

Original Research Article

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Effectiveness of yoga interventions on stress and anxiety levels of school teachers during COVID-19 era in Anand district, Gujarat

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ABSTRACT

Background: During coronavirus outbreak, lockdown was implemented in India and online teaching was adopted as new teaching method. This shifting in teaching pattern may increase the burden on mental health of school teachers and cause various mental health issues. Therefore, this study was done to assess stress and anxiety levels of teachers and impact of yoga intervention on them.

Methods: An interventional study was conducted with teachers of five English medium schools. Pre-test was done for the assessment of stress and anxiety by using Perceived Stress Scale (PSS) and Generalized Anxiety Disorder 7 (GAD-7) scale respectively. Yoga intervention was done virtually once a week for three months. Participants were asked to practice the yoga daily on their own. After three months, post-test was done using similar questionnaire.

Results: A total of 136 teachers were enrolled in this study. On pre-test, moderate perceived stress was observed in 95 (69.9%) participants. 38 (27.9%) participants were having mild anxiety symptoms and 74 (54.5%) participants were having no anxiety symptoms. Pre PSS mean score was 17.28 (SD=5.90) and Post PSS mean score was 13.29 (SD=4.30). Pre GAD-7 mean score was 4.88 (SD=4.28) and Post GAD-7 mean score was 4.24 (SD=3.13). There were highly significant mean differences between pre-post comparison of PSS and GAD-7 ($p<0.001$).

Conclusions: The study showed significant level of stress and anxiety among teachers. Yoga intervention of three months was effective in reducing stress and anxiety levels in teachers.

Keywords: Anxiety, Stress, School teachers, Yoga, COVID-19

INTRODUCTION

Mental health is an integral part of health; it is more than the absence of mental illness. It is the basic need for the well-being of individuals. The burden of mental health problems in India is 2443 DALYs per 1,00,000 populations, which is mainly contributed by anxiety disorders and depressive disorders.¹

Following the coronavirus disease 2019 (COVID-19) pandemic, the lockdown was implemented in India to control the transmission of the disease. Following this, all

educational institutions, shopping centers, factories, offices, local markets, and transport vehicles were completely shut down except hospitals, groceries, police stations, emergency services like fire stations, petrol pumps, etc. Indians are thought to be more social compared to western countries, being engaged in various religious festivals and get-togethers throughout the year. In this respect, lockdown can have negative impact on the mental health of the people.² Lockdown had negative impact on various sectors in the country, the education sector was also affected a lot during the lockdown. As schools were closed, online teaching had replaced traditional teaching and examination methods. The teachers delivered lectures

through live video conferencing apps like Zoom, Google meet, etc. All these may increase the burden on the mental health of school teachers.^{3,4}

The word yoga derives from the Sanskrit word 'Yuj' which means to unite, to join, or to connect. Yoga is well-known to positively influence physical and mental well-being since thousands of years.^{5,6} Stress induces imbalance in the autonomic nervous system with decreased activity of the parasympathetic and increased activity of the sympathetic nervous system. The benefit of Yoga to physical and mental health is obtained by down-regulation of the hypothalamic-pituitary-adrenal (HPA) axis and the sympathetic nervous system.^{7,8} On reviewing literature, So far not many studies have been done on the impact of yoga on stress and anxiety levels of school teachers during COVID-19 time. Therefore, this study aims to assess the impact of yoga interventions on stress and anxiety levels of school teachers during COVID-19 era in Anand district, Gujarat.

METHODS

This study was conducted after permission from the Institutional Ethics Committee (IEC) [IEC/BU/126/Faculty/16/09/2021].

Study population

Participants were teachers from English medium schools of Anand district. Five schools were selected according to positive responses of participation from schools. Total 136 teachers were included for this study after taking consent.

Study period

The study was conducted from March 2021 to November 2021 (9 months).

Study design

This study was an interventional study.

Inclusion criteria

The teachers from five English medium schools, who volunteered to participate.

Exclusion criteria

The teachers with pre-existing mental illness and on medication for same.

Procedure

Schools were enrolled for the study, after getting permission from school principals. Written informed consent was taken from the participants. Pre-test assessment was done through standard questionnaire, for assessment of stress and anxiety level of the participants.

After that, the participants were enrolled for yoga interventions of three months. First Yoga session was conducted in each school separately for 2 hours, which included warm up yogic exercise, yogasanas, pranayama, meditation and yogic diet counselling. WhatsApp groups were formed for each school separately. Participants were asked to perform yoga practice for 45 minutes daily, for which daily reminders were sent in these groups. Yoga videos were shared in these groups to enhance the learning of the participants. Also, virtually once a week yoga session was conducted. After three months, post-test was done using similar questionnaire to assess the impact of yoga interventions on stress and anxiety levels of the participants. All the yoga sessions were conducted by yoga expert, who is certified Master in Arts of Yoga and Science of Living. This yoga intervention was also included the protocol of International Yoga Day celebration by ministry of AYUSH (Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy), which includes different types of pranayama and meditation as part of intervention.⁹

Data collection tool

The questionnaire used to assess the impact of yoga interventions was composed of: 1) demographic profile, 2) perceived stress scale (PSS) for assessment of stress- the tool, while originally developed in 1983, help us to understand how different situations affect one's feelings and one's perceived stress.¹⁰ PSS is a 10 questions-based tool, scoring on which can range from 0 to 40. It categorizes individuals as having low, moderate and high perceived stress and 3) Generalized Anxiety Disorder - 7 (GAD-7) for assessment of anxiety- the generalized anxiety disorder 7-item is an easy to perform, self-administered and initial screening tool for anxiety disorders.¹¹ Total score on GAD can range from 0 to 21. It categorizes individuals as having mild, moderate and severe anxiety symptoms.

Data analysis

Data was entered manually into Microsoft Excel 2019 from the questionnaire. The analysis was done using STATA version 14.2. Descriptive statistics [Mean (SD), Frequency (%)] was used to present profile of the participants as well as magnitude of stress and anxiety in the study participants. The impact of yoga interventions was assessed using Fisher's exact test.

RESULTS

There were total 240 teachers in the five schools of our study. Out of which, 136 teachers had given voluntary consent for participation. So total 136 teachers were included in the study. The mean age of the teachers was 40.92 years (SD=8.44). Half of the participants were in the age group of 35 to 45 years. Out of 136 teachers, 102 (75%) were female. A total of 115 (84.6%) teachers were married. Abnormal sleep was seen in 14 (10.3%) participants. Out of 136 teachers, 46 (33.8%) teachers and 16 (11.8%)

teachers were falling in obesity class 1 (BMI: 25 to 30) and class 2 (BMI >30) respectively (Table 1).

Assessment of stress level before yoga interventions showed that 95 (69.9%) participants had moderate level of perceived stress, followed by 33 (24.2%) with low level of perceived stress and 8 (5.9%) having high level of perceived stress. After three months of yoga interventions, assessment of stress by PSS showed that out of 136

participants, 73 (53.7%) were having low level of perceived stress and 63 (46.3%) were having moderate level of perceived stress. Fisher's exact test was applied to check for category-wise pre and post association of PSS scale, which showed that there was highly significant difference in pre and post PSS among all categories ($p<0.001$) (Table 2).

Table 1: Frequency distribution of the study participants (n=136).

Profile characteristics	Frequency	Percentage (%)
Age (years)		
24-34	29	21.3
35-45	68	50.0
>45	39	28.7
Sex		
Male	34	25.0
Female	102	75.0
Marital status		
Single	16	11.8
Married	115	84.6
Divorced	04	2.9
Widowed	01	0.7
Diet		
Vegetarian	87	64.0
Non-veg	17	12.5
Mix	32	23.5
Sleep		
Normal	122	89.7
Abnormal	14	10.3
Body-mass index (BMI)		
<18.5 (underweight)	7	5.1
18.5–22.9 (normal)	31	22.8
23–24.9 (pre-obese)	36	26.5
25–30 (obesity class 1)	46	33.8
>30 (obesity class 2)	16	11.8

Table 2: Pre-test and post-test association of perceived stress scale (PSS) in study participants (n=136).

PSS categories	Pre-test, N (%)	Post-test, N (%)	P value
Low perceived stress	33 (24.2)	73 (53.7)	
Moderate perceived stress	95 (69.9)	63 (46.3)	Fisher's exact Test
High perceived stress	8 (5.9)	0 (0)	<0.001
Total	136 (100)	136 (100)	

Further, pre PSS mean score was 17.28 ($SD=5.90$) and Post PSS mean score was 13.29 ($SD=4.30$) and it was found that there was a highly significant mean difference between pre and post perceived stress score ($p<0.001$). This suggests that our interventions had impact on stress reduction among study participants (Figure 1).

Assessment of anxiety level before interventions found that, 74 (54.5%) participants were not having any anxiety symptoms. From remaining participants, 38 (27.9%)

participants were having mild anxiety symptoms, followed by 20 (14.7%) were having moderate anxiety symptoms and 4 (2.9%) were having severe anxiety symptoms. After yoga interventions, majority of teachers did not have any anxiety symptoms (84, 61.8%). Mild anxiety symptoms were seen in 42 (30.9%) teachers, followed by moderate anxiety symptoms (10, 7.3%). There was significant difference for pre and post GAD-7 between all categories ($p=0.04$). There was shift of participants from having moderate and severe anxiety symptoms to either no or mild anxiety symptoms (Table 3).

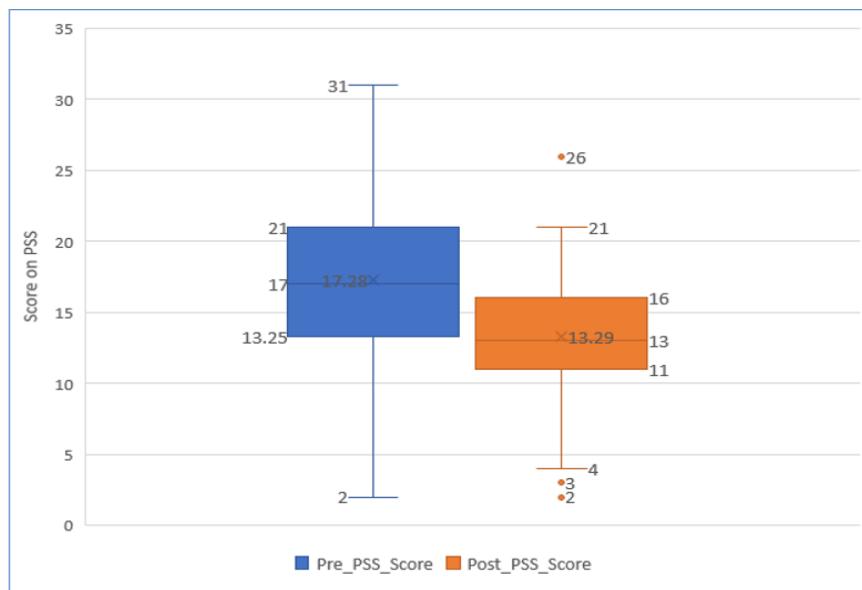


Figure 1: Pre-post comparison of PSS in study participants (n=136).

Table 3: Pre-test and post-test association of generalized anxiety disorder 7 (GAD-7) scale in study participants (n=136).

GAD-7 categories	Pre-test, N (%)	Post-test, N (%)	P value
No	74 (54.5)	84 (61.8)	
Mild anxiety symptoms	38 (27.9)	42 (30.9)	
Moderate anxiety symptoms	20 (14.7)	10 (7.3)	Fisher's exact Test 0.04
Severe anxiety symptoms	4 (2.9)	0 (0)	
Total	136 (100)	136 (100)	

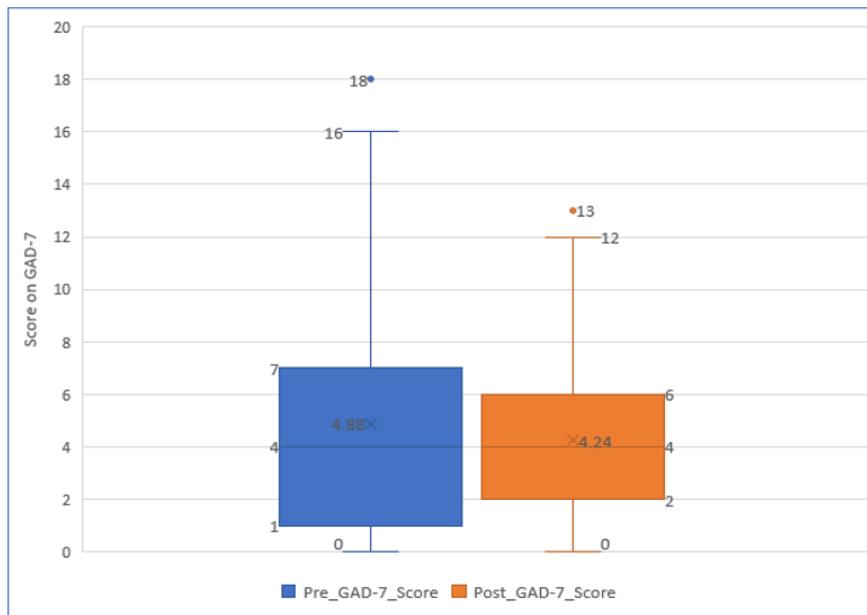


Figure 2: Pre-post comparison of GAD-7 in study participants (n=136).

Pre GAD-7 mean score was 4.88 (SD=4.28) and post GAD-7 mean score was 4.24 (SD=3.13) and there was highly significant mean difference between pre and post

GAD-7 score ($p<0.001$). This suggests that our interventions had reduced anxiety symptoms among study participants (Figure 2).

DISCUSSION

During the COVID-19 pandemic, teachers reportedly experienced high levels of stress and anxiety, which might influence their ability to provide effective teaching. Teachers may have moral harm and post-traumatic stress disorder, because of inadequate resources and exposure to COVID-19 disease.^{12,13} The study of mind-body therapies as a form of therapy for various mental health issues has increased over the past few decades. For the treatment of stress and anxiety, supplementary alternative therapies including yoga and meditation have been recommended.¹⁴

The goal of this study was to assess the stress and anxiety levels of school teachers, and to assess whether participants in a three-month yoga course felt some level of stress or anxiety alleviation. The results of this study are highly compatible with those of earlier studies conducted by researchers. Positive mental health is a key barrier against mental health issues, such as anxiety. Additionally, it affects psychological functioning, social outcomes, and health.¹⁵

In present study, on pre-test around 70% participants were having moderate perceived stress, which was similar to an Indian study conducted by Thakur et al, focusing on perceived stress among teachers during the pandemic.¹⁶ In our study, almost 70% of teachers felt moderate level of perceived stress, followed by low level of perceived stress (24%). After yoga interventions around 54% teachers felt low level of perceived stress, followed by moderate level of perceived stress (46%). This reduction in stress was statistically significant. This study supported the finding made by Gallego et al. that yoga practice is an intervention that lowers stress levels.¹⁷

In our study, nearly half of the teachers who participated had reported mild to severe anxiety symptoms. Significant changes in all categories of GAD-7 were seen in relation to the symptoms of anxiety after yoga intervention. The improvement in mental health and decrease in state anxiety is comparable to the outcomes mentioned in Telles et al report on the teachers.¹⁸

According to the post-test mean value, the participant's levels of anxiety and stress were significantly lower after three months of yoga practice, which is consistent with the findings of Desouky et al.¹⁹

Limitation

The yoga sessions were conducted virtually. This was the limitation of this study.

Recommendations

Mental health issues like stress and anxiety, which have been made worse by the COVID-19 pandemic, may affect the work output of teachers. Therefore, it is important for policy makers to take into account the available research

on teachers' mental health. Future investigations for integrating yoga in teachers' training course is required. However, long term follow-up is required to accurately measure the impact of yoga interventions among school teachers.

CONCLUSION

Teachers suffered greatly as a result of the COVID-19 era's changes to the educational landscape. This study showed significant level of stress and anxiety among participants. The findings demonstrated that school teachers' anxiety and stress were significantly reduced after three months of yogic practices. This study is useful in determining the mental health issues that teachers in the COVID-19 period were dealing with. The design of a yoga interventions for school teachers' mental health can be benefited from this study.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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