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**Dr. DD Vichitra**  
Research Scholar,  
Department of Yoga & Health  
Science, OPJS University,  
Churu, Rajasthan, India

**Dr. Narender Kumar**  
Assistant Professor,  
Department of Yoga & Health  
Science, OPJS University,  
Churu, Rajasthan, India

**Corresponding Author:**  
**Dr. DD Vichitra**  
Research Scholar,  
Department of Yoga & Health  
Science, OPJS University,  
Churu, Rajasthan, India

## The impact of mindfulness meditation on anxiety levels in Indians affected by the COVID-19 pandemic

**Dr. DD Vichitra and Dr. Narender Kumar**

### Abstract

Yoga is a centuries-old practice rooted in various ancient texts like the Vedas and the Upanishads. Yoga evolved over time, with its foundational text being the Yoga Sutras of Patanjali, compiled around 400 CE. Meditation, an ancient tradition, has been practiced for thousands of years as a part of Yoga. Mindfulness meditation is a practice that cultivates present-moment awareness and acceptance. It involves focusing attention on sensations such as the breath, bodily sensations, or sounds, while gently acknowledging and letting go of distractions like thoughts or emotions. The aim is not to empty the mind, but rather to observe thoughts and feelings without judgment, allowing them to come and go naturally.

The present study is a Quasi-Experimental study (pre and post test). In the present study, purposive sampling technique is used. A sample of 50 subjects were selected to study the effect of mindfulness meditation on the population of preferably both sexes (males as well as females) under the age group of 25 years to 60 years who are facing stressful situations due the COVID19 pandemic. The sample of 50 students was divided randomly in two equal groups of 25 students each. The experimental group is also known as Treatment group or Group A. The experimental group has assigned specific treatment *viz.* breath awareness and mindfulness meditation and each group named accordingly. The Control group is also known as Group B. The Control group has not assigned any specific treatment. Meditation and Anxiety are independent and dependent variables respectively.

**Conclusion:** The intervention of mindfulness meditation for one month has significantly reduced the anxiety level of an individual during the COVID-19 pandemic in India.

**Keywords:** Ashtanga yoga, anxiety, mindfulness meditation, COVID-19

### Introduction

Yoga is a centuries-old practice that harmonizes the mind, body, and spirit. Originating in ancient India, its history traces back over 5,000 years. The word "yoga" comes from the Sanskrit word "yuj," meaning to yoke or unite, symbolizing the integration of mind, body, and soul [2].

Rooted in various ancient texts like the Vedas and the Upanishads, yoga evolved over time, with its foundational text being the Yoga Sutras of Patanjali, compiled around 400 CE. Patanjali outlined the Eight Limbs of Yoga, providing a philosophical framework for yogic practice, including ethical principles (yamas and niyamas), physical postures (asanas), breath control (pranayama), concentration (dharana), meditation (dhyana), and ultimately, enlightenment (samadhi) [2, 8].

Yoga gained prominence in the West during the 20th century, largely due to influential figures like Swami Vivekananda and Paramahansa Yogananda, who introduced yoga philosophy and practices to Western audiences [1, 15]. In recent decades, yoga has become immensely popular worldwide, embraced for its myriad physical, mental, and spiritual benefits [16, 17].

Today, yoga encompasses diverse styles and approaches, ranging from vigorous, dynamic practices like Ashtanga and Vinyasa to gentle, introspective forms like Yin and Restorative yoga. Regardless of style, yoga offers a path to holistic well-being, fostering strength, flexibility, stress relief, inner peace, and spiritual growth.

## Meditation

Meditation is a practice that has roots in ancient traditions and has been practiced for thousands of years. Its origins are diverse, with various cultures and religious traditions contributing to its development. The practice of meditation can be traced back to ancient civilizations such as India, China, and Egypt. In these cultures, meditation was often linked to spiritual and religious practices. In Vedic culture, meditation is a key component of spiritual practices. It's deeply intertwined with yoga, where the goal is to attain higher states of consciousness and self-realization [2, 8, 17]. Buddhism considers meditation as a means to achieve enlightenment. Buddhist meditation practices vary, including mindfulness meditation, loving-kindness meditation, and concentration meditation. Taoist meditation aims to cultivate harmony with the Tao, or the fundamental nature of existence. Practices like Qigong and Tai Chi incorporate meditation techniques.

### Types of Meditation

- **Mindfulness Meditation:** This involves focusing on the present moment without judgment, often by paying attention to the breath, bodily sensations, or thoughts and emotions.
- **Transcendental Meditation (TM):** TM involves the use of a mantra—a specific word or sound—to quiet the mind and induce a state of deep relaxation and heightened awareness.
- **Loving-Kindness Meditation (Metta):** Metta meditation focuses on cultivating feelings of compassion, love, and kindness towards oneself and others.
- **Guided Meditation:** In guided meditation, a teacher or recording guides practitioners through visualization or relaxation techniques.
- **Movement-Based Meditation:** Practices like yoga, Tai Chi, and Qigong combine physical movement with meditation techniques.
- **Ashtanga Yoga Meditation (Dhyana):** It is the seventh limb of Ashtanga Yoga, preceding Samadhi. It plays a crucial role in the path towards self-realization by facilitating inner stillness, mental clarity, and spiritual insight. In the context of Ashtanga Yoga, meditation serves as a bridge between concentration (Dharana) and the state of absorbed meditation (Samadhi).

**Mindfulness Meditation:** Mindfulness meditation is a practice that cultivates present-moment awareness and acceptance. It involves focusing attention on sensations such as the breath, bodily sensations, or sounds, while gently acknowledging and letting go of distractions like thoughts or emotions. The aim is not to empty the mind, but rather to observe thoughts and feelings without judgment, allowing them to come and go naturally.

Through consistent practice, mindfulness meditation can enhance mental clarity, emotional resilience, and overall well-being. It encourages a non-reactive stance towards life's challenges, promoting a deeper understanding of oneself and the world around us. Research suggests that regular mindfulness practice can reduce stress, anxiety, and depression while fostering qualities like compassion and empathy.

Mindfulness meditation can be practiced formally in seated meditation sessions or informally by bringing Mindful awareness to everyday activities like walking, eating, or even washing dishes. Its benefits extend beyond the meditation cushion, influencing how individuals engage with the world and relate to others with greater presence and compassion.

### Statement of the Problem

The research investigates the impact of meditation on anxiety during the COVID-19 crisis in India. The study investigates the Meditation's influence on anxiety reduction, By exploring these, the study aims to offer insights into meditation's role as a coping mechanism. Findings could guide mental health interventions, inform public health strategies, and deepen comprehension of contemplative practices' holistic impact during crises.

### Significance of the Problem

The research problem's significance lies in its multifaceted implications for mental health during the COVID-19 pandemic. Firstly, it addresses the pressing issue of increased anxiety, offering insights into managing stressors like health concerns and economic uncertainties. Secondly, by focusing on the Indian context, it contributes to global crisis response strategies, recognizing the pandemic's diverse impacts worldwide. Thirdly, the study explores the role of traditional meditation practices within the cultural fabric of India, potentially informing culturally sensitive mental health interventions. Scientifically, it adds to the growing body of evidence supporting meditation's efficacy in anxiety management, with potential implications for public health policies globally. Additionally, it sheds light on individual coping mechanisms, highlighting meditation as an adaptive strategy during times of crisis. Moreover, by considering community-based interventions, the research underscores the importance of social support networks in promoting mental well-being. Furthermore, it investigates the long-term benefits of mindfulness practices for mental resilience beyond immediate crises. Lastly, interdisciplinary collaboration across fields such as psychology, public health, and cultural studies enriches understanding and informs comprehensive approaches to mental health. Overall, the research holds promise for informing effective, culturally sensitive, and evidence-based mental health interventions amidst global crises.

### Limitations

The research on meditation's impact on COVID-19-induced anxiety in India faces several limitations. Sampling bias may skew results as participants likely already have an interest or experience in meditation. Generalizability is hindered as findings may not apply to diverse cultural backgrounds or populations outside India. Confounding variables like socio-economic status or pre-existing mental health conditions could influence anxiety levels, complicating interpretation. Control over eating habits and pre-meditation meals may vary despite researcher instructions. Self-report measures may not fully capture anxiety symptoms or changes over time, impacting measurement validity.

### Delimitations

Geographically, the study is confined to India. Demographically, it targets adults aged 25 to 60 years who experienced change in employment (lost job, salary deduction, business losses, increased overheads etc.) due to Covid-19. The study is also delimited to the individuals with no previously known psychiatric or chronic medical disorder and also did not involved in continuous practice of meditation previously at least for 1 month. Only mindfulness meditation is studied, omitting other types. The intervention duration is limited to 30 minutes daily for a month. Anxiety is assessed using specific questionnaires. Cultural and language barriers restrict representation. Rural areas may be under-represented due to technology access. Ethical guidelines are strictly followed, and a quasi-experimental design is employed for effective research within available resources and time.

### Hypothesis

Individuals who practice meditation during the COVID-19 pandemic in India experience lower levels of anxiety compared to those who do not practice meditation.

### Review of Literature

Meditation helps in reducing stress by promoting relaxation and reducing the body's stress response. Regular meditation practice is associated with enhanced focus and concentration, which can improve productivity and cognitive performance. Mindfulness-based interventions, including mindfulness-based stress reduction (MBSR), have shown promise in reducing anxiety. The randomized clinical trial demonstrates that MBSR is non-inferior to escitalopram in the treatment of anxiety disorders, suggesting its viability as a standardized evidence-based alternative with fewer adverse events [3].

Meditation promotes emotional regulation, resilience, and a greater sense of well-being by helping individuals become more aware of and accepting of their emotions. Through mindfulness practices, individuals can develop a greater understanding of their thoughts, emotions, and behaviors, leading to increased self-awareness and self-compassion. Some studies suggest that meditation may have positive effects on physical health, such as reducing blood pressure, improving immune function, and alleviating symptoms of certain medical conditions. The regular Hatha Yoga practice can positively impact mental health without directly influencing cognitive functions related to distraction suppression [14].

The COVID-19 pandemic has led to significant changes in various aspects of human life, particularly in the educational system. The transition to online learning has resulted in increased levels of depression, stress, and anxiety among students. The mindfulness breathing meditation can effectively reduce stress and anxiety in university students, emphasizing its potential application to enhance psychosocial well-being and cultivate mindful awareness of individual needs among all students [4].

Few researches explore the effectiveness of online mindfulness interventions in alleviating anxiety and test anxiety among college students. The findings suggest that mindfulness practices may contribute to the reduction of anxiety and test anxiety in college students [5]. The mindfulness training could be an effective intervention for

addressing psychological challenges faced by the students [13].

Mindfulness and meditation, rooted in a rich historical tradition, have gained scientific support for inducing positive psychological and neuro-plastic changes. However, the impact of different meditation types, particularly in digital formats, on neuropsychological outcomes remains inadequately studied. A study regarding this explored the effects of teacher cueing and the integration of neuroscience education into a meditation program, focusing on compassion cueing due to its significance in traditional Buddhist meditation. The study introduced a unique neuroscience-based education–meditation program, demonstrating enhanced self-regulation through improved mindfulness, self-compassion, and mood state. Findings emphasize the behavioral significance of mindfulness meditation, suggesting benefits independent of teacher cueing behavior [6].

A few studies have studied the effect of single mindfulness meditation session on state mindfulness. A study implies that brief mindfulness meditation sessions, whether 10 or 20 minutes, can comparably enhance state mindfulness, with trait mindfulness influencing specific outcomes [9].

The yoga interventions can be an effective adjunctive approach in reducing stress, anxiety, and depression levels among COVID-19 patients [12]. Yoga can contribute to symptom reduction in various psychiatric conditions such as anxiety, depression, and PTSD, surpassing the effects achieved by pharmacological treatments alone [10].

For many practitioners, meditation is a means of spiritual growth, self-discovery, and connection to something greater than themselves. In nut shell, meditation is a versatile practice with various techniques and benefits, making it accessible to people from diverse backgrounds and belief systems.

### Research Design

The present study is a Quasi-Experimental study (pre and post test).

### Philosophical Perspective of the Research

In the present research a philosophical approach of Pragmatism is found most suitable and followed during the course of research to inquire the research questions and objectives of the research.

### Sampling Technique

In the present study, **purposive sampling** technique is used.

### Sample Size and Population

In the present study, a sample of 50 subjects were selected to study the effect of mindfulness meditation on the population of preferably both sexes (males as well as females) under the age group of 25 years to 60 years who are facing stressful situations due the COVID19 pandemic.

**Inclusion criteria:** Age between 25-60 years; Experienced change in employment (lost job, salary deduction, business losses, increased overheads etc.) due to Covid-19; Score in mild, moderate to severe range of anxiety on DSM 5 cross cutting LEVEL 2— Anxiety—Adult (PROMIS Emotional Distress—Anxiety— Short Form; and Informed Consent to adhere to treatment protocol for 1 month.

**Exclusion criteria:** No previously known psychiatric or chronic medical disorder; and No previous period of continuous practice of meditation (at least 1 month).

**Variables:** Meditation (Independent Variable) and Anxiety (Dependent Variable)

**Tools Used:** Personal Information Sheet; Informed Consent; State And Trait Anxiety Inventory: (Spielberger, Sharma & Singh., 1973); and LEVEL 2—Anxiety—Adult: PROMIS Emotional Distress—Anxiety—Short Form.

### Selection of groups

In order to find most suitable and effective meditation practice for Indian general population, 50 participants are recruited for this study. Participants are invited via survey method either in person or with use of social media. Participants who meet the Inclusion and exclusion criteria as given above are recruited for the study. The sample of 50 students was divided randomly in two equal groups of 25 students each. Each group has subjects suffering from same condition. Among the two groups one is experimental and another is controlled group. The experimental group is also known as Treatment group or Group A. The experimental group has assigned specific treatment *viz.* breath awareness and mindfulness meditation and each group named accordingly. The Control group is also known as Group B. The Control group has not assigned any specific treatment.

**Ethical Considerations:** Written consent before participating in the meditation practice intervention was sought from practitioners by the researcher through email. Participants gave the written consent. Participants' are also ensured regarding safeguard of their privacy and confidentiality by adhering to ethical guidelines for data collection, storage, and analysis.

### Group Interventions

#### Group-1: Meditation Intervention

Participants have practiced breath awareness and mindfulness meditation for at least 30 minutes twice a day daily in supervision of a trained mindfulness meditation practitioner for a Period of 30 days. The group is requested to note down their experience on their diary and also report on daily basis to their assigned therapist via message or call which would be initiated by their therapist.

#### Group 2: Control Group (No Active Intervention)

This group is requested to listen to relaxing music of their choice and report on daily basis to their assigned therapist via message or call which would be initiated by their therapist on daily basis (this is to control number of contact time and effect of non-specific factors in intervention) .

**Adaptation and Flexibility:** An effort has been made to keep the entire process of meditation practice intervention as flexible and responsive to participants' individual needs and preferences. Modifications to the meditation practice protocol are allowed to accommodate variations in experience level, physical comfort, or personal preferences. Open communication with participants is encouraged and their feedback is welcomed to ensure that the meditation practice intervention is tailored to their needs and experiences.

### Methodology

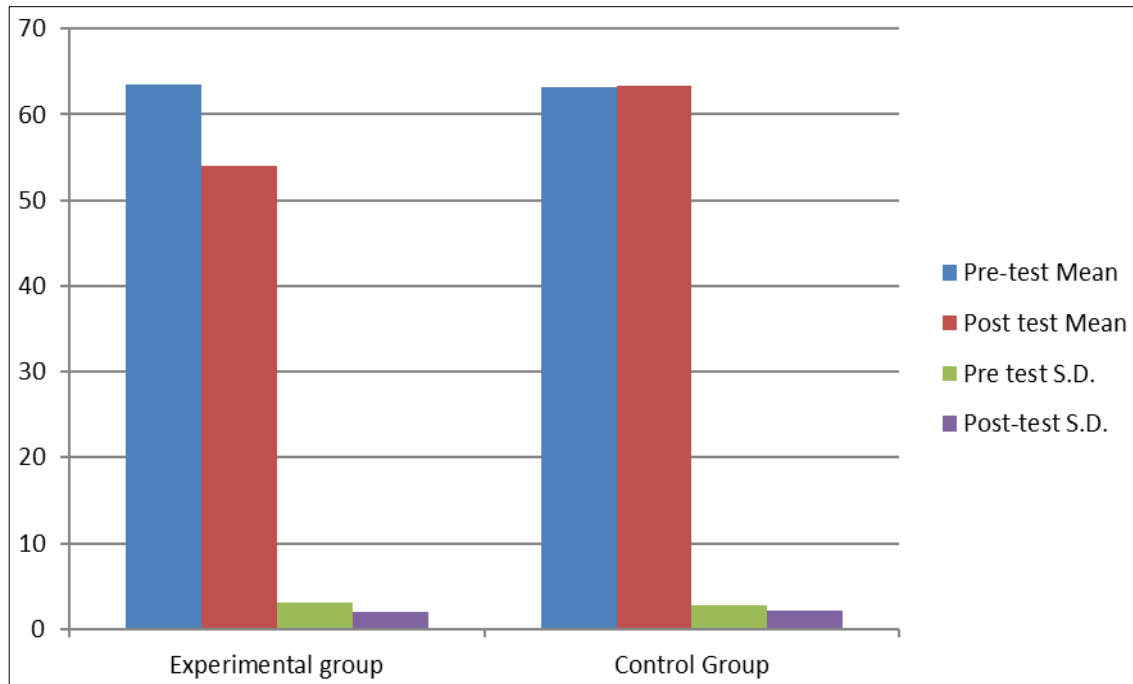
The groups (i.e. treatment group as well as control group) are assessed for anxiety. The 'State and Trait Anxiety Inventory Questionnaire' (Spielberger, Sharma & Singh, 1973) is used to assess the presence of anxiety. 'DSM 5 cross cutting LEVEL 2—Anxiety—Adult' (PROMIS Emotional Distress—Anxiety—Short Form) form is used to measure the level of anxiety. Pre-test for both the groups are conducted to check the level of anxiety. Intervention is given to both the groups. Group A (experimental group) is treated with Mindfulness Meditation practice for one month for half an hour daily twice a day. Group B (control group) is given instructions to hear any kind of relaxing music as they seem beneficial for them as a placebo. After one month treatment; post test for the assessment of anxiety, using the same tools that were used for baseline assessment, is conducted. The post test for anxiety is conducted for both the groups.

### Statistical Techniques Used

The result of paired t-test and independent t-test is used to obtain desired inferences from the data collected during pre-test and post-test of both groups (i.e. experimental group and control group). The data obtained through pre-tests and post-tests are compiled and tabulated variable wise and group wise. The statistical analysis is done on a computer by using SPSS 16.0 version.

**Table:** t-test statistics of Anxiety for Experimental Group and Control Group

	Pre-test		Post-test		t value	P value
	Mean	S.D.	Mean	S.D.		
Experimental Group	63.48	3.11			035	0.73
Control Group	63.18	2.79				
Experimental Group	63.48	3.11	54.03	2.01	21.06	0.00
Control Group	63.18	2.79	63.28	2.08	-0.52	0.61
Experimental Group			54.03	2.01	-16.03	0.00
Control Group			63.28	2.08		



**Fig 1:** Graphical Representation of Mean and S.D. of Anxiety for Experimental Group and Control Group

## Results

- The mean anxiety level in the experimental group (63.48) is slightly higher than in the control group (63.18), but this difference is not statistically significant. The t-value of 0.35 suggests that the difference between the means is relatively small, and the high p-value of 0.73 indicates that there is a high probability that the observed difference in means occurred due to random variation rather than a true difference between the groups.
- Therefore, based on this analysis, there is insufficient evidence to conclude that there is a significant difference in anxiety levels between the experimental and control groups before any intervention.
- The mean anxiety level in the experimental group significantly decreased from 63.48 (pre-test) to 54.03 (post-test), indicating a substantial reduction in anxiety levels following the intervention. The large t-value of 21.06 underscores the magnitude of difference in anxiety levels before and after the intervention within the experimental group. The very low p-value of 0.00 suggests that the observed difference in means is highly unlikely to have occurred due to random chance, indicating a significant difference between the pre-test and post-test anxiety levels.
- Therefore, based on this analysis, it can be concluded that the intervention or treatment had a significant effect in reducing anxiety levels within the experimental group from pre-test to post-test.
- The mean anxiety level in the control group showed a slight increase from 63.18 (pre-test) to 63.28 (post-test), but this difference was not statistically significant. The t-value of -0.52 indicates that there is no substantial difference in anxiety levels before and after the intervention within the control group. The relatively high p-value of 0.61 suggests that the observed difference is likely to have occurred due to random chance, indicating a non-significant difference between the pre-test and post-test anxiety levels.
- Therefore, based on this analysis, it can be concluded that there is no significant difference in anxiety levels within the control group from pre-test to post-test.
- The mean anxiety level in the experimental group (54.03) is significantly lower than in the control group (63.28) after the intervention or treatment. The large negative t-value of -16.03 indicates a substantial difference in anxiety levels between the two groups, with the experimental group experiencing notably lower anxiety levels. The very low p-value of 0.00 confirms that this difference is statistically significant, suggesting that the observed disparity in anxiety levels is highly unlikely to have occurred due to random chance. Therefore, based on this analysis, it can be concluded that the intervention or treatment had a significant effect in reducing anxiety levels in the experimental group compared to the control group.

## Discussion

From the results of study, it was found that after the intervention of independent variable *viz.* meditation, the dependent variable *viz.* anxiety shows a significant change in its values. The results clearly indicate that after the intervention of mindfulness meditation for one month, the anxiety level of an individual has significantly reduced. Hence our hypothesis is accepted.

## Conclusion

The Individuals who practice meditation during the COVID-19 pandemic in India experience lower levels of anxiety compared to those who do not practice meditation.

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