# **Title: Combating the psychological effects during COVID-19 Pandemic by Yoga : Recommendation from an Overview.**

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# **Combating the psychological effects during the COVID-19 Pandemic by Yoga : Recommendation from an Overview.**

**Abstract:**

**Background and Purpose:** Globally,thepsychological health of the people is affected due to COVID-19 and given the fact that numerous systematic reviews already exist on yoga and mental health, it becomes vital to undertake an overview . The objective of the overview was to summarise the evidence from different systematic review of distinct yoga interventions used to improve mental health and recommend yoga practices to improve the mental health of the people .

**Methods:** The protocol was registered on the International prospective register of systematic reviews (PROSPERO) CRD42020185221. MEDLINE via Pubmed, Cochrane Database of Systematic Reviews and Google scholar were searched. Reviews from earliest possible date till May 2020; reviews examining the effects of any single or combination of yoga interventions on mental health reported on children, youth and adults were selected. AMSTAR tool was used to evaluate the evidence of the included reviews.

**Results:** Eight unique reviews were selected for the overview. 243 studies were included in all the review with overlap of only 6 studies across the reviews. Only three reviews performed meta-analysis. Out of 8 reviews , only 2 were high quality reviews and the rest were moderate. Owing to the heterogeneity of the studies included only descriptive analysis was possible. The results of the review indicate moderate to positive effects of yoga on the mental health parameters.

**Conclusion:** The results of this overview indicate that practicing yoga (Physical postures, Bhramary Pranayam, mindfulness meditation, Sahaj yoga and Laughter therapy) can be beneficial to improve psychological health of the people during the COVID-19 pandemic.

**Keywords:** Anxiety, COVID-19, mental health, overview, yoga.

**Introduction:**

Within a few weeks, the novel corona virus disease that emerged in the end of 2019 threatened the lives of millions of people throughout the world. Soon WHO declared COVID -19 disease as pandemic. Thereafter, “Social distancing”, “Quarantine” and “Isolation” were the words heard worldwide and regularly since the past two months . These words are synonymous with the prevention of COVID-19 spread. Since, there has been no standard treatment for COVID -19, it is important to prevent and stop the spread [1]. The practices of physical distancing and self-isolation are a crucial part of the plan to reduce the spread of coronavirus and, also the number of deaths from the disease. In order to control the spread of Corona virus worldwide “Lock down” (Stay at home ) has been ordered. This has caused disruptions to daily routines [2].

The lock down and social distancing has led to challenges like feeling of stress, anxiety , fear, loneliness at times, depression, irritability, insomnia, confusion, anger, frustration and boredom [3]. Also, rising numbers of COVID-19 cases and deaths is possibly raising stress and anxiety among the people [4]. Futuristic thinking of how secondary effects of the pandemic can affect life such as recession, social unrest and possibility of unemployment may be possibly triggering unpredictable and widespread mental health challenges.

A nation-wide survey among the general population of China during the COVID-19 epidemic revealed that, it triggered a wide variety of psychological problems [5].

Presently, the impact of Covid19 is seen affecting the people at three levels: specifically physical health and psychological health and broadly the economical level of the country. Physical health is incomplete without psychological well being and economic disruptions can affect both these factors. Though human beings have the coping mechanism to adjust to the demands of the situation but at the same time, it is of the limited capacity to adopt and adapt to the environment. If the demands of the situation exceed the coping capability of an individual, then a psycho-physical deviation would arise among the individuals, known as stress. This stress would further cause anxiety and depression among them.

Consideration of the mind is a distinction of Ayurveda and Yoga [4]. *Yoga* is an ancient Indian science and its objective is to attain the equilibrium of mind and body by controlling the emotions. In current era *Yoga* is recognized as a form of alternative medicine that implements mind-body practices and has been interpreted as a process of uniting the body via mind and spirit to promote physical and mental wellness.

There is a growing body of clinical research studies and systematic reviews on the therapeutic effects of yoga [6]. When there are multiple systematic reviews on a particular topic, overviews are most frequently employed. Overview is a new approach of bringing together all the systematic reviews , summarising and enhancing accessibility of existing evidence such that it can be a useful tool to support decision making and developing guidelines by the clinicians and policy makers [7] . It is also termed as umbrella review; meta-review; (systematic) review of (systematic) reviews; synthesis of systematic reviews; and summary of systematic reviews.

Owing to the background of the disturbed psychological health of the people globally due to COVID-19 and given the fact that numerous systematic reviews already exist on yoga and mental health, it becomes vital to undertake an overview . The objective of the overview was to summarise the evidence from different systematic review of distinct yoga interventions used to improve mental health and recommend yoga practices to improve the mental health of the people during this COVID-19 pandemic.

**Material and Methods.**

### **Protocol and registration**

 This protocol is registered on the International prospective register of systematic reviews (PROSPERO) CRD42020185221.

### **Inclusion criteria:**

1. Systematic review and/ meta-analyses of randomised controlled trials and other clinical studies that examine the effects of any single or combination of yoga interventions on mental health .
2. Reviews reporting intervention on children, youth and adults.
3. Reviews available from earliest time till present day.
4. Reviews in English language and other language where translation to English is possible.

Exclusion criteria:

1. Individual clinical studies and narrative reviews.
2. Reviews explaining the yoga effects among population with mental diseases and other systemic diseases.

### **Search methods for identification of studies**

MEDLINE via Pubmed, Cochrane Database of Systematic Reviews and Google scholar was searched. No filters of date or language restrictions were placed on the search. The search term used were Yoga practice, mental health and systematic review.

### **Selection of studies**

Two authors (MK, PK) independently screened titles and abstracts to identify relevant studies for full-text review. Inclusion of full text was done by agreement. Any discrepancies in the inclusion of abstracts or full-text articles was resolved by discussion and reaching a consensus. If a consensus could not be reached a third author (AD) was consented.

### **Data extraction and management**

Two reviewers (MK,PK) independently performed data extraction for each review . Discrepancies in the data extracted was resolved by discussion and reaching a consensus. The following information from all the included reviews was extracted: author names, year of publication, number of included studies, type of yoga interventions and results.

### **Quality assessment**

To ensure the included reviews are having good methodological rigour, the review was screened with the Assessment of Multiple Systematic Reviews tool (AMSTAR) [8].

**Results**

The initial search in Pubmed yielded 82 hits and additional 8 titles were got from other sources. Based on title screening, 12 articles were selected. Further on reading the full text only 8 reviews were selected for the final inclusion and four reviews were excluded [6, 9-11] . No review was selected from the Cochrane library. However, it had a special collection of systematic reviews on yoga [11] , but each of the review was undertaken for the systemic conditions (cancer, musculo-skeletal diseases, cardio-vascular disease, mental disorders, pulmonary condition, health of older people, neurological condition and child health ) and it did not fit our inclusion criteria.

The data extracted [13-20 ] is presented in Table 1. Out of the 8 selected reviews, only two reviews included purely RCT [14,19] , while others had combination of study designs [13,15-18]and one review included non-interventional studies [20]. Total studies reviewed in 8 systematic reviews were 243. Two reviews included studies on yoga interventions like [Physical postures, Breathing exercise, meditation and relaxation[13,19]](https://www.ncbi.nlm.nih.gov/pubmed/?term=James-Palmer%20A%5BAuthor%5D&cauthor=true&cauthor_uid=32232017) one on Mindfullness and meditation [14], one was on Laughter therapy[15], one was on modern postural Yoga[16] , another one was on Sahaj yoga[17], one was on Bhramary Yoga [18] and lastly one review was on yoga practices which the people practiced on their own and yoga was not recommended as intervention to them [20]. The methodological quality of the review ranged from moderate[13,16-20] to high [14,15]. All the reviews indicate moderate effect to positive effects of yoga on the mental status as measured using self administered questionnaires on anxiety, depression, stress, quality of life , coping mechanism and positive affect.

**Discussion**

This overview has attempted to compile the information from different reviews and analyse the data descriptively. The results indicate that Yoga has beneficial effects on mental health .Our results are in consensus with one another overview that adds a comprehensive and methodical examination of yoga interventions in adult populations for treatment of acute and chronic health conditions and reports that yoga appears most effective for reducing symptoms in anxiety, depression, and pain[10] .

Yoga is complex, comprising many different elements, including physical poses, breathwork, concentration, and meditation, ethical tenets, spirituality, inward attention, and self-knowledge [20]. This overview demonstrates the effectiveness of different yoga practices like Asanas (Physical postures) Breathing, Meditation, Bhramary Pranayam, Sahaj Yoga and Laughter Yoga among youth and adults.

**Summary of evidence**

James Palmer A et al [13] provides promising evidence supporting the use of physical postures, breathing exercises, meditation and relaxation to address internalizing symptoms of mental health in youth population. The review recommends that a yoga intervention should be implemented for at least 30 minutes, 2–3 times per week.

Breedvelt JJF et al [14] reports that moderate positive effects were seen with mindfulness, yoga or meditation-based interventions on symptoms of depression, anxiety and stress.

van der Wal CN and Kok RN [15] reports that there was reasonably convincing trend indicating ‘simulated’ (non-humorous) laughter having a more positive effect on depression and anxiety compared to ‘spontaneous’ (humorous) laughter. Laughter-inducing therapies show promise as an addition to main therapies or medication.

Domingues RB [16]reported that 10 out of 14 studies using modern postural yoga showed significant positive effects on mental health outcomes. Most studies observe increasing trends in the promotion of positive mental health indicators due to yoga practices.

Hendriks T [17] recommended that Sahaj yoga (SY) may have beneficial effects on depressive symptoms, reduces stress, decrease anxiety, increase of positive affect (happiness, fearlessness, feeling inspired, integrity, feelings of bliss) and a decrease in negative affect (sadness, feeling upset, angry, nervous, emotional instability ) among healthy adults. Long-term SY meditation practice may enhance the aforementioned cognitive-emotional functions and thereby may contribute to enhanced psychological well-being.

Kuppusamy M et al [18] reports that Bhramary pranayama (Bhr.P) causes reduction in heart rate and blood pressure, reduction in response to cold pressor test, improvement in cognition, reduction in irritability in tinnitus, favorable EEG changes and reduction in stress levels. There is no stretching exercises like other parts of the body for the brain and hence vibration of head due to Bhr.P is a good alternative

Tom Hendriks and Holger Cramer [19] reported that yoga postures, breathing practices and meditation contributes to a significant increase in psychological well-being. However, there has been no effect on the social relationship, life satisfaction and mindfullness. Due to the limited amount of studies, the heterogeneity of the intervention and perhaps the way positive mental health is being measured any definite conclusions on the effects of yoga on positive mental health cannot be drawn.

Park CL et al [20] reported that yoga practitioners have higher health related quality of life. Contradictory results are found in the area of physical and mental health. Data on mental health and subjective well-being in relation to yoga is complex. Yoga may be related to less stress and less  
maladaptive coping.

**How the yoga intervention works ?**

Asanaa or physical postures for different parts of the body promotes strength, flexibility and endurance to body and improves respiratory and cardiovascular function. It promotes recovery from the diseases and chronic pain as well as reduce stress, anxiety, depression, improve sleep patterns, and enhance overall well-being and quality of life [21-26].

Breathing practices or Pranayama are the different breath control practices. The regular practice of this, results in individual experiencing relaxation. Slowing down the breath helps to focus the mind in present, slows down the cardiac rate, reduces blood pressure and cortisol levels. It also creates sense of well-being, improved self-confidence, efficiency, attentiveness and positive outlook [27].

Meditation is a practice where an individual uses a technique – such as [mindfulness](https://en.wikipedia.org/wiki/Mindfulness), Sahaj Yoga or mantra meditation to focus the mind on a particular object, thought, or activity . Consistent practice of meditation shows improvement in anxiety scores along with biochemical indices. It promotes a physiological state which is opposite to the flight-or-fight response responsible for stress with a sense of balance mind and body [28].

Laughter-inducing therapies show promise as an addition to main therapies or medication. It is getting popular since the last decade and is cost effective. Laughter is presumed to decrease levels of stress hormones, and theorized to buffer the effects of stress on the immune system and thus elevate our mood [28]. However, it is best to do it in groups and with a trainer who can maintain the time and dose of laughter therapy[15]

**Quality of systematic reviews included in the review**

Out of the 243 studies included in the review, the overlapping of the studies has been minimal (n=6), indicating inclusion of wide range of unique studies. The studies are representing the entire globe starting from USA, UK, India, Iran, Hongkong, Taiwan, China, South Africa, Thailand, Korea, Sweden, Canada, Netherland, Japan, Germany, Australia, Soviet Union, Switzerland , Slovenia and Turkey. The quality of the included reviews ranged from moderate to high . The two high quality reviews [14,15] have been undertaken with minimal methodological flaw and there has been no publication bias with equal distribution of the studies on either side of the funnel plot. The only lacunae was that there was no mention of inclusion of grey literature and articles of Non-English language. The other six reviews [13,16-20] were moderate quality which had methodological errors like protocol of the review not published, extraction of the data not done by at least two persons, non-inclusion of grey literature and non-English articles, not providing excluded study list, not assessing quality of the studies and not assessing likelihood of publication bias. Overall, only three reviews performed Meta-analysis [14, 15,19] . Some reviews which have not been able to do the meta-analysis and assess the publication bias, it is probably because the yoga intervention studies were of low quality [10] , heterogeneous [6,19] and lesser in number [19] .

**Limitations**

When considering results across studies, it is important to note that the yoga studied may vary greatly in terms of specific tradition and style, location, class level, teacher characteristics, and relative vigor and intensity of aerobic and musculoskeletal exercise [20]. The overview was a compilation of several different studies with multiple factors leading to heterogeneity viz: participant, type of study design, yoga practice, duration and technique and outcome assessment tool . It was challenging to weigh the studies with a single lens. The common limitation that majority of the reviews reported was low quality studies [13, 14], weak evidence supporting the benefits of yoga practices [ 12, 18], high risk studies [14,17] and serious methodological errors [15]. There was only one review which reported evidence from high quality studies[17].

Further, one drawback of the present overview would be the lack of extensive search of literature in other databases to include more data . Also, the evidence of the reviews has not been assessed using GRADE.

**Recommendation**

Ayush ministry of India [29] in its guidelines to boost immunity during COVID-19 pandemic has recommended practising yoga for 30 minutes. Hence practicing yoga will not only boost immunity , it will also benefit the psychological health as indicated by the results of this overview. The evidence generated from this overview can draw attention of stakeholders including WHO to the potential of Science of *Yoga* and adopt it for improving the psychological health of people in this current COVID-19 crisis. An expert Yoga committee can be instituted to design a yoga module to be performed for 30 minutes everyday. The results of the overview can be used in designing the module consisting of physical postures, breathing exercise, mediation and laughter therapies which have shown beneficial effects on mental health. The module can than be circulated globally through the mass media.

In addition, based on the results of the overview it is clear that the yoga studies are of low quality and hence to address this issue, a research committee should be instituted to propose standard checklist for conducting and reporting good quality yoga studies.

**Conclusion**

The results of this overview indicate that practicing yoga can be beneficial to improve psychological health of the people.

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Table 1 Data extraction sheet.

