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## Usefulness of “Clinical therapeutic Pranayam” on psychosocial management of people under quarantine / isolation period in COVID-19 pandemic

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### Abstract

Yoga is an ancient Indian practice for holistic well-being through physical, mental, spiritual harmony. And Pranayama, a part of Yoga is a breath control technique to enhance vitality, mental clarity and spiritual growth. Clinical Therapeutic Pranayama, a subset of yoga, utilizes controlled breathing to manage health issues. Techniques like Nadi Shodhana, Bhramari, Ujjayi, Kapalabhati, Sitali, and Bhastrika target specific benefits such as stress reduction, improved focus, and enhanced lung capacity. These practices, rooted in ancient Sanskrit principles, aim to harmonize physical, mental, and spiritual well-being through conscious breath regulation.

The present study is a Quasi-Experimental study. A sample of 30 subjects, by using purposive sampling technique, were selected to study the effect Clinical Therapeutic Pranayama (viz. Bhramri Pranayama) on the population of preferably both sexes (males as well as females) under the age group of 18 years to 60 years who are under Quarantine and isolation period in Pandemic COVID 19. Participants who meet the Inclusion and exclusion criteria are recruited for the study via survey method. Participants are randomly divided into two groups; one treatment group and another control group with 15 participants in each group. The groups are assessed for psychosocial condition by using ‘COVID19 Psychological Symptoms Checklist’. Pre-test and post-test (after intervention) are conducted. Experimental group is treated with Clinical Therapeutic Pranayama for two weeks daily in the morning. Whereas, Control group is given instructions to hear any kind of relaxing music as they seem beneficial for them as a placebo. The study provides compelling evidence supporting the effectiveness of Clinical Therapeutic Pranayama in enhancing the psychosocial management of individuals undergoing quarantine or isolation during the COVID19 pandemic.

**Keywords:** Clinical therapeutic pranayama, bhramri pranayama, quarantine, isolation period, psychosocial management

### Introductions

Yoga is a holistic system of practices originating from ancient India, designed to promote physical, mental, and spiritual well-being<sup>[1, 4]</sup>. Yoga is not merely a physical exercise routine but a comprehensive system for personal growth, transformation, and connection to the deeper dimensions of life<sup>[10]</sup>. Yoga encompasses a broad spectrum of techniques and philosophies; its primary aim is to cultivate harmony and balance within the individual and with the surrounding world<sup>[2]</sup>.

Pranayama is an ancient yogic practice originating from India, focusing on the regulation and control of breath to enhance physical, mental, and spiritual well-being. In Sanskrit, "Pranayama" is composed of two words: "prana," meaning life force or vital energy, and "ayama," meaning control or expansion. Together, Pranayama translates to the control or expansion of life force.

The practice of Pranayama involves various breathing techniques that manipulate the breath in specific ways. These techniques are designed to optimize the flow of prana throughout the body, balance energy channels (nadis), and cultivate a state of inner harmony and awareness<sup>[9, 10, 11]</sup>.

### Clinical Therapeutic Pranayama:

Clinical therapeutic Pranayama refers to a specific set of breathing exercises within the practice of yoga that are utilized for their therapeutic benefits in managing various health

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conditions. Pranayama, a Sanskrit term, consists of two components: "prana," meaning life force or vital energy, and "ayama," meaning control or expansion. Therefore, Pranayama practices involve conscious control and regulation of breath to enhance physical, mental, and spiritual well-being<sup>[5]</sup>. Clinical Therapeutic Pranayama may involve a variety of breathing techniques, each serving different purposes. Some common Pranayama techniques used therapeutically include:

1. **Nadi Shodhana (Alternate Nostril Breathing):** This technique involves breathing through one nostril at a time, alternating between the left and right nostrils. It is believed to balance the flow of energy in the body and calm the mind.
2. **Bhramari (Bee Breath):** Bhramari involves making a humming sound while exhaling, which can help reduce stress, anxiety, and blood pressure. It is often used as a relaxation technique.
3. **Ujjayi (Victorious Breath):** Ujjayi involves constricting the back of the throat slightly while breathing to produce a sound similar to ocean waves. It is known to increase oxygenation, calm the mind, and enhance concentration.
4. **Kapalabhati (Skull Shining Breath):** Kapalabhati is a forceful exhalation followed by a passive inhalation. It is believed to cleanse the respiratory system, invigorate the mind, and improve focus.
5. **Sitali (Cooling Breath):** Sitali involves inhaling through a rolled tongue or through pursed lips to create a cooling sensation in the body. It is beneficial for reducing body heat and calming the nervous system.
6. **Bhastrika (Bellows Breath):** Bhastrika involves rapid and forceful inhalations and exhalations, similar to the bellows of a blacksmith. It can increase energy levels, improve circulation, and enhance lung capacity.

### Quarantine

The term "quarantine" has its origins in the Italian word "quarantena," which means "forty days." Historically, the practice of quarantine can be traced back to Venice in the 14th century during the Black Death, a devastating plague pandemic. Ships arriving in Venice from infected areas were required to anchor for a period of 40 days before landing. This waiting period allowed for the identification and isolation of potentially infected individuals, effectively preventing the spread of the disease.

The Black Death marked the birth of formal quarantine measures, which gradually evolved and spread to other parts of Europe. Over the centuries, the concept of quarantine became an essential tool in public health, utilized in response to various infectious diseases, including cholera, tuberculosis, and smallpox.

Quarantine is a public health practice and a term used to describe the isolation or restriction of the movement of individuals or groups who may have been exposed to a contagious disease, such as a virus or a bacterial infection, in order to prevent its spread to others. The primary purpose of quarantine is to monitor and manage individuals who may be at risk of developing the disease or transmitting it to others.

In the context of the COVID-19 pandemic, quarantine has been widely used to help prevent the spread of the virus. Individuals who have been in close contact with confirmed cases or who have traveled from areas with a high

prevalence of the virus have been asked to quarantine themselves to reduce the risk of transmission.

The specific guidelines and recommendations for quarantine can vary by region and are subject to change based on the evolving understanding of a given disease and its transmission dynamics. It's essential to follow the guidance of local health authorities during a public health crisis or outbreak.

**Isolation Period:** The isolation period, particularly in the context of the COVID-19 pandemic, refers to a period during which individuals who have been exposed to the virus or who have tested positive for it are required to separate themselves from others. This measure is crucial for preventing the spread of the virus to others in the community.

**Quarantine vs. Isolation:** It's important to distinguish between quarantine and isolation. Quarantine is for individuals who may have been exposed to the virus but are not yet showing symptoms or have not tested positive. Isolation, on the other hand, is for individuals who have tested positive for COVID-19 or are symptomatic.

### Psycho-social management

Psycho-social management refers to the holistic approach of addressing both psychological and social aspects of individuals' well-being. When applied to the context of people undergoing quarantine or isolation during the COVID-19 pandemic, integrating Clinical Therapeutic Pranayama practices can significantly enhance their overall management.

### Significance of the problem

The significance of the research problem lies in offering an innovative and accessible solution to address the psychosocial challenges faced by individuals during quarantine or isolation periods amid the COVID-19 pandemic. Clinical Therapeutic Pranayama techniques provide a promising avenue for promoting mental well-being, reducing stress, and enhancing resilience, all of which are crucial for maintaining psychological health during times of confinement and uncertainty. By exploring the effectiveness of Pranayama practices in this context, the research can contribute valuable insights and practical interventions to support individuals' psychosocial management and overall resilience during quarantine or isolation periods.

### Aim

To assess the efficacy of "Clinical Therapeutic Pranayama" in management of psychosocial health of people under Quarantine / Isolation period due to COVID19 Pandemic.

### Objectives

- Assessment of sign and symptoms of cases in Quarantine / Isolation Period of COVID 19 pandemic.
- To examine the efficacy of Clinical Therapeutic Pranayams on Psychosocial management of people under Quarantine / Isolation Period of COVID19 pandemic.

### Hypothesis

The practice of Clinical Therapeutic Pranayama (viz.

Bhramari Pranayama) during quarantine/isolation periods in the COVID-19 pandemic will lead to a significant improvement in psychosocial well-being.

### Review

Pranayama, a foundational aspect of yoga, have been proven to have profound effects on mental and emotional health. The integration of clinical therapeutic pranayama can enhance psycho-social management during quarantine or isolation. A study (Jagadeesan T. *et al.*, 2022) investigated whether a breathing technique called Bhramari Pranayama could help reduce anxiety, stress, and depression in people with COVID-19 who were isolating at home. A group of asymptomatic COVID-19 patients participated in the study, where a subset underwent the Bhramari Pranayama intervention for 20 minutes daily over 15 days through online sessions. Before and after the intervention, the patients' psychological state was assessed using various scales like the Depression Anxiety and Stress Scale-21 (DASS-21), Pittsburgh Sleep Quality Index (PSQI), and the World Health Organization Quality of Life (WHOQOL-BREF) questionnaire. The results demonstrated a significant reduction in depression, anxiety, and stress levels according to the DASS-21 scores, along with notable improvements in sleep quality (PSQI) and overall quality of life (WHOQOL-BREF). These findings suggest a positive impact of Bhramari Pranayama on the psychological well-being and sleep quality of COVID-19 patients in home isolation. However, further research through multi-site randomized controlled trials is necessary to validate these results<sup>[3]</sup>.

The usefulness of Clinical Therapeutic Pranayama in psycho-social management during the COVID-19 pandemic lies in its ability to address the interconnected psychological and social aspects of individuals' well-being, promoting resilience, emotional regulation, and overall mental health despite the challenges of quarantine or isolation. A study (Sarwal R. *et al.*, 2022) investigated the impact of a specific Pranayama practice on frontline healthcare workers (HCWs) treating COVID-19 patients. Researchers were concerned about the mental health toll on HCWs and aimed to see if Pranayama could help. Nearly 280 HCWs from hospitals and quarantine centers were studied. Those who tested negative for past COVID-19 infection were divided into two groups. One group practiced a Pranayama routine twice daily for 28 days under supervision, while the other continued their usual activities. All participants reported on their stress, well-being, and quality of life at the beginning and end of the study. The HCWs who practiced Pranayama showed a significant decrease in perceived stress compared to the control group. While overall well-being didn't significantly improve, their perceived quality of life, particularly in the psychological domain, increased. There were also trends towards improvement in the physical and environmental domains of quality of life, but these weren't statistically significant. Regularly practicing Pranayama appears to be helpful for frontline HCWs in reducing stress and improving their overall psychological well-being during the COVID-19 pandemic<sup>[6]</sup>.

It's evident that the COVID-19 pandemic has brought about significant challenges, not only in terms of physical health but also mental well-being. The research (Shaw D. *et al.*, 2023) sheds light on the potential benefits of yoga and meditation in alleviating the psychological impact of this crisis. Although there may not be specific studies evaluating

the direct effects of these practices on mental health during the pandemic, existing research on their benefits for overall mental well-being is highly relevant in this context. Yoga and meditation have long been recognized for their ability to reduce stress, anxiety, and depression, as well as promote a sense of calm and inner peace. These practices offer valuable tools for individuals facing the challenges of isolation, uncertainty, and fear brought on by the pandemic. Encouraging the adoption of yoga and meditation as part of preventive and coping measures could indeed be beneficial in mitigating the psychological effects of COVID-19. By incorporating these practices into daily routines, individuals may find greater resilience, emotional balance, and overall well-being in the face of adversity. It's essential for governments and healthcare organizations to recognize the importance of holistic approaches to health, which include addressing mental well-being alongside physical health concerns. Promoting accessible resources and support for integrating yoga and meditation into daily life can contribute to building more resilient communities in the midst of the pandemic and beyond<sup>[7]</sup>.

Szaszko *et al.* (2023) conducted a randomized controlled trial exploring the effects of an eight-week Hatha Yoga program on stress, anxiety, and distraction suppression. The study involved 98 yoga novices and found significant reductions in self-reported stress and stress reactivity, as well as increased mindfulness, post-intervention. However, there were no significant changes in anxiety levels. Unexpectedly, improvements in stress were not associated with changes in distraction suppression. This suggests Hatha Yoga's potential to improve mental health without directly affecting cognitive functions related to distraction suppression<sup>[8]</sup>.

### 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 30 subjects were selected to study the effect Clinical therapeutic pranayama on the population of preferably both sexes (males as well as females) under the age group of 18 years to 60 years who are under Quarantine and isolation period in Pandemic COVID 19.

### Inclusion criteria

1. Cases under Quarantine / Isolation period in COVID 19 pandemic
2. Cases in age group of 18 years to 60 years.
3. Cases from Both the sexes.
4. Regular follow up cases only
5. Cases that are having severe condition only.

**Exclusion criteria**

1. People who are not in Quarantine and isolation
2. Age below 18 years and above 60 years of age.
3. Irregular follow up cases.
4. Cases of mild and moderate conditions.

**Group 1: Intervention Group (Clinical Therapeutic Pranayams)**

Participants would practice Bhramri Pranayam daily for 30 minutes (in the morning) for 2 weeks.

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

This group shall be requested to listen to relaxing music according to their choice for 30 minutes (in the morning) for 2 weeks.

Report on daily basis to their assigned therapist via message or call which would be initiated by their therapist would make on daily basis (this is to control number of contact time and effect of non-specific factors in intervention)

**Consent of the Patient:** The consent from the subject will be taken before this clinical experimental study.

**Tools Used**

**Personal Information Sheet:** To collect information of the participants by Questionnaires.

**Main assessment tools:** COVID-19 Psychological Symptoms Checklist

**Table 1:** COVID-19 Psychological Symptoms Checklist

S. No	Please read all the statements which are written below and response as you experienced in last 7 days	Not at all	Some times	Frequently
1	Have you experienced fear of impending infection of COVID19?	0	1	2
2	Have you experienced fear of suffering with COVID 19?	0	1	2
3	Do you have experienced fear of separation with your loved one or being isolated?	0	1	2
4	Do you have feelings of helplessness and hopelessness?	0	1	2
5	Have you experienced negative automatic and repeated thoughts related to COVID -19 ?	0	1	2
6	Do you have experienced fear of death or survival due to COVID 19?	0	1	2
7	Do you have experienced uncertainty in life, loosing relationship, loosing job and financial loss?	0	1	2
8	Have you experienced disturbed sleep pattern?	0	1	2
9	Do you have experienced fear of contamination and excessive cleanliness due to COVID 19?	0	1	2
10	Do you have guilt feeling related to spread COVID19 disease to others (specially for loved once) and maintaining unnecessary, unwanted distance from them?	0	1	2

**Result Score**

- 0 – 05 Mild Condition
- 06 -15 Moderate Condition
- 16- 20 -Severe condition

**Materials and Methodology:**

In order to find most suitable and effective Pranayam practice for Indian general population, 30 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 below are recruited for the study. Participants are randomly divided into two groups; one treatment group and another control group with 15 participants in each group. The groups (i.e. treatment group as well as control group) are assessed for psychosocial condition. The ‘COVID19 Psychological Symptoms Checklist’ is used to assess the psychosocial condition of people under quarantine / isolation period in COVID19 pandemic. Pre-test for both the groups are conducted to check psychosocial condition. Intervention is given to both the groups. Group A

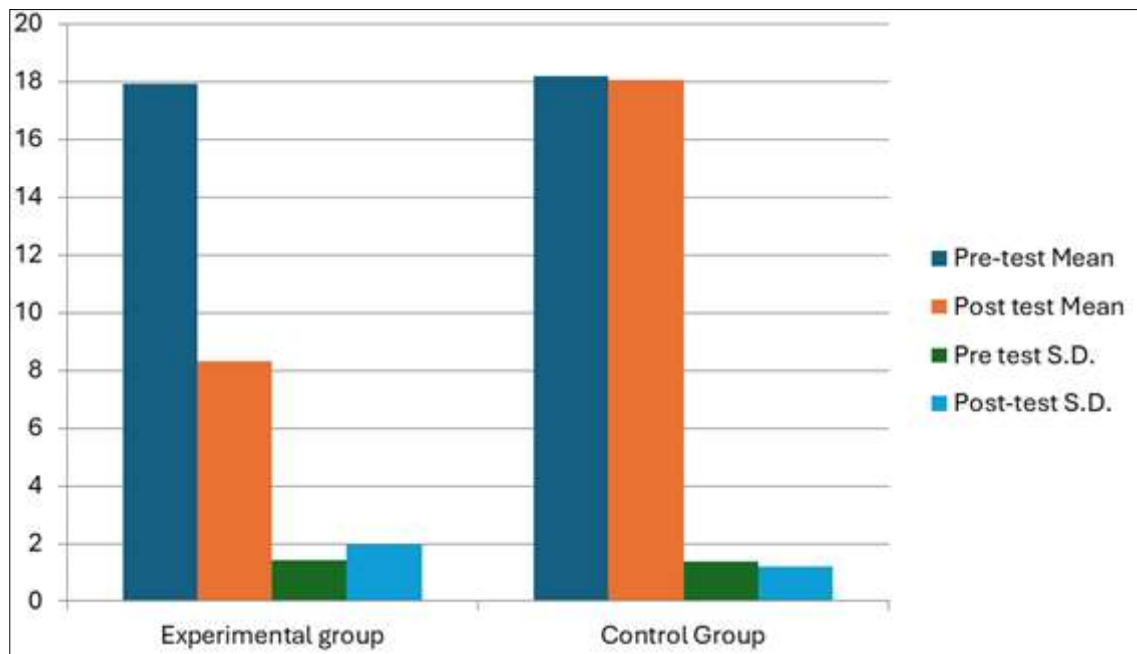
(experimental group) is treated with Clinical Therapeutic Pranayama for two weeks daily in the morning. Group B (control group) is given instructions to hear any kind of relaxing music as they seem beneficial for them as a placebo. After psychosocial management of two weeks; post test is conducted by using the same tools that were used for baseline assessment. The post test, to assess the psychosocial condition, is also conducted for both the groups.

**Data Analysis:** Data is collected by questionnaire through online Survey method and after organization of data, it is statistically analysed.

**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 2:** t-test statistics of Psycho-social Management (of people under quarantine / isolation period in covid19 pandemic) for Experimental Group and Control Group

	Pre-test		Post-test		t value	P value
	Mean	S.D.	Mean	S.D.		
Experimental Group	17.93	1.44			-0.519	0.607
Control Group	18.20	1.37				
Experimental Group	17.93	1.44	8.33	1.95	22.11	0.00
Control Group	18.20	1.37	18.07	1.20	0.56	0.58
Experimental Group			8.33	1.95	-16.83	0.00
Control Group			18.07	1.20		



**Fig 1:** Graphical Representation of Mean and S.D. of Psycho-social Management (of people under quarantine / isolation period in covid19 pandemic) for Experimental Group and Control Group

## Results

- An Independent sample t-test comparison between experimental and control groups reveals noteworthy outcomes. The mean of psychosocial condition in the experimental group (17.93) is slightly lower than in the control group (18.20), but this difference is not statistically significant. The t-value of -0.519 suggests that the difference between the means is relatively small, and the high p-value of 0.607 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 between the experimental and control groups before any intervention. Initially, both groups had similar mean scores in the pre-test phase suggesting comparable psychosocial states.
- The mean of psychosocial states in the experimental group significantly decreased from 17.93 (pre-test) to 8.33 (post-test), indicating a substantial reduction after intervention. The large t-value of 22.11 underscores the magnitude of difference in psychosocial states 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 has a significant effect in managing psychosocial states in the experimental group from pre-test to post-test. In nut shell, after the intervention, the experimental group displayed substantial improvement.
- The mean of psychosocial states in the control group showed a slight decrease from 18.20 (pre-test) to 18.07 (post-test), but this difference was not statistically significant. The t-value of 0.56 indicates that there is no

substantial difference in psychosocial states before and after the intervention within the control group. The relatively high p-value of 0.58 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 in management of psychosocial states. Therefore, based on this analysis, it can be concluded that there is no significant difference in psychosocial states within the control group from pre-test to post-test.

- The mean of psychosocial states in the experimental group (8.33) is significantly lower than in the control group (18.07) after the intervention or treatment. The large negative t-value of -16.83 indicates a substantial difference in psychosocial states between the two groups, with the experimental group experiencing notable management of psychosocial states. The very low p-value of 0.00 confirms that this difference is statistically significant, suggesting that the observed disparity in psychosocial states is highly unlikely to have occurred due to random chance.

## Discussion

The significant improvement observed in the experimental group's psychosocial management, as indicated by the substantial increase in mean scores post-intervention, suggests that Clinical Therapeutic Pranayama is indeed beneficial in addressing the psychological challenges associated with quarantine or isolation. Our hypothesis has proved.

The lack of significant change in the control group underscores the specificity of the intervention's effects. While the control group may have experienced some natural fluctuations in psychosocial well-being over time, the absence of a structured intervention like Clinical Therapeutic Pranayama likely contributed to the minimal change observed in their mean scores.

The significant intra-group improvement within the

experimental group further supports the efficacy of Clinical Therapeutic Pranayama. This finding suggests that the observed improvements cannot be solely attributed to external factors but are indeed a result of the intervention itself.

These results have important implications for mental health interventions during public health crises such as the COVID-19 pandemic. Incorporating practices like Clinical Therapeutic Pranayama into quarantine or isolation protocols can offer individuals tangible strategies for managing stress, anxiety, and other psychosocial challenges, thereby promoting overall well-being during times of crisis. Further research exploring the long-term effects and mechanisms of action of such interventions would be valuable for refining and expanding their use in clinical settings.

### Conclusion

In conclusion, the study provides compelling evidence supporting the effectiveness of Clinical Therapeutic Pranayama in enhancing the psychosocial management of individuals undergoing quarantine or isolation during the COVID19 pandemic. The significant improvement observed in the experimental group's mean scores post-intervention, along with the absence of similar changes in the control group, underscores the specific benefits of this intervention. These findings suggest that incorporating Clinical Therapeutic Pranayama into mental health interventions can offer valuable support to individuals navigating the challenges of quarantine or isolation. By providing accessible and effective strategies for managing stress, anxiety, and other psychological symptoms, Pranayama practices contribute to overall well-being during times of crisis.

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