



# Mindfulness-based interventions during the COVID-19 pandemic: a focused review

## Abstract

The coronavirus disease 2019 (COVID-19) pandemic has raised alarm all over the world, whereby the mental health crisis is on the rise and people are in quest for resolution. So, the present review paper is an attempt to evaluate the previous work on mindfulness, and, its impact during the COVID-19 pandemic. Mindfulness as a multidimensional construct teaches us to regulate our awareness of the present moment followed by an attitude of non-judgemental acceptance. This paradigm shift in the field of psychology has created wonders in psychotherapeutic practice. The current review aims to highlight the 'why' and 'how' of mindfulness as intervention that could reach every person, be it the COVID-19 sufferers or the COVID-19 warriors. It also provides an insight into the efficacy of mindfulness as an intervention itself or in adjunct to other psychotherapeutic treatments. Therefore, it calls forth the need to put mindfulness-based interventions during this pandemic situation.

**Keywords:** Psychotherapy. Intervention. Mental Health.

**Amit Khawas<sup>1</sup>, Ankita Paul<sup>2</sup>,  
Satyananda Panda<sup>2</sup>**

<sup>1</sup>*Department of Sociology, Indian Institute of  
Legal Studies, Siliguri, West Bengal, India,*

<sup>2</sup>*Department of Psychology, Sikkim University,  
Gangtok, Sikkim, India*

**Correspondence:** Mr. Amit Khawas,  
Department of Sociology, Indian Institute of  
Legal Studies, Siliguri, West Bengal, India.  
PIN: 734003. amitkhawas30@gmail.com

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## INTRODUCTION

The current coronavirus disease 2019 (COVID-19) pandemic, declared by the World Health Organization (WHO) on the 11th of March 2020 has global impact that has shaken the healthcare system worldwide.[1] The government has been trying various measures to reduce the impact starting from isolation, social distancing, lockdown, and quarantine. The pandemic has not only affected the physical health of persons, but, has gross manifestations in the psychological health too. Many studies have documented that this pandemic has been associated with depression, anxiety, trauma, loneliness, sleep disturbances, and other psychological issues.[2] There have been various social factors like job losses, economic deprivation, migration to the homeland, stigma, and other psychosocial factors that have significantly created additional stress to the population resulting in higher rates of suicide. In an article by Dsouza *et al.*,[3] the causal factors associated with suicide in India was documented; which ranged from the fear of getting infected with COVID-19, financial crisis, loneliness, stigma associated to quarantine, work-related stress, not being able to return home, due to the postponement of examinations, etc. The pandemic has not only affected the general population, but also the healthcare workers who are at the forefront of this battle. The workload has resulted in "burnout, distress, and emotional suffering".[4] With the rise in mental health issues, the psychological services have great demand, with mindfulness as one such practice.

The Buddhist traditions used to and even now have been nourishing the concept of mindfulness as a practice that leads to the cessation of mental suffering.[5] Mindfulness

practice is more than just meditation and involves one's conscious attention to moment-to-moment experiences.[6] The concept started gaining popularity with its significance in various psychotherapies.[7] With the advent of this concept in psychotherapy, many researchers have started exploring the mechanisms involved and its efficacy, with the majority of the studies suggesting a positive outcome. Mindfulness practice has been used effectively as an adjunct with other forms of therapies like acceptance commitment therapy (ACT),[8] dialectical behavioural therapy (DBT),[9] mindfulness-based stress reduction therapy (MBSR),[10] and mindfulness-based cognitive therapy (MBCT).[11] Literature on the mindfulness-based therapies indicated significant improvement in patients with different medical conditions such as cancer,[12,13] diabetes,[14] human immunodeficiency virus (HIV),[15] and chronic pain.[16] Recent studies have found that mindfulness-based treatment is quite effective in reducing the symptoms related to anxiety and mood disorders,[17,18] in treating obesity, and other eating disorders such as binge eating,[19] and in reducing the relapse rates in patients with substance abuse.[20,21] The psychological mechanisms underlying the mindfulness-based therapies have been explained through various models like the intention-attention-attitude (IAA) model by Shapiro *et al.*,[22] Buddhist psychological model (BPM) by Grabovac *et al.*,[23] and the monitor and acceptance theory (MAT) based on the empirical work of Lindsay and Creswell.[24] As mindfulness-based interventions are gaining popularity in the field of health, researchers are keen on understanding the neurobiological mechanisms that help mindfulness interventions to succeed. Tang *et al.*[25] used integrative mind-body training (IMBT), one form

of mindfulness-based intervention. Through randomised controlled trials, they found that executive functioning improved with the underlying role of the autonomic nervous system and anterior cingulate cortex in IMBT. During this pandemic, whereby the mental health crisis is on the rise, mindfulness can be looked upon as an essential therapeutic technique that can heal psychological wounds. The current review will, therefore, aim to highlight the ‘why’ and ‘how’ of mindfulness as an intervention that could reach every person, be it the COVID-19 sufferers or the COVID-19 warriors.

### IMPORTANCE OF MINDFULNESS-BASED INTERVENTIONS DURING COVID-19 PANDEMIC

With the rise of this pandemic situation, human beings are struggling over fulfilling basic needs with feelings of helplessness and hopelessness predominating over the meaning of life. Mindfulness-based strategies can be effective in this pandemic by building distress tolerance, helping people regain a sense of meaning in their lives, and help develop relational depth in interpersonal relationships. Recent literature has been highlighting mindfulness as an important way of coping with this pandemic. Polizzi et al.[26] highlighted the importance of mindfulness practice in everyday lives by aiming at bare-awareness into the current moment, learning that a “thought is just a thought” or that uncertainties are momentary and can be replaced by alternative thought or feeling, thereby increasing resilience. Besides reviewing the importance of such interventions, few researchers tried experimenting on the efficacy of mindfulness-based practices during this pandemic. Few studies have also documented the efficacy of online interventions, particularly mindfulness practice.[27] Few presentations of those studies are described in Table 1.

From the literature presented in this manuscript which highlight the importance of mindfulness-based interventions, it can be said that the current pandemic scenario in our country will require more evidence-based studies, on different workplace settings, and especially for the healthcare workers, who are at the forefront of this battle. Work-site interventions and modules are required for mindfulness-based interventions, with more empirical evidence based on randomised controlled trials or case reports.

### LIMITATIONS

The articles for this review were taken from Google Scholar and PubMed, and therefore might have omitted other relevant articles from other electronic databases like PsycINFO, Cochrane, etc. Also, most of the articles were review-based which highlighted the requirement of mindfulness, with very few articles to empirically prove it during the current scenario. Therefore, the reviews were very limited, a few proposing manuals or protocols of mindfulness that can be used during this crisis, but the efficacy is tested in only some articles. Therefore, more such research is required as long as the pandemic is continuing to get better insights into the efficacy of mindfulness as an intervention.

Table 1: Mindfulness-based interventions during the COVID-19 pandemic

Authors	Population	Sample size	Intervention	Length of intervention	Outcomes
Huang et al.[28]	A case report; a woman, 30-year-old, diagnosed as COVID-19 positive and is 35 weeks and two days pregnant. This was her second child. She reported symptoms of anxiety and depression.	N=one.	DBT.	7 to 15 February 2020 (three therapy sessions were taken).	The study used DBT which includes mindfulness and relaxation exercises, distress tolerance skills, and interpersonal relationship development skills. After intervention, it was found that there was a gradual decline in the scores of HAM-D-17, HAM-A, and MADRS scales with no requirement of pharmacological treatment with antidepressants or anxiolytics.

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Table 1: (Continued)

Authors	Population	Sample size	Intervention	Length of intervention	Outcomes
Zheng et al.[29]	Participants were residents of Wuhan during the lockdown that started from 23 January, 2020.	Ninety seven adults (M <sub>age</sub> =34.49 years, SD=5.03 years).	Mindfulness intervention.	February 21, 2020 to March 1, 2020.	There were two levels: mindfulness condition and mind-wandering condition. It was found that the subjects in mind-wandering condition reported comparatively lesser levels of mindfulness than the participants in the mindfulness condition (B=0.290, p<0.05). A positive relationship was also predicted between daily confirmed cases and sleep quantity (B=0.050, p<0.05). Another finding was that for participants in the mindfulness intervention condition, sleep quantity was unaffected by the number of confirmed cases (B=0.013, p>0.10).
Presti et al.[30]	Health workers.	Staffs in a major hospital in Milan, Italy.	ACT; mindfulness exercises.	-	Objective is to maintain mental health in hospital staff as it will help them work even under the high-pressure conditions experienced during the COVID-19 pandemic. The programme is in its early stages and data on its effectiveness are scarce and incomplete.
Kwon et al.[31]	COVID-19 affected patients, isolated patients, and the general public complaining of anxiety related to COVID-19.	-	Mindfulness meditation.	Since 9 March, 2020.	Manual for mind-body telemedicine practice was introduced.
van der Lee and Schellekens[32]	Cancer patients and therapists indulge in the intervention for cancer-related distress, fear, anxiety, and depression at Helen Dowing Institute specialised in psycho-oncology in the Netherlands.	Two hundred and seventy four clients, 34 psychologists, and two psychiatrists participated in the survey, out of which only 209 clients received therapy via video conference and only 15 therapists participated in video consultancy.	MBCT for anxiety and depression as a result of cancer and CBT for fear of cancer recurrence.	The present study tried to see the impact of change in pattern of intervention among the patients and therapist after COVID-19. Seven weeks' survey was conducted to observe and learn their experiences of video consultancy.	The study concluded that video consultancy will be helpful for intervention and can lead to good working alliance during the COVID-19 as compared to other internet-based therapy (text-based communication, audio file). At the same time, most therapists and patients found that nonverbal contact which helps the client to express was lacking in video consultancy.

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Table 1: (Continued)

Authors	Population	Sample size	Intervention	Length of intervention	Outcomes
Grazzi et al.[33]	Patients who received treatment at the neurology unit of the IRCCS Foundation, Carlo Besta, Italy, and have completed the standard medication withdrawal programme.	Twenty patients of chronic migraine and medication overuse.	Patients first completed the standard medication withdrawal programme, and then entered into a mindfulness training that was a 12-minute programme each day accessed through smartphone. A weekly video call was made to evaluate the clinical condition and for providing motivation to use mindfulness to combat pain. Patients were asked to maintain a headache diary.	Evaluation at three months and then after one year during this pandemic situation.	Five patients dropped out of the study. Fifteen patients reported 50% average reduction in migraine headache day-wise with 50% average reduction in medication use per month.
Bäuerle et al.[34]	Participants' age 18 years or above, equipped with German language, internet access, and basic computer using skills, who contact the CoPE hotlines. Social media platforms and flyers will be used to spread awareness of this work.	Based on sample size estimation, 110 numbers of participants will be required to complete the study. Based on dropout rates, the researchers decided to recruit 240 participants at the baseline assessment.	There are four modules, 30 minutes each. The modules are a combination of skill training followed by mindfulness intervention. There will be an initial baseline assessment followed by intervention. After intervention, there will be an immediate post-intervention assessment, and a three-month and six-month follow-up assessment.	The trial will start from the date of 23 April, 2020.	Assessment measures will include perceived stress, depression, anxiety, patient health, self-efficacy, and quality of life. The study was approved by the Ethics Committee of University of Duisburg-Essen. Findings of the study will be published in peer-reviewed journals and conference presentations.
Anālayo[35]	-	-	The spread of the worldwide pandemic resulted in the feeling of helplessness, isolation, and sense of fear of death. The important task is to cultivate mindfulness in one's bodily posture when an individual experiences an increase of fear. Mindfulness of the breath plays an important role in bringing awareness of the whole body.	-	The mindfulness of one's postures should be implemented in such a way that the mind becomes open and receptive rather than close minded. The stress caused by pandemic leads to emergence of fear and reduction of resilience. Therefore, mindfulness practice becomes a tool for helping the individual to face the fear with mindfulness. In the long-term, it has been found that mindfulness leads to benefits on both mind and body.
Lim et al.[36]	Participants were recruited from those who enrolled themselves in the Brahm Centre, Singapore where mindfulness courses are conducted.	There were three groups. The first group (COVID 1) had 36 participants, the second group (COVID 2) had 38 participants, and the third group (COVID 3) consisted of 86 participants. Group one and three are control groups, and group two is the test group as they were recruited when there was partial lockdown in Singapore.	The first and the second group received mindfulness intervention during COVID-19 pandemic (in-person face to face sessions=36 participants of Group 1 and video-conferencing mode sessions=38 participants of Group 2). The third group was tested before the pandemic. They were measured on perceived stress and sleep quality.	The courses were four or eight sessions taught by certified instructors. Participants were asked to fill the survey form after the first session and after the last session.	Mindfulness training had a significant impact in reducing stress in all the three groups. Sleep quality was reported to be significantly improved for the pre-pandemic group (i.e. group 3), but not in the other two groups. They concluded that online mindfulness interventions have a profound impact in reducing the perception of stress, but no such improvement is evident in sleep during the pandemic.

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Authors	Population	Sample size	Intervention	Length of intervention	Outcomes
El Morr et al.[27]	Undergraduate students of a Canadian university who were 18 years of age and above. Students involved in substance abuse and past history of psychosis were excluded from the study.	Total sample size was 160, with 80 in each group.	It was an RCT study where one group received mindfulness-based training and the other was a control group of university students. The mindfulness-based training was a web-based programme called as MVC. Participants were measured on the domains of depression, anxiety, stress, and mindfulness.	It was an eight-week intervention programme delivered online through videos, discussion forums, and videoconferences.	There was a significant reduction in the symptoms of depression and anxiety, but not in perceived stress, along with a significant increase in mindfulness among the university students who received MVC as compared to the control group.
Reyes[37]	Healthcare workers and patients who are recovering from COVID-19 crises.	-	Mindfulness, and acceptance-based mobile app intervention was first introduced for PTSD for military veterans showing the great improvement but with the spread of pandemic over the entire world which resulted into the increase of cases of PTSD among the health workers and patients recovering from the COVID-19. The launching of mobile app intervention can be very efficient to deal with the current situations and fulfill the gap of scarcity of the health professionals also.	-	The research is ongoing to explore the effectiveness of mobile app intervention which was proposed by Alexopoulos et al.[38] The spread of COVID-19 among various populations and need for the mental health services which are non-stigmatised. So, looking at the need and the situation, the earliest findings also reveal that mindfulness-based mobile app intervention shows much efficiency among college student veterans with PTSD.[37] Therefore, looking at the above evidence, the mobile app intervention will also bring the same promising result among the former healthcare professionals and the patient recovering from COVID-19.
Wei et al.[39]	The study was conducted in First Affiliated Hospital, Hangzhou, China on the confirmed patients of COVID-19 in the isolation ward, aged between 18-65 years.	Twenty six patients enrolled themselves for the study.	There were two groups: 13 patients received the internet-based integrated intervention and the rest 13 patients were kept as a control group who received daily supportive care. In internet-based integrated intervention, clients received audio recordings focused on four skills: relaxation training, body scan technique of mindfulness, "refuge" skills, and "butterfly hug method". Patients were measured on the scales of depression and anxiety pre and post intervention.	It was a two-week intervention programme where audio-based instructions were given for each day for two weeks from February 2 to February 28, 2020.	It was found that there was a significant decrease in the scores of depression and anxiety when compared to the control group indicating the efficacy of such interventions in the patients diagnosed with COVID-19.

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Table 1: (Continued)

Authors	Population	Sample size	Intervention	Length of intervention	Outcomes
Lai et al.[40]	Staff of frontline hospital and long-term care home, who have participated in caring of COVID-19 patients in London, Ontario, Canada.	Sixty participants will be selected randomly after signing the consent form. The sample size of the study will be divided into 1:1 ratio for SKY and HEP.	The study used the online model of SKY and HEP. The intervention of SKY will be guided by the certified SKY teacher. At the first phase of the intervention of SKY, five self-paced online instructions focusing on breathing control techniques for four to ten minutes each. In the second phase of the intervention, there will be one-hour interactive online session under the guidance of a certified SKY teacher. The participants will be learning and practicing about fast, medium, and slow breath. HEP will be conducted in a similar way via an online method. In the first phase of the intervention, online self-paced modules will be given to the participants. Whereas, in the second phase of intervention, the mindfulness-based meditation will be conducted by the mental health professionals.	According to the status of the study. The recruitment of the participants has already started from June 25, 2020 and the recruitment procedure will be completed by June 30, 2021. The overall study will be completed within September 30, 2021.	The present study is on the trial and will be completed by September 30, 2021. The outcome of the study will be helpful for further investigation to find out whether online method of intervention of SKY and HEP will be beneficial for the chosen population and helps in improving insomnia, anxiety, depression, and resilience among the frontline healthcare staff participated in managing the COVID-19 patients.

COVID-19: Coronavirus disease 2019, DBT: Dialectical behaviour therapy, HAM-D-17: Hamilton Rating Scale for Depression, HAM-A: Hamilton Rating Scale for Anxiety, MADRS: Montgomery-Asberg Depression Rating Scale, ACT: Acceptance and commitment therapy, MBCT: Mindfulness-based cognitive therapy, CBT: Cognitive behavioural therapy, RCT: Randomised controlled trial, MVC: Mindfulness virtual community, PTSD: Posttraumatic stress disorder, SKY: Sudarshan kriya yoga, HEP: Health Enhancement Program

## CONCLUSION

The present review gives an insight into the efficacy of mindfulness as an intervention itself or as an effective adjunct to other psychotherapeutic treatments. It also highlights the importance and the need for it during this current pandemic crisis. These practices have also proven to be efficacious in online mode, and therefore, can be incorporated in tele-mental health services. It is cost-effective and also minimises the risk of corona virus spread. However, this review has mostly been limited to review work with a few evidence-based practices. Therefore, it calls forth the need to put mindfulness-based interventions during this pandemic situation by integrating it into the already popular tele-mental health services, which have been demonstrated to be possible, with adequate training of mental health professionals.[41] In the future, even after the pandemic gets resolved, the tele-mental health services can remain to be a promising mode of communication.

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