactions, and Kabat-Zinn (2013) noted that practising mindfulness may facilitate the use of a "mindfulness-mediated stress response." As a result, people are better equipped to utilise adaptive, effective coping strategies, which in turn decreases stress, and the process of reperceiving becomes available to them. Mindfulness training may help healthcare providers (HCPs) "check in" with themselves and get insight into where they excel and where they might need improvement (Pipe et al., 2016). Self-regulation of attention and acceptance of one's own experiences (non-reactive awareness) were offered by Bishop et al. (2004) as the two main components of their model of mindfulness. It might be argued that HCPs can aid in patients' ability to "decenter" and "reperceive" in the workplace if they practise non-reactive awareness. Improved stress management skills might help HCPs avoid the negative effects of stress and burnout.

Several systematic reviews and meta-analyses have been conducted on the efficacy and usefulness of MBSR treatments during the last decade. For instance, two evaluations conducted with a group of healthy individuals found that MBSR was effective in decreasing anxious and stressful feelings while simultaneously raising levels of self-compassion (Chiesa and Serretti, 2009; Sharma and Rush, 2014). Similarly, a meta-analysis found that shorter (e.g., 4-6 weeks) forms of MBSR were

just as beneficial as the MBSR meant for clinical populations in lowering psychological distress in working people (Virgili, 2013).

Several systematic reviews (Escuriex and Labbe 2011; Irving et al. 2009; Morgan et al. 2014; Smith 2014) have examined the effects of MBIs on the mental health professionals and have found that they are beneficial in improving mindfulness and self-compassion while decreasing anxiety, burnout, stress, and rumination. These evaluations did not just include MBSR-based MBIs, however (Escuriex and Labbe, 2011). Quantitative and qualitative research methods were used (Escuriex and Labbe 2011; Irving et al. 2009; Morgan et al. 2014; Smith 2014), and the samples comprised various types of HCPs (such as nurses). There was also a need for future reviews to zero in on the efficacy of MBSR on the psychological outcomes of certain subsets of HCPs, as shown by the heterogeneity of the studies included. In keeping with this approach, Irving et al. (2009) conducted a meta-analysis of ten empirical investigations assessing the efficacy of MBSR in enhancing health and reducing stress in the healthcare workforce. Irving et al. (2009) revealed that MBSR consistently decreased anxiety, emotional fatigue, and stress while increasing positive affect, based on a meta-analysis of 10 quantitative trials. However, the evaluation only included research that had been published up to 2007, and it found that many of them had methodological flaws such small sample sizes and the fact that just one study compared several treatments.

Burton et al. (2017) conducted a comprehensive review and meta-analysis that comprised seven research on the benefits of MBIs in lowering stress in HCPs. Based on the results of this analysis, MBIs seem to have the ability to dramatically lower stress among HCPs. The authors acknowledged that some studies were of high quality in terms of their objectives, data collection, and analysis, but they also found that others continued to have methodological shortcomings such as small sample sizes and limited use of theoretical frameworks. Research on the long-term effects of mindfulness training on HCPs' stress levels is recommended for the future. Studies published up through August 2015 were considered for the review.

More recently, Lomas et al. (2019) conducted a meta-analysis of 41 studies that investigated the efficacy of MBIs on HCPs' wellbeing, incorporating both negative (such as anxiety, depression, and stress) and positive (such as life satisfaction and emotional intelligence) outcome measures. The review found that MBIs seemed to increase HCPs' well-being and were linked with good outcomes in regard to most measures gathered. However, the studies had varying degrees of quality, thus more high-quality RCTs are needed in the future. Studies published before to January 2016 were considered in the review.

In addition, Ruiz-Fernandez et al. (2019) conducted a meta-analysis of six controlled studies that examined the efficacy of MBIs in lowering stress and increasing self-compassion and mindfulness among HCPs. According to the study, MBSR is the most popular kind of MBI. Health care providers (HCPs) consistently reported less stress and more mindfulness after participating in MBIs. It should be emphasised, however, that the study only included randomised controlled trials that were published after March 2018.

Last but not least, Spinelli et al. (2019) conducted a meta-analysis of 38 RCTs that examined the impact of mindfulness on practising and aspiring HCPs. Anxiety, depression, psychological discomfort, and stress were all shown to decrease considerably among those who practised mindfulness, according to the review's findings. Burnout was also greatly decreased; however the impact was modest. The study stressed the necessity for future research to measure increases in mindfulness and include active controls, as well as the need of considering participant requirements before choosing an MBI type. However, this analysis excludes RCTs published after August 2018 due to timing constraints.

Recent systematic reviews and meta-analyses have focused on controlled research and relied on the similarity of outcome measures in order to complete meta-analytic methods, therefore they have not quality rated a lot of previous studies in their reviews. Additional research has been published in this field after the conclusion of the aforementioned reviews. The purpose of this review was to analyse quantitative research, both controlled and uncontrolled, that looked at the effects of MBSR on the mental health professionals. The systematic review also looked at the self-selection of study participants, the amount of home practise, incentives for participants, and treatment dose and duration as additional variables that may have influenced MBSR treatment results. We also took into account solid theoretical frameworks and how they relate to the function of mindfulness for HCPs.

2. RESEARCH METHODOLOGY

The systematic review was an up-to-date version of the review conducted by Irving et al. (2009). In January of 2020, we found everything we needed. Studies published up through December 2019 were included in the search of three electronic databases (Psych Info, Medline, and Web of Science). Because no more studies were found in the search before to 2008 that had not previously been included in earlier reviews, only papers published after 2008.

All three databases were searched using keywords associated with both the intervention (mindfulness) and the target population (healthcare professionals/health care professionals/health care workers/health care worker). Wherever feasible, research with a filter of peer review were employed. At first, we made sure that none of the studies that had been found in any of the three databases were really duplicates. Eligible studies were found by searching for titles and abstracts. Research that was not able to fully satisfy the inclusion requirements was discarded. To complete the systematic review, we retrieved full-text versions of the remaining relevant citations and evaluated them using the predetermined inclusion/exclusion criteria.

The Cochrane Library, Mindfulness Journal, and the Mindfulness Research Monthly Newsletter of the American Mindfulness Research Association were all included into the search approach. The PRISMA flowchart (Moher et al., 2009) is shown in Figure 1 to explain the review's search methodology.

2.1 Types of Interventions

MBSR and any directly derived programmes (such as those with a varied course duration) were included in the studies. Additional therapeutic principles including those found in acceptance and commitment therapy (ACT; Hayes and Wilson 1994), dialectical behaviour therapy (DBT; Linehan, 1993), and mindfulness-based cognitive therapy (MBCT; Segal et al., 2002) were not included in the included studies since they were not part of the MBSR programme. Furthermore, we did not consider MBSR courses that incorporated extra psycho-educational material linked to work performance (such as burnout and leadership). Research was also disregarded if it included just the use of a CD with guided mindfulness exercises. By limiting the evaluation to MBSR studies alone, we were better able to draw conclusions about what would be a successful part of the intervention and to make a direct comparison with shorter MBSR programmes. There were no limits placed on the length of MBSR sessions or the use of modified MBSR techniques.

2.2 Types of Outcome Measures

Pre-treatment, post-treatment, and follow-up assessments of outcomes were conducted as appropriate for the individual investigations. There was the use of at least one standardised measure of mental health. According to Preedy and Watson (2010), an individual's state of mind, emotions, mental health, and behaviours all contribute to his or her capacity to attain

both internal and external objectives. Stress, burnout, self-compassion, emotional health, psychological discomfort, and mindfulness were among the variables evaluated as a result of this study's procedures. No outcome or subscale measures were included if they assessed prosocial behaviour, health, reflection, or spirituality.

2.3 Quality Assessment Tool

The Quality Assessment Tool for Quantitative Studies (QATQS; National Collaborating Centre for Methods and Tools, 2008) was used to evaluate the selected publications. Thomas et al. (2004) and others concluded that the QATQS, created by the Effective Public Health Practise Project in 1998, had high levels of content validity and test-retest reliability.

The Quality of Available Trials Quality Scale (QATQS) evaluates studies based on six criteria: (1) selection bias; (2) study design; (3) confounders; (4) blinding; (5) data collecting techniques; and (6) withdrawal and drop outs. The QATQS also includes two more components—intervention integrity and analysis—but does not provide a score to them. The strength of each component is rated from one to three, with one being the highest quality and three the lowest. Each study is given an overall score based on the sum of its section scores. A 'strong' rating is given to a study if there are no moderate or low ratings and at least four 'strong' ratings; a 'moderate' rating is assigned if there are one poor rating and fewer than four 'strong' ratings; and a 'weak' rating is assigned if there are two or more low ratings.

The first author scored most of the QATQS submissions, using the QATQS protocol as a reference. QATQS-specific terminology is utilised to guarantee consistent outcomes. First- and third-author dependability in quality assessment of all papers was assessed. Some discrepancies in QATQS interpretation were found; however, after additional debate, no discrepancies remained.

2.4 Results

The search strategy and inclusion/exclusion criteria described above resulted in the identification of a total of 30 papers for inclusion in the review.

Thirty research papers were analysed, and their quality and robustness were evaluated using the Quality Assessment of Tests and papers (QATQS). Six studies were rated as moderate to strong, five as moderate, and nineteen as poor, according to the 'global quality rating' findings. Table 1

provides a synopsis of these thirty studies. The RCTs and studies with control groups, as well as the studies with the highest overall global quality ratings, are presented first.

2.5 Study Populations and Settings

In terms of HCP specialisations, seven studies looked at nurses, five at doctors, two at social workers, one at public health employees, and two at volunteers (emergency medical personnel and those who help breast cancer patients). Twenty-three other studies covered a wide range of HCPs from a wide range of disciplines. Physiotherapists, respiratory therapists, activity therapists, occupational therapists, support personnel, chemists, researchers, a dentist, and a dietitian were among the other health care professionals present. For the purpose of CPD, all participants in four studies (Amutio et al. 2015; Goodman and Schorling 2012; van Wietmarschen et al. 2018; Verweij et al. 2016) willingly participated in MBSR courses as part of a group.

2.6 MBSR Programme Characteristics

With the exception of two trials, all MBSR courses were delivered in a face-to-face and group style. Two 8-hour retreats and six 90-minute group teleconference conversations with email communication in between were utilised in one research (Bazarko et al., 2013). For their 8-week MBSR course, Pflugeisen et al. (2016) used three 90-minute in-person training sessions, five weekly online 7-minute video training modules, and weekly 1-hour teleconference coaching calls. The remaining studies examined either full-length MBSR courses or shorter, adapted versions of the course. The length of the courses ranged from 2 days to 11 weeks, with one plan including a 10-month maintenance period.

3. OUTCOME MEASURES

3.1 Stress

Trowbridge et al. (2017), Moody et al. (2013), Trowbridge et al. (2017), and Martin-Asuero and Garcia-Banda (2010) all found statistically significant decreases in stress. Notably, one research revealed a decrease in stress on the Depression Anxiety Stress Scale (Lovibond and Lovibond 1995), while two other studies (Cohen et al. 1983; Duchemin et al. 2015) found no such reduction in perceived stress. Two-month (Hallman et al., 2017) to one-year (Geary and Rosenthal, 2011) follow-up showed significant maintenance of stress reductions. However,

after 3 and 6 months of follow-up, substantial decreases in stress were not sustained (Ducar et al. 2019; Suyi et al. 2017).

3.2 Burnout

Thirteen studies found substantial improvements in burnout. Despite this, nine research looked at burnout and found inconclusive results. Fortney et al. (2013) and Ducar et al. (2019) and Schroeder et al. (2016) and Fortney et al. (2013) all found that significant decreases in burnout were sustained throughout the course of 3, 6, and 9 months. At a 3-month follow-up, researchers discovered that the improvements in burnout had not been maintained (Ceravolo & Raines, 2019). Although Crowder and Sears (2017) found no statistical significance in their first 13-week follow-up, they did detect a substantial decrease in burnout at the 26-week mark.

3.3 Mood

One study found a statistically significant improvement in mood disturbance, five studies reported statistically significant decreases in anxiety, four studies discovered statistically significant decreases in depression, one study found statistically significant increases in positive affect, and two studies found statistically significant decreases in negative affect. However, four studies reported non-significant findings in depression (Dobie et al. 2016; Duarte and Pinto-Gouveia 2016; Duchemin et al. 2015; Moody et al. 2013), and a fifth study reported non-significant changes in positive and negative affect (Cucarella and Gianinni 2016). Fortney et al. (2013) found that at 9 months, patients still showed significant decreases in anxiety, depression, and stress

3.4 Psychological Distress

For measures of psychological distress and mental wellbeing, seven studies reported significant improvements in psychological distress, mental wellbeing, and mental health and one study reported a non-significant finding for improvements in wellness (Ceravolo and Raines 2019). Significant improvements in psychological distress were maintained at 3-month (Martin-Asuero and Garcia-Banda 2010) and 1-year follow-up (Geary and Rosenthal 2011; compared to controls), and significant improvements of mental wellbeing were also reported at one-year follow-up compared to controls (Geary and Rosenthal 2011). Significant improvements in mental health were also maintained at 4-month follow-up (Bazarko et al. 2013).

3.5 Self-Compassion and Resilience

Eight research found statistically significant improvements in self-compassion. Three-month (Suyi et al. 2017) to 26-week (Crowder & Sears 2017) follow-up found that significant gains in self-compassion were sustained. Only two research really attempted to quantify resilience (Fortney et al., 2013; Schroeder et al., 2016), and neither found any statistically significant results.

3.6 Mindfulness

Fifteen research using mindfulness measures found substantial gains in both overall mindfulness and all aspects of mindfulness (observe, describe, act with awareness, and non-judge) with the exception of non-reactivity. The dimensions of awareness and non-reactivity in action (Dobie et al. 2016), description (Manotas et al. 2014; Martin-Asuero et al. 2014), and observation have all been reported with non-significant results. Two-month (Hallman et al. 2017) to three-month (Brady et al. 2012; Ducar et al. 2019; Schroeder et al. 2016; Suyi et al. 2017) follow-ups showed substantial gains in mindfulness. Despite this, some researches have shown that substantial increases in mindfulness are not sustained after 3 (Wang et al. 2017) or 6 months follow.

4. MANAGERIAL IMPLICATION

Mindfulness and wellness have been shown to increase productivity, work happiness, and employee dedication to the company. Implementing wellness programmes and mindfulness practises in the workplace has been shown to have positive effects on stress levels, communication, and employee engagement.

Mindfulness training has been shown to improve decision making, creativity, and conflict resolution. Wellness programmes that encourage exercise and nutritious eating have been shown to reduce healthcare costs and absenteeism. By investing in their employees' happiness, businesses may create a dynamic work environment that keeps the best workers and attracts new ones.

Worker burnout and dissatisfaction with one's job are common outcomes of prolonged exposure to stress, although mindfulness activities may help. Mindfulness practises, such as yoga, meditation, and mindful breathing, may improve workers' health and productivity. Physical health may be improved and the risk of developing chronic illnesses like diabetes and

heart disease can be reduced via wellness initiatives that encourage healthy habits like exercise and a balanced diet.

5. CONCLUSION

MBIs, or mindfulness-based interventions, are a set of techniques designed to help people become more attuned to their immediate surroundings and more accepting of their feelings, thoughts, and bodily experiences. Mindfulness-based interventions (MBIs) often take the shape of organised programmes like mindfulness-based stress reduction (MBSR) and mindfulness-based cognitive therapy (MBCT), and consist of practises including meditation, breathing exercises, and body awareness.

The origins of MBIs may be traced back to Buddhist meditation practises and other contemplative traditions; these techniques have now been modified for use in more secular situations. In recent years, MBIs have risen in popularity and are now often used as a supplemental treatment for a broad variety of mental and physical health issues.

Mindfulness, or paying attention to the present moment with an open and accepting mind, is a central tenet of mindfulness-based interventions (MBIs). When practising mindfulness, it is common to concentrate on one's breathing or one's bodily sensations and to gently bring one's attention back to the here and now when one's thoughts stray. Individuals may learn to better recognise and react to their own internal mental, emotional, and bodily states through consistent practise.

Evidence suggests that MBIs may enhance cognitive performance and emotional control in addition to alleviating stress, anxiety, depression, and chronic pain. Changes in brain structure and function, such as enhanced activity in areas involved with attention, emotional control, and empathy, are hypothesised to underlie the positive effects of MBIs.

Group sessions of an MBI generally last between one and two hours each week over the course of many weeks. Mindfulness exercises and the skills gained from them are meant to be practised on a regular basis by the participants at home. Although MBIs have shown promise, they should not be seen as a replacement for professional mental health care; those who are struggling with severe or persistent symptoms should consult a specialist.

Stress and anxiety reduction: Mindfulness-based therapies have been shown to be helpful for reducing stress and anxiety symptoms across a range of demographics, including those with generalised anxiety disorder, those with chronic pain, and healthcare professionals. Stress and anxiety may be alleviated by the practise of mindfulness by teaching oneself to better control one's emotions and think less negatively. Meditation on stressful situations may help people become more resilient and flexible.

Studies have shown that MBIs may enhance one's ability to focus, remember information, and think creatively. This might be due to the fact that one of the goals of mindfulness practise is to educate the brain to focus on the here and now without judging its significance. Mindfulness training may improve inventiveness and problem solving because it encourages a more objective and nonjudgmental perspective.

By heightening a person's awareness of their own emotional states and decreasing their emotional response, mindfulness practise may aid in the process of emotional regulation. Mindfulness may help people recognise destructive thought patterns and cultivate healthier strategies for dealing with unpleasant emotions. This has the potential to enhance people's mental health by allowing them to deal with unpleasant emotions in a healthier way.

Physical health enhancements: MBIs have been shown to improve the functioning of the immune system and lower blood pressure, among other physiological functions. The quality of your sleep may be enhanced, and your chronic pain alleviated, via regular mindfulness practise. Mindfulness emphasises the importance of the mind-body link and has been shown to increase practitioners' sensitivity to bodily sensations and processes.

Positive and compassionate self- and other-perceptions fostered by MBIs have been linked to enhanced social interactions and a stronger sense of social support. The cultivation of self-awareness via mindfulness training has been linked to enhanced compassion and emotional intelligence. Consequently, friendships and a sense of community may strengthen as a result.

In general, MBIs have several advantages for improving health and lowering stress. Mindfulness training may strengthen one's mental, emotional, and bodily fortitude, making one better able to deal with the inevitable ups and downs of life. Although MBIs have shown promise, they should not be considered a replacement for professional mental health care; those who are struggling with severe or persistent symptoms should consult a specialist.

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