Meditation as a Therapeutic Tool for Boosting Mental Health during COVID-19 Times

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Abstract – *COVID-19 is presenting a serious challenge not only to the physical health but also to the mental health of the people across the globe. Amidst the fear, anxiety, insecurity, isolation, boredom, frustration, deprivation, and financial difficulties, mental health problems are on the rise. There is also a reported increase in suicidal behavior as a fall out of these difficult times. Alternative therapies like meditation and mindfulness have shown promising results in the improvement of psychological well-being in the pre-covid times. The present study was designed to evaluate the impact of meditation-based intervention in boosting the mental health of participants during these times of uncertainty and unpredictability. To determine the effectiveness of this intervention, a within group pre-test and post-test design was used. A total of 64 participants were assessed on their mental health scores using the Mental Health Continuum (MHC-SF) scale. After an eight weeks meditation practice program facilitated by an expert over Zoom, the participants showed a significant improvement in their mental health scores. The study suggests that meditation practice can be considered as a complementary or alternative therapy in the treatment of mental health problems arising due to unpredictable and challenging situations.*

Keywords: *Alternative Therapy, COVID-19, Meditation, Mental Health, Psychological Interventions*

I. INTRODUCTION

The present times have been one of the most unprecedented times in the history of modern day human global experience. The start of a year, which usually marks the beginning of new hopes, new dreams, and fresh energies, began with the spread of the COVID-19 across the globe. On 11 March 2020, the situation was declared as a pandemic by the World Health Organization.

A tiny virus, which is even invisible to the human eye, has threatened almost all the human systems and functioning across the world. The entire socio-economic-educational-cultural systems, not to mention the physical and mental health systems, have suffered as a result of the outbreak of this pandemic.

The worst part is the unpredictability of the whole situation. The unpredictability of the prognosis and the vaccine efficacy, the indefiniteness of the lockdown period and ensuing social isolation, the loss of personal freedom and the losses of loved ones, the job layoffs and salary slashes, the challenges of adjusting in unfamiliar and insecure conditions, the insecurity of future prospects- the list of woes simply seems endless. Such a situation is more than enough to put a hitherto well-functioning individual on a 'fight-or-flight' mode unless suitable steps are taken to maintain the homeostasis. It's not surprising that the present situation has been triggering several mental health problems and exacerbating the already existing ones. In the current scenario, there is an urgent need for implementing the best psychological interventions to boost the mental health of the society.

Meditation, an ancient Buddhist practice, is known to have a calming effect on the nervous system, reduce symptoms of stress, anxiety, depression, and enhance the mental as well as the physical well-being of individuals. The healing potential of meditation has been scientifically attributed to the vagus nerve's ability to influence the parasympathetic nervous system. The vagus nerve, which runs from the neck to the abdomen, forms an intricate neuro-endocrine-immune network that maintains homeostasis. It is in charge of turning off the 'fight or flight' reflex. Scientists have discovered that artificial Vagus Nerve Stimulation (VNS) shows promising results in reducing depression and anxiety. Research reveals that vagus nerve stimulation may exert a neuromodulatory effect to activate certain innate "protective" pathways for restoring health (Yuan et al., 2016).

Meditation serves as a natural, non-intrusive process for vagus nerve stimulation and immediately relaxes the body. It creates a sense of acceptance of 'what is' and enables an individual to respond from a state of balance and equanimity.

II. LITERATURE REVIEW

Research shows that during epidemics, the amount of people whose mental health is affected tends to be greater than the people affected by the infection (Ornell et al.,

2020). An article published by a leading Indian newspaper in May 2020 reported that suicide was the leading cause for over 300 noncoronavirus deaths reported in India due to distress triggered by the nationwide lockdown *('Suicides due to lockdown: Suicide leading cause for over 300 lockdown deaths in India, says the study,'2020).* A review conducted by Pathare et al. (2020) revealed a 67.7% increase in online news media reports of suicidal behavior in India in 2020 as compared to 2019. Another review by Roy et al. (2020) reports an increase in mental health issues such as anxiety, depression, posttraumatic stress-like symptoms, insomnia, and anger among the general population, health workers, as well as people who are kept in isolation. Anxiety and mood swings amongst teachers have been reported by Raj et al, (2021).

Based on a survey of 1871 respondents, Grover et al. (2020) reported that 40.5% of the participants had either anxiety or depression, 74.1% suffered from a moderate level of stress, and 71.7% reported poor well-being. Stress, anxiety, depressive symptoms, insomnia, denial, anger, and fear are the major mental health issues that have been reported to have been associated with the COVID-19 pandemic globally (Torales et al., 2020).

To deal with the rising mental health challenges, a Lancet Psychiatry study has proposed the need for discovery, evaluation, and refinement of mechanistically driven interventions to address the psychological, social, and neuroscientific aspects of the pandemic (Holmes et al., 2020).

Research reveals significant positive effects of meditation on health, including changes in psychological, physiological, and transpersonal realms (See Shapiro et al., 2003; Grossman et al., 2004; Ospina et al., 2007; Eberth, 2012). A review based on 18,000 scientific studies examining the relationship between meditation, and depression and anxiety revealed that mindful meditation programs over an eight-week period had moderate evidence in reducing anxiety and depression. (Goyal et al., 2014). A survey examining eighteen studies involving 1173 patients revealed moderate to large reductions in depression symptoms in response to meditation therapies (Jain et al., 2015). Sivaramappa et al., (2019) found a significant reduction in anxiety in response to one hour of Anapanasati meditation daily under the supervision of experts for six months.

III. SIGNIFICANCE OF STUDY

The COVID-19 pandemic has had a profound adverse impact on the physical and mental health of the masses. In the last one year, several studies have reviewed and reported the damaging impact of the pandemic on public mental health. However, there is hardly any systematic, evidence-based work supporting psychological interventions to deal with mental health challenges during these times.

Studies in the pre-pandemic times reveal the effectiveness of meditation in fostering positive health benefits. However, there isn't much-documented work on the healing potential of meditation-based techniques during the uncertainties of pandemic times. The present study explores the impact of meditation practices in boosting the mental health of the participants during this period of uncertainty, unpredictability, and chaos.

III. RESEARCH QUESTIONS

1. Will an hour's meditation practice daily for eight weeks have significant benefits for the mental health of the participants?
2. Is there any significant difference in the initial mental health scores of the male and female participants?
3. Is there any significant difference in the mental health scores of the male and female participants after the treatment?

IV. NULL HYPOSTHESES

1. There is no significant difference in the pre-test mental health scores of the male and female participants.
2. There is no significant difference in the post-test mental health scores of the male and female participants.
3. There is no significant difference in the pre-test and post-test mental health scores of the participants with respect to the different dimensions of mental health.
4. There is no significant difference in the pre-test and post-test scores of the participants with respect to gender.

V. DESIGN AND METHODOLOGY

A. Design and Participants

The study uses a within group Pre-test Post-test design with a total of 64 participants (Mean Age= 24.23 ± 2.28).

B. Assessment Tool

Mental Health Continuum Short Form (MHC-SF), developed by Dr. Keyes (2009), was used to measure the mental health of the participants in the present study. The scale consists of 14 items, marked on a six point scale, (EWB), Social Well Being (SWB), and Psychological Well-Being (PWB), and a total MHC Score. The scale has an excellent internal consistency (> .80). The test-retest reliability of the MHC-SF over three successive 3 month periods averages .68 and the 9 month test-retest reliability is .65. MHC-SF uses continuous scoring, with the sum in the 0-70 range for the 14 items.

C. Procedure

The participants for the study were invited through posting in social media and WhatsApp groups. A total of 124 individuals responded to the invitations. To ensure equality of representation in terms of gender and

homogeneity of the sample in terms of age, 32 males and 32 females in the age group of 20 to 29 years were randomly selected from the list of volunteers for the study. Initially, base measures were taken on the Mental Health Continuum Short Form Scale administered as e-questionnaire through Google forms. The treatment period comprised of eight weeks, during which they were guided through group meditation practice via Zoom video conferencing. The duration of each meditation session was half an hour. Two sessions, one in the morning and one in the evening, were conducted daily for eight weeks. At the end of eight weeks, post-test scores were taken. The significance of differences between the Pre-Test and Post-Test Means were analyzed using a t-test. The gender differences in mental health scores were also analyzed using t'- test.

VI. RESULT AND DISCUSSION
A. Null Hypothesis 1
TABLE I
GENDER DIFFERENCES IN PRE TEST MHC SCORES

MHC Subscales	Gender	Mean	SD	SE$_D$	t'-Value
EWB	Male	9.81	1.33	0.41	0.23
	Female	9.72	1.92		
SWB	Male	13.19	2.35	0.72	0.48
	Female	12.84	3.31		
PWB	Male	17.84	3.16	0.96	0.06
	Female	17.78	4.45		
Total MHC	Male	40.84	6.31	1.97	0.25
	Female	40.34	9.20		

Table values of t' (df=62) at 0.05 and 0.01 level of confidence are 2.00 and 2.65respectively.

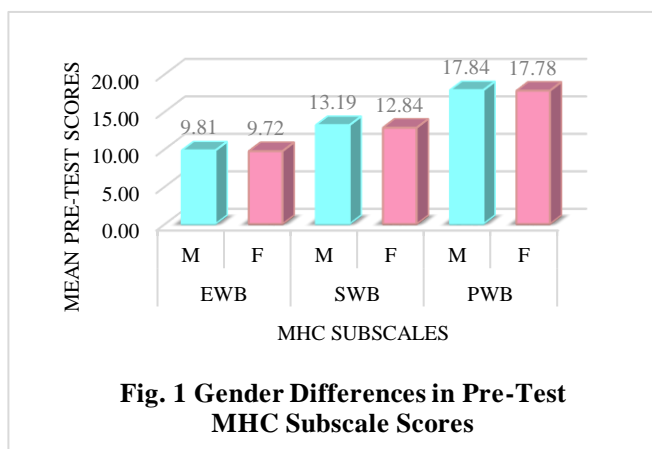Table I and Fig. 1 present the mean scores of the male

Fig. 1 Gender Differences in Pre-Test MHC Subscale Scores

and female participants on the Mental Health Continuum (MHC) subscales. The Mean Scores on Emotional Well Being (EWB) subscale of MHC for males and females were 9.81 and 9.72, respectively, and the t'-value was found to be

0.23, which is not significant. The Mean Scores on Social Well Being (SWB) subscale for males and females were 13.19 and 12.84, respectively, and the t'-value was found to be 0.48, which is not significant. The mean score on Psychological Well-Being Subscale (PWB) was 17.84 for the male participants and 17.78 for the female participants, and the t'- value was 0.06, which is not significant. The total Mental Health Continuum (MHC) score mean for the males was 40.84, whereas that for the females was 40.34. The t'-value for the difference in mean MHC scores of the male and female participants was found to be 0.25, which is not significant. Hence, the null hypothesis that there is no significant difference in the Pre-Test MHC scores of the male and female participants are not rejected.

B. Null Hypothesis 2
TABLE II
GENDER DIFFERENCES IN POST TEST MHC SCORES

MHC	Gender	Mean	SD	SE$_D$	t'-Value
EWB	Male	14.56	0.62	0.13	1.40
	Female	14.75	0.44		
SWB	Male	19.09	2.36	0.68	0.73
	Female	19.59	3.06		
PWB	Male	28.66	1.41	0.33	0.19
	Female	28.59	1.19		
Total MHC	Male	62.31	3.55	0.96	0.65
	Female	62.94	4.11		

Table values of t' (df=62) at 0.05 and 0.01 level of confidence are 2.00 and 2.65 respectively.

As seen in Table II and Fig. 2, the Mean Scores on the EWB subscale of MHC for males and females were 14.56 and 14.75, respectively, and the t'-value was found to be 1.40, which is not significant. The Mean Scores on SWB
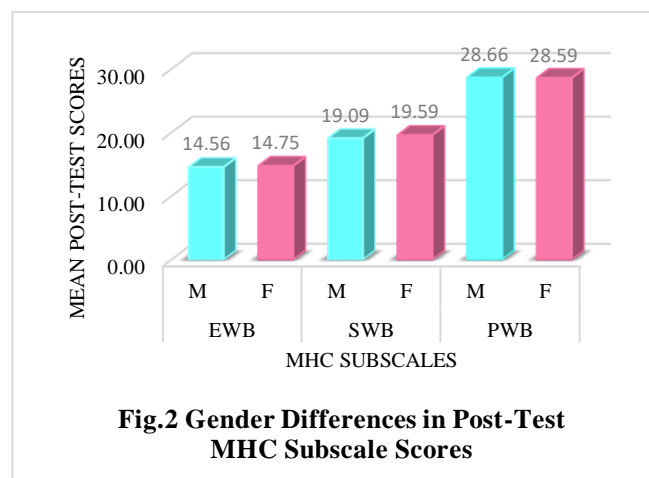

Fig.2 Gender Differences in Post-Test MHC Subscale Scores

subscale for males and females were 19.09 and 19.59, respectively, and the t'-value was found to be 0.73, which is

not significant. The mean score on PWB was 28.66 for the male participants and 28.59 for the female participants, and the t'- value was 0.19, which is not significant. The total MHC score means for the males was 62.31, whereas that for the females was 62.94. The t'-value for the difference in mean MHC scores of the male and female participants was found to be 0.65, which is not significant. Hence, the null hypothesis that there exists no significant difference in the Post-Test MHC scores of the male and female participants is not rejected.

C. Null Hypothesis 3

TABLE III
SIGNIFICANCE OF DIFFERENCE BETWEEN THE MEANS OF PRE-TEST AND POST-TEST MHC SCORES

MHC Scale	Score	Mean	SD	SE_D	t'- Value
EWB	Pre Test	9.77	1.64	0.19	25.86**
	Post Test	14.66	0.54		
SWB	Pre Test	13.02	2.85	0.28	22.60**
	Post Test	19.34	2.72		
PWB	Pre Test	17.81	3.83	0.38	28.56**
	Post Test	28.63	1.29		
Total MHC	Pre Test	40.59	7.83	0.69	31.71**
	Post Test	62.63	3.82		

* Significant at 0.05 level
**Significant at 0.01 level
Table values of t' (df=63) at 0.05 and 0.01 level of confidence are 2.00 and 2.65 respectively.

Table III summarizes the difference between the means of Pre Test and Post Test Scores on MHC. The Pre-Test and Post-Test scores of the EWB subscale of MHC were found to be 9.77 and 14.66, respectively. The t'- value came out to be 25.86, which is significant at a 0.01 level of confidence. The Mean Pre-Test and Post-Test Scores on the SWB subscale were 13.02 and 19.34, respectively, and the t'-value was found to be 22.60, which is also significant at 0.01 level. The mean score on PWB was 17.81 for Pre-Test and 28.63 for the Post-Test, and the t'- value was 28.56, which is significant at 0.01 level. The total MHC score means for the Pre-Test was 40.59, whereas that for the Post-Test was 62.63. The t'-value for the difference in mean of the Pre-Test and Post-Test Total MHC scores was found to be 31.71, which is significant at 0.01 level. Hence, the null hypothesis that there exists no significant difference in the Pre-Test and Post-Test MHC scores are rejected. It can be said with 99 percent confidence that the Post-Test Scores were significantly higher than the Pre-Test Scores of all the subscales of MHC as well as for total MHC.
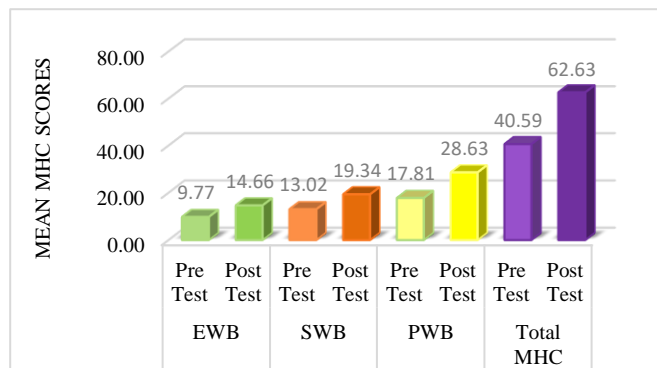

Fig. 3 Difference between the Pre-Test and Post-Test MHC Means

D. Null Hypothesis 4

TABLE IV
SIGNIFICANCE OF DIFFERENCE BETWEEN THE MEANS OF PRE-TEST AND POST-TEST MHC SCORES WITH RESPECT TO GENDER

Gender	Score	Mean	SD	SE_D	t'- Value
Male	Pre Test	40.84	6.31	0.79	27.33**
	Post Test	62.31	3.55		
Female	Pre Test	40.34	9.20	1.15	19.63**
	Post Test	62.94	4.11		
Total Pop	Pre Test	40.59	7.83	0.69	31.71**
	Post Test	62.63	3.82		

* Significant at 0.05 level
**Significant at 0.01 level
Table values of t' (df=62) at 0.05 and 0.01 level of confidence are 2.00 and 2.65 respectively.
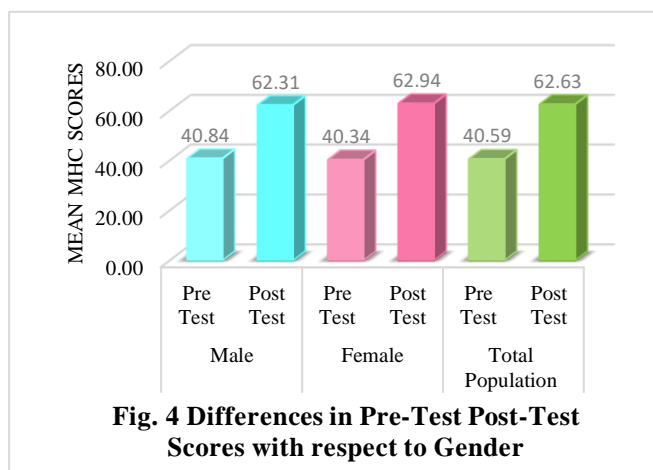
Data presented in Table IV indicates the significance of

Fig. 4 Differences in Pre-Test Post-Test Scores with respect to Gender

the difference between the Pre-Test and Post-Test Means of Total MHC Score for the male and female participants as well as the total sample population. For the male participants, the Pre-Test and Post-Test MHC scores were 40.84 and

62.31, respectively. The t'- value came out to be 27.33, which is significant at a 0.01 level of confidence. The Mean Pre-Test and Post-Test MHC Scores for the female participants were 40.34 and 63.94, and 19.34, respectively, and the t'-value was found to be 19.63, which is also significant at 0.01 level. For the total population, the mean Pre-Test Total MHC Score was 40.79, whereas that for Post-Test was 62.63 and the t'- value was 31.71, which is significant at 0.01 level. Hence, the null hypothesis that there exists no significant difference in the Pre-Test and Post-Test MHC scores with respect to gender is rejected. It can be said with 99 percent confidence that the Post-Test Scores were significantly higher than the Pre-Test Scores for the male as well as the female participants.

VI. CONCLUSIONS

In uncertain and unpredictable times like the present, when the world is grappling on the one hand with the physical threat of COVID-19, and on the other hand, the different economic, emotional, social, and psychological challenges as a fallout of this pandemic, there is a need for proactive action to tackle these challenges on all the fronts.

In the current study, we see a significant increase in the participants' mental health scores after the administration of an eight weeks meditation program. The meditation practice has significantly benefitted both the male as well as the female participants in terms of their emotional well-being, social well-being, psychological well-being as well as overall mental health.

It may be inferred that the benefits of meditation came from the fact that a consistent meditation practice helped the participants in regulating their 'flight or fight mode' condition arising in the present situation. At this time, when we hardly have any control over the current global and economic situation, the practice of meditation helps us with unconditional acceptance of what's happening, thereby silencing the 'perpetual emergency state' triggered by our sympathetic nervous system.

Given the simplicity and ease of this practice, and the very fact that it can be made accessible to the masses through virtual platforms, it is recommended that meditation-based practices can be adopted as a complementary or alternative therapy for boosting the mental health of the public during the present times of existential crisis. It is also recommended that mental health professionals, psychologists, spiritual counselors, social workers, local government bodies, and researchers should actively collaborate to implement meditation-based practices, as well as explore and document the effectiveness of such alternate therapies for supporting positive mental health during turbulent times.

ACKNOWLEDGMENT

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