**DOI: 10.5455/msm.2022.34.118-120**
Received: Jan 12 2022; Accepted: Feb 24, 2022



**ORIGINAL PAPER** Mater Sociomed. 2022 Jun; 34(2): 118-120

# Impact of Yoga Practice on Level of Stress During COVID-19 Pandemic

**Selma Sinanovic[1,2], Ana Vidacek[5,6] , Mirsad Muftic[3,4]**

[1]Department of Clinical Pharmacology, University Clinical Center Tuzla, Tuzla, Bosnia and Herzegovina

[2]Medical Faculty, University of Tuzla, Tuzla, Bosnia and Herzegovina

[3]Sarajevo Medical School, University Sarajevo, School of Science and Technology, Bosnia and Herzegovina

[4]Faculty of Health Sciences University of Sarajevo, Sarajevo, Bosnia and Herzegovina

[5]Departmet of Physical Medicine and Rehabilitation, University Clinacal Hospital Mostar, Mostar, Bosnia and Herzegovina

[6]Medical Faculty University of Mostar, Mostar, Bosnia and Herzegovina

**Corresponding author:**
Selma Sinanovic, Mr Sc, Department of Clinical Pharmacology, University Clinical Center Tuzla, Medical Faculty, University of Tuzla, 75000 Tuzla. E-mail: selma.sinanovic@ukctuzla.ba. ORCID ID: http//www. orcid.org/0000-0002-2966-5116.

**ABSTRACT**

**Background:** The COVID-19 pandemic has become a major cause of stress and anxiety worldwide. It has generated stress among people from all sections of society, especially to workers who have been assigned to cater to healthcare service or those constrained to secure daily essential items. Yoga practice is actively sought to achieve reduced anxiety and stress so that improved sleep may positively impact immunity. **Objective:** The aim of this cross-sectional study was to determine whether those who practice Yoga during the COVID-19 pandemic have lower levels of stress, anxiety, and depression than those who do not. **Methods:** The sample consists of 51 females who have been attending Yoga sessions for many years and who continued this practice during the COVID-19 pandemic twice a week. The control group consisted of 50 non-Yoga respondents. The survey was conducted during April 2021. The Revised Event Impact Scale (IES-R) (4) and the Brief Symptom Inventory (BSI) (Derogatis, 1993) were used to assess stress. Student T-test was used to check the statistical significance of differences. **Results:** In our research yoga practitioners show a statistically significantly lower average severity of stress symptoms compared to those who do not practice yoga on 5 of the 6 stress indicators shown. The only statistically significant difference was not obtained on the measure of total number of symptoms (PST). **Conclusion:** The results suggest that yoga practice during COVID-19 pandemic is associated with lower levels of stress, anxiety and depression.

**Keywords: COVID-19 pandemic, Yoga practice, Stress, Anxiety, Depression.**

## 1. BACKGROUND

Infection with the new corona virus (SARS-CoV-2) was first registered in December 2019 in China, and then later spread rapidly to the rest of the world. On December 31, 2019, the World Health Organization (WHO) informed the public for the first time about causes of pneumonnia of unknown origin, in the city of Wuhan (Hubei Province, China), in people who were epidemiologically linked to a seafood and wet animal whole sale local market in Wuhan (1). Coronavrus disease, called Corona virus disease 2019 (COVID-19), after China quickly spread to most countries in the wold, and the WHO on March 11, 2020 declared a pandmic with this virus. In Bosnia and Herzegovina, the first infected infected person was registered on 5.3.2020 in Banja Luka, and in the Federation of Bosnia and Herzegovina on March 9, 2020 in Konjic (2). So we have been in a pandemic for over year now. The most common presentation are respiratory symptoms ranging from mild flu-like illness to severe pneumonia, but a significant number of patients develop septic shock and multiple organ failure (2). The most freuqent extrapulmonary manifestations include thrombotic complications, myocardial dysfunction and arrhythmia, acute coronary syndromes, acute kidney injury, gastrointestinal symptoms, hepatocellular injury, hyperglycemia and ketosis, neurologic illnesses, ocular symptoms, and dermatologic complications (1, 2).

Stress plays a most important role in physical and mental health. Stress stimulates the immune response probably through the initiation of the hypothalamic pituitary-adrenal axis, hypothalamic-pituitary-gonadal axis, and the sympathetic-adrenal-medullary system. Various neurotransmitters, neuropeptides, hormones, and cytokines mediate these complex bidirectional interactions between the central nervous system and the immune system. Excessive stress effects alterations of the number of immune cells and cytokine dysregulation. Regular Yoga practice has been shown to redu-

| | Yoga practitioners | Yoga not practitioners | p |
|---|---|---|---|
| GSI | 0.48 | 0.81 | <0.05 |
| PSDI | 1.31 | 1.64 | <0.01 |
| PST | 18.33 | 23.32 | >0.05 |
| Avoidance | 1.25 | 1.76 | <0.01 |
| Intrusion | 1.07 | 1.53 | <0.01 |
| Arousal | 1.12 | 1.57 | <0.05 |

Table 1. Average levels of stress indicators of Yoga practitioners in relation to people who do not practice Yoga. GSI=Global Severity Index; PSDI=Positive Symptom Distress Index; PST=Positive Symptom Total

| | Yoga practitioners | Yoga not practitioners | p |
|---|---|---|---|
| Anxiety | 0.58 | 0.93 | <0.05 |
| Depression | 0.52 | 0.89 | <0.05 |

Table 2. Average levels of anxiety and depression in people who practice Yoga compared to people who do not practice Yoga

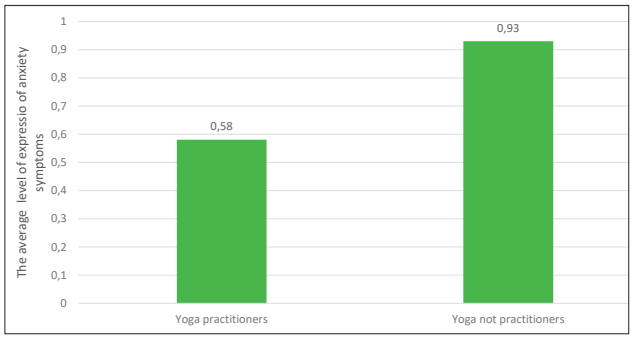


Figure 1. Average levels of anxiety symptoms of yoga practitioners compared to those who do not practice yoga

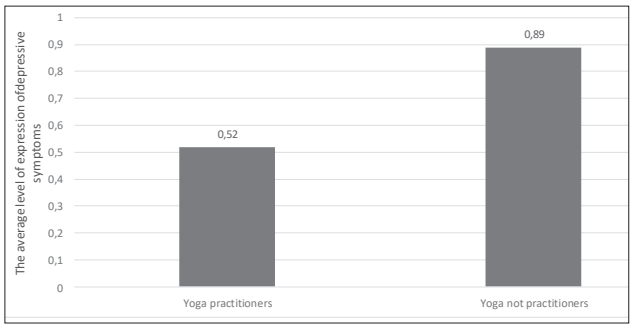


Figure 2. Average levels of severity of depressive symptoms of yoga practitioners compared to those who do not practice yoga

ce the psychological and physiological effects of stress on various diseases. Yoga and meditation help in regulating the cytokine levels in the body which controls immune responses during stress (3). In COVID-19 anxiety, fear, and stress regarding this new viral disease are an important factor to disturb the psycho physiological mechanism of body and mind.

Yoga stabilizes the psycho-physiological mechanism means to maintain body and mind in their balance state or regain it quickly if lost in the face of such disturbing factor-like COVID-19. Yoga helps to become mentally strong and physically fit to fight against infection. Yoga develops the inner natural power of the body and mind such as immunity to fight against infection and to maintain homeostatic balance (4). Yoga is a practice that is effective in obtaining physical strength, mental balance, and spiritual growth. It includes exercise and relaxation of the mind. Yoga comprises a variety of techniques and practices that include yogic positions (asanas), inhalations or breathing exercises (Pranayama), meditation, chanting of mantras, lifestyle changes, and practicing certain spiritual beliefs. Yoga has been an essential part of Indian culture for thousands of years to alleviate stress and improve physical wellbeing (5).

## 2. OBJECTIVE

The aim of this cross-sectional study was to determine whether those who practice Yoga during the COVID-19 pandemic have lower levels of stress, anxiety, and depression than those who do not.

## 3. SUBJECTS AND METHODS

The sample consists of 51 females who have been attending Yoga sessions for many years and who continued this practice during the COVID-19 pandemic twice a week. The control group consisted of 50 non-Yoga respondents. The survey was conducted during April 2021. The Revised Event Impact Scale (IES-R) (6) and the Brief Symptom Inventory (BSI) (Derogatis, 1993) (7) were used to assess stress. Student T-test was used to check the statistical significance of differences.

## 4. RESULTS

People performing meditation reportedly had relatively better mental health during COVID-19 (8). Recently, several yogic therapies have also been demonstrated to improve the recovery rate in patients with depression (9, 10). Furthermore, a well-known medical school in the United States (Harvard Medical School), at the very beginning of the COVID-19 pandemic, has recommended Yoga techniques Asana, Pranayama (controlled breathing exercises), and Dhyana (meditation) to manage anxiety issues related to the COVID-19 as true ways to relax (11).

A study conducted by Elstad et al. (12) with 202 healthy students in which 24 yoga interventions were given for 12 weeks showed a significant and long-term effect on reducing distress and improving sleep quality in participants. In another study that was conducted between the year 2011–2016 by enrolling participants from various yoga schools that practiced different yoga asana (yoga postures) techniques showed that yoga interventions effectively decreased depression among these participants (13).

In recent COVID-19 pandemic times, people have become more aware of the benefits of regular yogic practices (14, 15).

In our research yoga practitioners show a statistically significantly lower average severity of stress symptoms compared to those who do not practice yoga on 5 of the 6 stress indicators shown. The only statistically significant difference was not obtained on the measure of total number of symptoms (PST) (Table 1).

Yoga practitioners in our sample also show statistically significantly lower levels of anxiety and depression compared to those who do not practice Yoga (Table 2, Figure 1

and 2). Namely, the results suggest acceptance of the study hypothesis (yoga practice is associated with lower levels of stress). These results are on agreement with others, and some recent studies also document the positive roles of yoga and meditation in relieving stress in the patients with COVID-19 (15-18).

## 5. DISCUSSION

Thus, the Priyanka and Rasania (15) were very clearly established in the study „A cross--sectional study of mental wellbeing with practice of yoga and meditation during COVID-19 pandemic" that the practice of yoga and meditation, preferably both of them, is associated with higher level of mental wellbeing during the COVID-19 pandemic. Namely, in their study, a total of 649 (58.4%) subjects had normal mental wellbeing score, whereas 279 (25.1%) were found to be at risk of developing psychological distress and 184 (16.5%) were at risk of depression.

A significantly larger proportion of subjects with normal mental wellbeing was found with the practice of both yoga and meditation (66.2%), followed by practice of only meditation (62.1%), only yoga (59.9%), and none of them (50.6%). A similar association of yoga and meditation practices was found with the change in eating, sleeping patterns, and family relations.

The frequency of practice was positively associated with a higher level of mental wellbeing in the case of both yoga as well as meditation, with daily practice having the highest wellbeing scores (15).

## 6. CONCLUSION

The results suggest that yoga practice during COVID-19 pandemic is associated with lower levels of stress, anxiety and depression. The yoga therapy has immunomodulatory effects and also improving physical and mental well-being. Yoga is an alternative treatment method for stress-related chronic disease.


- **Author's contribution:** All authors were involved in the preparation of this artcile. Final proofreading was made by the first author.
- **Conflicts of interest:** There are no conflicts of interest.
- **Financial support and sponsorship:** None.


## REFERENCES


1. Ghayda R, Lee KH, Han YJ,et al. Global case fatality rate of coronavirus disease 2019 by continents and national income: a meta-analysis. J Med Virol. 2022; 1-12. doi:10.1002/jmv.2761012.
2. .Sinanović O, Muftić M, Sinanović S. Covid-19 pandemia: neuropsychiatric comorbidity and consequences. Psych Danub. 2020; 32(2): 236-244.
3. Chandra BPH, Ramesh MN, Nagendra HR. Effect of yoga on immune parameters, cognitive functions, and quality of life among HIV-positive children/adolescents: a pilot study. Int J Yoga. 2019; 12: 132-138.
4. Sawant RS, Zinjurke BD, Binorker SV. Preventive aspect of ayurveda and yoga towards newly emerging disease COVID-19. J Complement Integr Med. 2021; 18(4); 667-678.
5. Birdee GS, Legedza AT, Saper RB, Bertisch SM, Eisenberg DM, Phillips RS. Characteristics of yoga users: results of a national survey. J Gen Intern Med. 2008; 23(10): 1653–1658.
6. Weiss DS, Marmar CR. The impact of event scale-revised. In Wilson, JP & Kean TM (eds.) Assessing psychcological trauma and PTSD: a practitioner's handbook (chapter 15). New York Guildford, 1995.
7. Derogatis LR.Brief Symptom Inventory (BSI) – Administration, scoring and procedures manual. Minneapolis: NCS Pearson, Inc. 1993.
8. Sahni PS, Singh K, Sharma N, Garg R. Yoga an effective strategy for self-management of stress-related problems and wellbeing during COVID19 lockdown: a cross-sectional study. PLoS One. 2021; 16(2) doi: 10.1371/journal.pone.0245214.
9. Sathyanarayanan G, Vengadavaradan A, Bharadwaj B. Role of yoga and mindfulness in severe mental illnesses: a narrative review. Int J Yoga. 2019; 12(1): 3-28.
10. Venkatesh HN, Ravish H, Wilma Delphine Silvia CR., Srinivas H. Molecular signature of the immune response to yoga therapy in stress-related chronic disease conditions: an insight. Int J Yoga. 2020; 13(1): 9-17.
11. Elstad T, Ulleberg P, Klonteig S, Hisdal J, Dyrdal GM, Bjorndal A. The effects of yoga on student mental health: a randomised controlled trial. Health Psychol Behav Med. 2020; 8(1): 573-586.
12. Bridges L, Sharma M. The efficacy of yoga as a form of treatment for depression. J Evidence-Based Compl Alternative Med. 2017; 22(4): 1017–1028.
13. Vagga AA, Dhok AJ. Blessings in disguise: yoga and meditation during corona lockdown. J Evol Med Dent Sci. 2020; 9(35): 2540–2545.
14. Dalpati N, Jena S, Jain S, Sarangi PP. Yoga and meditation, an essential tool to alleviate stress and enhance immunity to emerging infections: A perspective on the effect of COVID-19 pandemic on students. Brain Behav Immun Health. 2022 Mar; 20: 100420. doi: 10.1016/j.bbih.2022.100420
15. Priyanka P, Rasania SK. A cross--sectional study of mental wellbeing with practice of yoga and meditation during COVID-19 pandemic. J Family Med Prim Care. 2021; 10(4): 1576-1581.
16. Bushell W, Castle R, Williams MA, Brouwer KC, Tanzi RE, Chopra D. et al. Meditation and Yoga Practices as Potential Adjunctive Treatment of SARS-CoV-2 Infection and COVID-19: A Brief Overview of Key Subjects. J Altern Complement Med. 2020; 26: 547-556.
17. Umesh C, Ramakrishna KK, Jasti N, Bhargav H, Varambally S. Role of Ayurveda and Yoga-Based lifestyle in the COVID-19 pandemic – A narrative review. J Ayurveda Integr Med. 2022 January-March; 13(1): 100493. doi: 10.1016/j.jaim.2021.07.009
18. Patel NB, Patnaik I. Yoga for COVID-19. J Family Med Prim Care. 2021; 10(11): 4336.