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Quick Response Code:

Website: www.jehp.net
DOI: 10.4103/jehp.jehp_398_21

Comparative assessment of factors affecting anxiety levels among adults attending online meditation sessions during the COVID-19 pandemic: A cross-sectional study

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Abstract:

BACKGROUND: The ongoing coronavirus disease 2019 (COVID-19) pandemic induced the governments around the world to impose harsher preventive measures like stay at home order, lock down etc., to contain the spread of infection. This measure increased the stress of the general population through isolation of masses, loss of employment, and loss of recreation. There is a dearth of quality data showing anxiety levels among the population and association of novel nonpharmaceutical measures such as online meditation with it.

MATERIALS AND METHODS: The study is a cross-sectional comparative study based on an online survey. The study population included 74 adult participants, out of which 30, included in the study group were attending structured online meditation sessions and 44 of the participants as a comparison group after matching age, gender, location of residence, and socioeconomic status. The data was collected using self-administered questionnaire. Multiple logistic regression was applied to ascertain factors contributing to the anxiety levels of the participants.

RESULTS: Both the groups of participants were comparable in terms of their demographic characteristics. The mean generalized anxiety disorder (GAD 7) score among the participants of online meditation program was significantly lower as compared to those not attending any online meditation. 6.7% of the participants of online meditation had GAD 7 score more than 10 as compared to 13.6% among the comparison group (P value 0.7).

CONCLUSION: "At home" mental health promotion measures such as structured online meditation can serve an important role in mitigating the mental health impact of COVID-19 pandemic on the community. Further researches are needed to assess the feasibility and effectiveness of such measures.

Keywords:

Anxiety disorders, meditation, online systems

Introduction

The coronavirus disease 2019 (COVID-19) pandemic, which started with unknown cases of pneumonia in city of Wuhan in Hubei provinces of China, has affected more than 7.2 million people around the globe and cause 4 lakh deaths.^[1] It was caused by

novel coronavirus, which was later termed as severe acute respiratory syndrome coronavirus 2. As the infectious agent was a novel virus, for no previous therapeutic or preventive vaccines were available. The nonpharmacological measures such as hand hygiene and social distancing are the only available measures of prevention.^[2] Many of

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How to cite this article: Pal A, Panigrahi SK, Majumdar S. Comparative assessment of factors affecting anxiety levels among adults attending online meditation sessions during the COVID-19 pandemic: A cross-sectional study. J Edu Health Promot 2022;11:84.

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Received: 26-03-2021
Accepted: 21-09-2021
Published: 23-03-2022

Table 1: Assessment of generalised anxiety disorder 7 scores among both the group of study participants (n=74)

	Mean GAD7 score±SD	P
Participants	2.3±3.3	0.01
Nonparticipants	4.3±3.6	

SD=Standard deviation, GAD=Generalised anxiety disorder

the countries across the world employed harsh stay in home measures and isolation of high-risk population to interrupt the transmission of the infection. Government of India also imposed a voluntary curfew on March 22 followed by 3 weeks long lockdown with stay in home order which was subsequently extended as lockdown version 2.0 and 3.0.^[3]

The prolonged lockdown and modified work from home have compelled many people across world to stay at home for an unusually prolonged period. The disruption of daily routine life along with other factors, such as loss of wages among daily wage laborers, cancellation of schools among children, loss of recreation among adults, and exposure to stressful news, infodemic, social isolation among the old age population during the ongoing COVID-19 pandemic have adversely affected mental health among population of all age groups.^[4-10]

Many government and society guidelines have advocated many measures such as healthy nutrition, healthy recreation, and avoidance of excessive news exposure to protect and improve mental health among the vulnerable population and mitigate the effects of isolation. Most of the advices for maintaining healthy recreation are didactic and lack proper enabling environment to be applicable. The stay at home orders along with fear of infection has reduced the chances of healthy recreations such as outdoor walking and running. The avoidance of gathering has reduced the feasibility of group sports or group exercise such as yoga or meditation.

Various researches have shown the applicability of yoga and meditation for psychological benefits both by reducing negative affect and improving positive wellness.^[11-14] Online meditation as a way of healthy recreation is being evaluated by researchers around the world during this ongoing pandemic as a positive psychological intervention.^[13,15] It has an advantage of organizing and maintaining the training during ongoing pandemic without any gathering of crowd or exposing the participants to risk of infection.

There are no established interventions for psychological support of a large population to mitigate anxiety and psychological fallouts during countrywide lockdown or stay at home orders. There is also a dearth of data

showing the stress levels among a population attending online meditation during this ongoing pandemic. This study intends to comparatively assess the anxiety levels and its associated factors among participants attending online meditation. This can serve as an important precursor in evaluating the effectiveness, feasibility, and applicability of online novel group interventions such as meditation.

Materials and Methods

Study design and setting

The study is a cross-sectional comparative study based on an online survey. The study was conducted from June 1, 2020, to December 1, 2020 in central India.

Study participants and sampling

The eligible participants were aged more than 18 years, attending structured online meditation sessions, with a frequency of attendance at least one session a week for the past 4 weeks and were willing to participate. The comparison population was similar to the study group but not attending online meditation session. Those participants having significant debilitating comorbidity or congenital diseases were excluded from the study. The eligible study population included 74 participants, selected through multistage sampling. In the first stage, one online group was selected randomly from Facebook, operating in central India (through location selection) and was approached. In the second stage, among the eligible participants, thirty willing to participate in the study were purposively selected adult participants attending structured online meditation sessions. They were included as a study group. In the second stage, another 44 of their age, gender, place of residence, and socioeconomic class-matched household or neighbourhood contacts were selected as a comparison group.

Data collection tool and technique

The data collection was done through online self-administered questionnaire using Google Forms. The participant information sheet and consent were attached to the first page of the questionnaire and the format of it ensured those participants who agreed to proceed, could only fill the rest of the questionnaire.

The self-administered questionnaire was developed through extensive literature search. It included variables for demographic characteristics, recreational habits, sleep pattern, information regarding habituation and addiction, exercise habit, and generalized anxiety disorder (GAD-7) scoring for assessment of anxiety in the previous 2 weeks, during the continuing lockdown orders from the federal government.

Statistical analysis

Descriptive analysis was performed on all the variables. In the next stage univariate analysis was done using Chi-square tests and independent *t*-test to assess the difference between two groups of participants. Finally, multiple logistic regression was performed to assess the factors associated with anxiety levels. The statistically significant level was set as $P < 0.05$. The data was compiled using Microsoft Excel version 2012 and analyzed using SPSS 22.0 (IBM Corp., Armonk, NY, USA).

Ethical consideration

Prior approval was taken from the institutional ethics committee of All India Institute of Medical Sciences, Raipur (ref no.AIIMRPR/IE/2020/616).

Results

The mean generalized anxiety disorder (GAD 7) score among the participants of Online meditation program was significantly lower as compared to those not attending any online meditation [Table 1]. All the 74 study participants included in the study and administered the questionnaire. Thirty (40.54%) of them were attending the online meditation classes regularly and 44 (59.46%) were comparison group of the previous group not attending any online meditation sessions. The mean age of all participants was 41.29 years 82% of the participants were females and 18% were males. Univariate statistical analysis did not show any significant difference of demographic characteristics among both the groups [Table 2].

Both these groups are comparable in terms of demographic characteristics.

Assessment of behavioural characteristics showed there was significant difference of exercising patterns and patterns of recreational activity among both the groups of participants [Table 3].

The mean GAD 7 score among the participants of online meditation program was significantly lower as compared to those not attending any online meditation [Table 1].

The number of persons having GAD 7 score more than 10 was not significantly different among both the groups (P value 0.7). 6.7% of the participants of online meditation had GAD 7 score more than 10as compared to 13.6% among the comparison group.

The multivariate analysis assessing the factors significantly associated with anxiety level among the participants did not reveal any association of online meditation and the GAD 7 scores of the participants, though the [Table 4].

Table 2: Comparison of demographic characteristics among both the group of participants

	Participants (n=30), n (%)	Nonparticipants (n=44), n (%)	P
Age	44.4±13.8	38.18±12.98	0.052
Gender			
Male	5 (16.67)	8 (18.18)	0.86
Female	25 (83.3)	36 (81.82)	
Education			
Graduation	7 (23.3)	12 (27.3)	0.43
Postgraduation	23 (76.7)	30 (68.2)	
Others	0	2 (4.5)	
Living with			
Alone at home	1 (3.3)	2 (4.1)	0.947
Alone in hostel	3 (10.8)	5 (11.4)	
Family at home	26 (86.7)	37 (84.1)	
Work			
Not working	2 (6.7)	1 (2.3)	0.121
Home maker	9 (30)	6 (13.6)	
Working	19 (63.3)	37 (84.1)	
Marital status			
Married	21 (70)	27 (61)	0.07
Unmarried	6 (20)	16 (37)	
Any other	3 (10)	1 (2)	
Mean number of family members	3.4±1.7	3.3±1.67	0.78

Table 3: Comparison of behavioural characteristics among the participants

	Participants (n=30), n (%)	Nonparticipants (n=44), n (%)	P
Social media use	15 (50)	20 (45.5)	0.701
Regular exercise	25 (83.3)	9 (20.5)	<0.01
Bed time later than 12 am	4 (13.3)	11 (25)	0.255
Mean number of different recreational activity	6.57±2.5	5.2±3.01	0.047
Recreation with screen use (mobile or TV)	1.7±1.2	1.57±1.1	0.63
Recreation (physical and or without screen use)	4.87±2.5	3.64±2.4	0.041

Table 4: Assessment of Factors affecting the anxiety levels (generalised anxiety disorder 7 score) among all study participants

Factors	Univariate analysis (P)	Multivariate logistic regression analysis (P)
Online meditation	0.01**	0.40
BMI	0.016**	0.441
Number of hours per weeks of online meditation	0.429	0.874
Bedtime of the participants	0.660	0.57
Age	0.107	0.172
Marital status	0.879	0.59
Pattern of living	0.425	
Recreation without screen use	0.15	0.078

**The value of significance is 0.05. BMI=Body mass index

The hours of online participation in meditation were found to be weakly negatively correlated (Pearson

correlation coefficient– 0.208) GAD 7 scores, which was statistically insignificant. Apart from the participation in online meditation, a number of weeks of participation or hours of participation per day in online meditation did not have any significant effect on anxiety levels among the participants (*P* value 0.2 and 0.8, respectively). None of the demographic factors were found to be significant contributing factors in multivariate analysis.

The sleep patterns of both the groups of participants did not differ significantly with respect to bedtime or feeling of lack of sleep (*P* value 0.255 and 0.068, respectively). Participants felt significantly less tired during the day as compared to the nonparticipants of online meditation sessions [Table 5].

Discussion

Both the groups of participants were comparable in terms of demographic characteristics like age, gender, pattern of work and pattern of living. Assessment of behavioural characteristics showed there was a significant difference of exercising patterns and patterns of recreational activity among both the group of participant [Table 3].

Islam *et al.* did a web-based survey in Bangladesh to assess the depression and anxiety using GAD 7 scale among university students during the COVID-19 pandemic and concluded that more than 42% of the surveyed population^[16] Choi *et al.* did a survey in Hong Kong to assess the anxiety among the general population and found 14% had GAD 7 score more than 10.^[17] Lebel *et al.* assessed the depression and anxiety level among pregnant individuals during COVID19

pandemic and found among 57% of the respondents had clinically relevant symptoms of anxiety.^[18] Elbay *et al.* assessed anxiety levels among the physicians during the COVID-19 pandemic and found significant anxiety level among 51.6% of the respondent.^[19] Verma *et al.* assessed the depression and anxiety among the Indian general population and found among 28% of the respondents had significant anxiety level.^[20] Lakhan *et al.* did a scoping review with the inclusion of 16 studies around the world and showed the prevalence of anxiety is estimated to be 35%.^[21] We found clinically relevant anxiety level among 10.1% (GAD 7 score 10 or more) of the of participants, which is in sync with the previously reported results across the world.

Ahmad *et al.* did a randomized control trial in Iran and concluded an 8-week web-based mindfulness virtual community intervention was significantly effective in reducing the depression and anxiety level among the intervention group immediately and in 4th month follow-up.^[22] Behan acknowledged the importance of mindfulness-based cognitive therapy in reducing anxiety during the ongoing COVID-19 pandemic as reinforced by various studies.^[15] Although there is a difference in practice of mindfulness intervention and meditation, but the essential mechanism behind both the intervention remains similar. Our study revealed the mean GAD 7 score among the participants of online meditation program was significantly lower as compared to those not attending any online meditation [Table 1], though the difference of persons with clinically significant anxiety level is not significant among both the groups. Although the result of the study does not indicate a high effectiveness of the intervention, the results are encouraging enough to be verified by clinical trials with larger sample size.

Table 5: Comparative assessment of sleep patterns of the participants

	Participants (n=30)	Nonparticipants (n=44)	<i>P</i>
Do you feel any lack of sleep (difficulty in falling asleep, broken sleep, unsatisfying)			
Mild	8 (26.7)	23 (52.3)	0.068
Moderate	1 (3.3)	4 (9.1)	
Not present	18 (60)	15 (34.1)	
Severe	2 (10)	2 (4.5)	
Very severe	0	0	
Do you feel tired during daytime?			
Mild	11 (36.7)	23 (52.3)	0.017**
Moderate	1 (3.3)	6 (13.6)	
Not present	18 (60)	12 (27.3)	
Severe	0	2 (4.5)	
Very severe	0	1 (2.3)	
Bed time			
Bed time later than 12 am	4 (13.3)	11 (25)	0.255

**The value of significance is 0.05

During the ongoing pandemic, various studies have reported factors such as higher age, female gender, social isolation, type of employment, and living alone associated with anxiety level of the population.^[18-20] In our study, in the multivariate analysis, none of the factors were seen to be significantly contributing to anxiety levels of two groups (e.g., mobile phone use, social media use, online streaming or gaming, and television).

Limitation and recommendation

The limitation of the study is its cross-sectional study design and small sample size. The causality of any factor cannot be determined because of this limitation. The data collection was done through self-administered questionnaire, which may be subject to social desirability bias. The study has the strength of being a comparative study with the appropriate matching between two groups. Further large-scale longitudinal studies and randomized control trials are necessary to assess

the effectiveness of online meditation in providing psychological support to a larger population.

Conclusion

During the ongoing COVID-19 pandemic, mental health care has grown to be one of the significant domains of concern in healthcare delivery. Normal mental healthcare delivery has been disrupted by the pandemic. Hence, “at home” mental health promotion through structured online meditation can serve an important role in mitigating the mental health impact of the COVID-19 pandemic on the community. There is a need for the generation of quality evidence through large randomised control trials, which can take forward the small but encouraging result of this study.

Acknowledgments

The study has ethical moral code as AIIMRPR/IE/2020/616, and we are thankful to all participants for their participation.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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