

# A cross-sectional study of mental wellbeing with practice of yoga and meditation during COVID-19 pandemic

Priyanka, S. K. Rasia

Community Medicine, Lady Hardinge Medical College and Associated Hospitals, New Delhi, India

## ABSTRACT

**Background:** COVID-19 pandemic has resulted in increased mental health issues. Yoga and meditation can help in alleviating mental stress and improving psychological wellbeing. **Methods:** It was a community-based online cross-sectional study involving adult general population. Data collection was done by using a Google form link that was circulated via online platforms. The data were analyzed using Microsoft Excel and SPSS version 22. Qualitative data were expressed in proportions or percentages and quantitative data were expressed in mean and standard deviation. Chi-square test was used to check the association of various factors and mental wellbeing. **Results:** 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. **Conclusion:** The practice of yoga and meditation, preferably both of them, is associated with higher level of mental wellbeing during the COVID-19 pandemic.

**Keywords:** COVID-19, meditation, mental wellbeing, pandemic, yoga

## Introduction

COVID-19 pandemic has significantly impacted the lives of people like never before. The ongoing outbreak as well as the measures to control it has resulted not only in increased mortality and morbidity rates but also huge economic losses and social disruption. It has also raised concerns about the potential for a widespread increase in mental health issues.<sup>[1]</sup> Globally, people are experiencing heightened feelings of stress, anxiety and

depression as a consequence of situations arisen because of the current pandemic.<sup>[2]</sup>

Yoga and meditation are known to help in alleviating mental stress and anxiety. They have a positive effect on psychological wellbeing. A lot of research findings support the role of yoga and meditation in counteracting psychopathy and enhancing mental wellbeing.<sup>[3-7]</sup>

In the current situation, practicing yoga and meditation may provide help in relieving mental stress and improving mental wellbeing. Very little research work is available supporting the role of yoga and meditation practices during disaster situations, but no such published research describing their effect on mental

**Address for correspondence:** Dr S. K. Rasia,  
Department of Community Medicine, Lady Hardinge  
Medical College and Associated Hospitals, New Delhi, India.  
E-mail: skrasania@gmail.com

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wellbeing during the current pandemic is available. Keeping in view these points, the present study was planned with the objectives to study the level of mental wellbeing among general population and to find out its association with the practice of yoga and/or meditation during COVID-19 pandemic.

## Material and Methods

This was a community-based online cross-sectional study. The study population comprised general public of age group >18 years who had access to internet using social media applications and who were literate and could understand English or Hindi.

Study subjects were enrolled by direct recruitment via a Google form link consisting of Participant information sheet and a mandatory consent check box mentioning the purpose of the study and only those who gave their consent to be included in the study were able to go to the next section of questionnaire. The online survey continued for a month of 1–31 July 2020.

Study tool: An online pre-designed, pre-tested, self-administered questionnaire was designed containing information about demographic profile of participants like age, sex, marital status, whether they practice any form of yoga and/or meditation and frequency and duration of practice. In addition, it included questions regarding the effect of the current pandemic and lockdown restrictions on mental health and wellbeing. They were also asked about any change in their eating and sleeping pattern as well as a change in relationship with the family members. For assessing mental wellbeing, Warwick Edinburgh Mental Well-being Scale (WEMWBS) was used, which is a validated tool for use in the general population. It measures subjectively perceived wellness and psychological function on a Likert scale. The 14-item scale has five-response categories, summed to provide a single score. The items are all worded positively and cover both feeling and functioning aspects of mental wellbeing. A wellbeing score >45 is considered normal, while those with scores between 41 and 45 should be considered to be at high risk of psychological distress and those with scores <41 could be at high risk of depression.<sup>[8]</sup> The permission to use this scale in the current research was obtained from the copyright owners. In order to address language barrier, questionnaire was circulated in both English and Hindi so that participants can choose and respond in their preferred language.

Data were entered in MS Excel and analyzed using SPSS version 22. Qualitative data were expressed in proportions or percentages and quantitative data were expressed in mean and standard deviation.

The study participants were divided into four groups:

- People practicing yoga only, no meditation
- People practicing meditation only, no yoga
- People practicing both yoga and meditation
- People practicing neither yoga nor meditation.

These four groups were compared for the status of mental wellbeing. Chi-square test was used to check the association of various factors and different categories of WEMWBS scores.

The approval to conduct the research was obtained from the Institutional Ethics committee. The responses were collected anonymously without any identifying information of the respondents and the data were kept purely confidential.

## Results

During the study period, a total of 1112 subjects gave consent and completed the study questionnaire. Of them, 861 (77.4%) responses were obtained in English and 251 (22.6%) were in Hindi questionnaire. The responses were obtained from 30 states and union territories of the country. The mean age of the participants was 35.57 ( $\pm 14.4$ ). In all, 671 (60.3%) participants were females and 689 (62%) were currently married.

The mean mental wellbeing score of participants was found to be 46.62 ( $\pm 9.59$  SD). In all, 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. [Table 1]

Regarding the practices of yoga and meditation, 297 (26.7%) subjects practiced only yoga, 198 (17.8%) only meditation, 228 (20.5%) practiced both yoga and meditation while 389 (35%) practiced none of them.

We tried to relate these practices with the level of mental wellbeing among the study subjects. Among the people who practiced both yoga and meditation, almost two-third (66.2%) had normal wellbeing scores while this proportion was 62% in those practicing meditation only, almost 60% those practicing yoga only and 50.6%

**Table 1: Level of mental wellbeing with practice of yoga and meditation**

Practice of yoga and meditation	Total number (Percentage)*	Level of mental wellbeing			Statistical remarks
		Normal	At risk of psychological distress	At risk of depression	
Only yoga	297 (26.7)	178 (59.9)	76 (25.6)	43 (14.5)	Chi-square=19.972, Df=6, P=0.002
Only meditation	198 (17.8)	123 (62.1)	46 (23.2)	29 (14.6)	
Both yoga and meditation	228 (20.5)	151 (66.2)	50 (21.9)	27 (11.8)	
Neither yoga nor meditation	389 (35.0)	197 (50.6)	107 (27.5)	85 (21.8)	
Total	1112 (100)	649 (58.4)	279 (25.1)	184 (16.5)	

\*The percentages mentioned in italics are column percentages.

in people who practiced none. Similarly, the proportion of subjects at risk of psychological distress as well as depression was least among those practicing both yoga and meditation, whereas it was highest among subjects practicing none. This association was found to be statistically highly significant ( $P = 0.002$ ) [Table 1].

A total of 525 (47.2%) participants were practicing yoga with or without meditation. Out of these, those doing it few times a week constituted the highest proportion (40.4%) followed by those doing daily (36.6%), once a week (13.5%) and less than that (9.5%). A total of 426 (38.3%) participants used to practice meditation. One-third (33.8%) were doing it daily, another third (33.1%) a few times a week, almost one-fourth (26%) did it once a week and 7% even less than that. The proportion of subjects with normal mental wellbeing was highest with daily practice and it significantly decreased with decrease in frequency of practice in case of both, yoga as well as meditation [Table 2].

Almost one-fourth (23.4%) were practicing yoga for <1 year, one-third (33.1%) for 1–5 years, 24.6% for 5–10 years and 18.9% were practicing it for >10 years. Similarly, for meditation, the largest proportion was practicing it for 1–5 years (30%) and the lowest one for <1 year (22.3%). For both yoga and meditation, the proportion of subjects with normal mental wellbeing was highest among those practicing for >10 years and it decreased with a decrease in the duration of practice. However, the difference was not found to be statistically significant. [Table 3]

A total of 801 (72%) respondents reported a change in their eating pattern during the pandemic and nearly half of them started eating more cautiously with focus on healthy diet. The group that practiced both yoga and meditation had significantly higher proportion of subjects with no change in the eating pattern (43.4%) and the lowest proportion of those eating more frequently (3.9%) and those who did not feel like eating much (4.4%) compared to all other groups.

In all, 695 (62.5%) participants reported a change in their sleeping pattern during the pandemic, with 384 (34.5%) sleeping for longer duration and 311 (28%) finding it difficult to sleep. The proportion of subjects with same sleeping pattern as before was significantly highest among those practicing both yoga and meditation (56.1%) and lowest among those who did not practice any of them (17.2%). The latter group also reported a high prevalence of both difficulties in sleeping (40.9%) as well as sleeping for a longer duration (41.9%).

As far as a change in relations with family members (staying with them) is concerned, 418 (37.6%) reported a positive change with the development of more cordial bonds, while 346 (31%) mentioned a negative change with increased frequency of conflicts. The proportion of subjects with negative change was significantly higher in the group that neither practiced yoga nor meditation (49.1%), followed by those practicing only meditation (27.8%), only yoga (20.5%) and least in those who practiced both (17.1%) [Table 4].

**Table 2: Level of mental wellbeing with frequency of practicing yoga and meditation**

Frequency of practice	Total number (Percentage)*	Level of mental wellbeing			Statistical remarks
		Normal (%)	At risk of psychological distress (%)	At risk of depression (%)	
Yoga (n=525)					
Daily	192 (36.6)	121 (63.0)	62 (32.3)	9 (4.7)	Chi-square=16.767, Df=6, P=0.010
A few times a week	212 (40.4)	121 (57.1)	75 (35.4)	16 (7.5)	
Once a week	71 (13.5)	40 (56.3)	19 (26.8)	12 (16.9)	
Less than that	50 (9.5)	27 (54.0)	14 (28.0)	9 (18.0)	
Meditation (n=426)					
Daily	144 (33.8)	105 (72.9)	30 (20.8)	9 (6.3)	Chi-square=12.623, Df=6, P=0.048
A few times a week	141 (33.1)	95 (67.4)	32 (22.7)	14 (9.9)	
Once a week	111 (26.1)	65 (58.6)	30 (27.0)	16 (14.4)	
Less than that	30 (7.0)	14 (46.7)	10 (33.3)	6 (20.0)	

\*The percentages mentioned in italics are column percentages.

**Table 3: Level of mental wellbeing with duration of practicing yoga and meditation**

Duration of practice	Total number (Percentage)*	Level of mental wellbeing			Statistical remarks
		Normal	At risk of psychological distress	At risk of depression	
Yoga (n=525)					
<1 year	123 (23.4)	72 (58.5)	32 (26.1)	19 (15.4)	Chi-square=8.071, Df=6, P=0.232
1-5 years	174 (33.1)	106 (60.9)	45 (25.9)	23 (13.2)	
6-10 years	129 (24.6)	81 (62.8)	36 (27.9)	12 (9.3)	
>10 years	99 (18.9)	66 (66.7)	16 (16.2)	7 (7.1)	
Meditation (n=426)					
<1 year	95 (22.3)	57 (60.0)	23 (24.2)	15 (15.8)	Chi-square=5.821, Df=6, P=0.443
1-5 years	128 (30.0)	84 (65.6)	25 (19.5)	19 (14.8)	
6-10 years	103 (24.2)	70 (68.0)	22 (21.4)	11 (10.7)	
>10 years	100 (23.5)	72 (72.0)	21 (21.0)	7 (7.0)	

\*The percentages mentioned in italics are column percentages.

**Table 4: Change in eating-sleeping pattern and family relations with the practice of yoga and meditation during COVID-19 pandemic**

Type of change	Total (n=1112) (%)	Only Yoga (n=297) (%)	Only meditation (n=198) (%)	Both Yoga and meditation (n=228) (%)	Neither yoga nor meditation (n=389) (%)	Statistical remarks
Eating pattern						Chi-square=93.653, Df=9, P=0.000
Eating more frequently	176 (15.8)	68 (22.9)	11 (5.6)	9 (3.9)	88 (22.6)	
Don't feel like eating much	94 (8.4)	23 (7.7)	19 (9.6)	10 (4.4)	42 (10.8)	
Eating more cautiously with focus on healthy diet	531 (47.8)	140 (47.1)	115 (58.1)	110 (48.2)	166 (42.7)	
No change	311 (28.0)	66 (22.2)	53 (26.8)	99 (43.4)	93 (23.9)	
Sleeping pattern						Chi-square=128.215, Df=6, P=0.000
Finding it difficult to sleep	311 (28.0)	75 (25.3)	41 (20.7)	36 (15.8)	159 (40.9)	
Sleeping for longer duration	384 (34.5)	104 (35.0)	53 (26.8)	64 (28.1)	163 (41.9)	
No change	417 (37.5)	118 (39.7)	104 (52.5)	128 (56.1)	67 (17.2)	
Relation with family members						Chi-square=174.368, Df=6, P=0.000
Positive (more cordial)	418 (37.6)	159 (53.5)	81 (40.9)	56 (24.6)	122 (31.4)	
Negative (increased conflicts)	346 (31.1)	61 (20.5)	55 (27.8)	39 (17.1)	191 (49.1)	
No change	348 (31.3)	77 (25.9)	62 (31.3)	133 (58.3)	76 (19.5)	

## Discussion

The mean age of the participants was  $35.57 \pm 14.4$  years (range: 18–78 years). Thus, the sample was representative of all the age groups of adult and geriatric population, although the proportion of younger population was relatively higher, with almost 54% participants being <35 years of age. As this study was conducted via online mode, younger people are more comfortable in using online platforms compared to older ones.

The mean wellbeing score of participants was found to be 46.62 ( $\pm 9.59$  SD). In all, 41.6% of respondents had less than normal scores, which suggests a lower level of mental wellbeing in a large proportion of subjects. Ransing R *et al.* have mentioned that the emergence of mental health problems during a pandemic is extremely common.<sup>[1]</sup> Several other researchers from different parts of the world have also reported a lower level of mental wellbeing among general population during COVID-19 pandemic.<sup>[9-13]</sup> Higher mental wellbeing scores and lower risk of psychological distress and depression were seen in subjects practicing yoga and meditation with highest scores in those practicing both. This shows that the practicing both yoga and meditation helps in improving mental wellbeing. Other authors have documented the role of yoga in reducing psychological distress during disasters.<sup>[5,6,14-16]</sup> Similarly, a positive effect of practice of meditation and yoga in improving mental health and reducing anxiety and depression has been found in many studies.<sup>[3,4,7,14,17-22]</sup> Some recent studies also document the positive roles of yoga and meditation in relieving stress in the patients with COVID-19.<sup>[23,24]</sup>

One of the important findings of our study was that the frequency of practice is positively associated with a higher level of mental wellbeing in case of both yoga as well as meditation, with daily practice having the highest wellbeing scores. Similar results have been shown by Ross A *et al.* that frequency of yoga practice predicts its health benefits.<sup>[18]</sup> We did not find any significant

association of duration of practicing yoga and meditation with level of mental wellbeing. This shows that consistency of practice is more important rather than years of practice which is in accordance with another study.<sup>[18]</sup> However, a study by Mocanu E *et al.* shows that negative emotional reactions are less pronounced with longer and more frequent practice of yoga.<sup>[25]</sup>

Change in eating and sleeping pattern during the pandemic was significantly higher in people who did not practice yoga and meditation and it was least in those practicing both. A large proportion of subjects had resorted to healthy eating options. This may be because of general awareness to boost immunity by adopting nutritious food. Marty L *et al.* have reported that people had become health conscious in their food choices during the lockdown in France.<sup>[26]</sup> Another study by Owen AJ *et al.* shows that poor appetite and overeating were found in 53% of adults during COVID-19 pandemic in Australia.<sup>[27]</sup> The psychological distress associated with the pandemic has resulted in a lack of sleep and poor sleep quality according to many researchers.<sup>[2,12,13,28-33]</sup> Our findings show that practice of yoga and meditation can be helpful in this scenario.

A large proportion of study subjects reported a change in relationship with family members during the COVID-19 pandemic. Although 37.6% mentioned the development of more cordial bonds, 31% mentioned an increase in frequency of conflicts. The current pandemic has changed the lifestyle of people like never before. More and more people are now working from home and children studying from home. All these have increased the time spent with family members, which may have resulted in improving their relations or this, along with other stressors associated with current times, may even result in conflicts. Authors have mentioned that family relations are under pressure during this pandemic and bad relationships are getting worse.<sup>[34]</sup> Our results show that the practice of yoga and meditation is positively associated with better family relationships during the pandemic. An interventional study from Iceland has

shown an improvement in social relations with practice of yoga.<sup>[6]</sup> Rakhshani A *et al.* have also found that yoga practice improved interpersonal relationships.<sup>[35]</sup>

This study has a few limitations. The study was conducted during COVID-19 pandemic and to avoid the risk of infection and in order to receive maximum responses in limited time, online mode was used. Sampling method was non-random. But this was the only feasible mode of data collection at that time owing to the restrictions put forth because of the pandemic. Secondly, we did not take into account the type of yoga and meditation being practiced. There is a need for more elaborative research on this topic preferably by employing a randomized controlled trial design.

## Conclusion

We conclude that a large proportion of the study population had a poor mental wellbeing during the ongoing COVID-19 pandemic. Higher mental wellbeing was found with practice of both yoga and meditation, followed by practice of only meditation and then only yoga. A similar association of yoga and meditation practices was found with the change in eating, sleeping pattern, and family relations. The frequency of practice was positively associated with a higher level of mental wellbeing in case of both yoga as well as meditation, with daily practice having highest wellbeing scores while years of practice was not significantly associated. Thus, this study highlighted the effective role of regular practice of meditation and yoga in improving mental wellbeing during the current pandemic. There should be more focus on mental health and wellbeing of population by the policymakers as well the physicians. The regular practice of yoga and meditation and preferably both may prove an effective preventive or supplementary therapeutic intervention for COVID-19-related mental health issues.

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## Conflicts of interest

There are no conflicts of interest.

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