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RESEARCH ARTICLE

Assessment of long-term yoga training as a complementary therapeutic measure for anxiety, depression, and psychological distress in healthy individuals

Sharadchandra G Wankhede[1], Vishnu D Udhan[2], Pramod Shinde[3]

[1]Department of Physiology, Amaltas Institute of Medical Sciences, Bangar, Madhya Pradesh, India, [2]Department of Physiology, NAMO Medical Education and Research Institute, Silvassa, Dadra and Nagar Haveli, India, [3]Department of Physiology, MGM Medical College, Aurangabad, Maharashtra, India

Correspondence to: Vishnu D Udhan, E-mail: vishnu.udhan@gmail.com

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ABSTRACT

Background: Sustained increase in disturbed psychological health is a global concern at present. Complementary therapies in addition to pharmacological interventions are frequently advised to prevent consequential systemic and psychological disorders. However, data pertaining to long-term yoga practice as a complementary therapeutic intervention in healthy adults with large sample size are least available, indicating the significant gap in the scientific literature. **Aims and Objectives:** The present study aims to assess the usefulness of yoga as complementary measure for anxiety, depression, and psychological distress in healthy individuals. **Materials and Methods:** The pre- and post-interventional yoga interventional study was conducted on healthy individuals (n = 200) with age ranging from 30 to 50 years (mean age = 39.95 years). Yoga intervention was given for 6 months (1 h/day; 6 days/week). Baseline and post-interventional anxiety, depression, life satisfaction, loss of emotional control, general positive affect, emotional ties, psychological distress, and well-being scores were measured using a questionnaire-based mental health inventory-38. The data were collected in SPSS and analyzed using paired t-test. Significance was established at 5% P-value. **Results:** An intervention of yoga for 6 months caused highly significant ($P < 0.0001$) reduction in anxiety, depression, and psychological distress scores and improvement in the loss of emotional control, general positive affect, life satisfaction, and psychological well-being scores. **Conclusion:** Positive results indicate the usefulness of long-term yogic exercise modality as a complementary therapeutic intervention for anxiety, depression, and psychological distress in healthy individuals.

KEY WORDS: Anxiety; Depression; Mental Stress; Psychological Distress; Yoga

INTRODUCTION

According to the WHO, when an individual finds the ideal balance in performing at par the capabilities, handling various stresses without feeling of undue burden, work, and social platforms, then an individual is said to be at perfect mental well-being or health.[1] However, the WHO clears that mere absence of mental problem or disorder does not necessarily signify the mental well-being or health.[2,3]

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Mental health problems are one of the main causes of the burden of disease worldwide.[4] Frequently, mental problems are neglected and underestimated due to a lack of knowledge of possible linkage of physical health conditions and mental illness. Mental disorders make person to vulnerable to communicable and non-communicable diseases and causes

accidental and intended injury.[5] On the contrary, mental well-being promotes healthy lifestyles, utmost physical health, and recovery from diseases.[6]

Importantly, mental health is not a static state of overall health. It is as dynamic as physical health. Mental health or well-being could significantly be influenced by various factors. Memory, modulation in emotions and behavior, stress tolerance ability, anxiety, depression, psychological distress and well-being, and life satisfaction are few of the many attributes which contribute to mental health.[7,8]

At present, psychological stress-induced disturbances in mental health is one of the global concern.[4] Although monetary stress is protective factor, long-term and sustained stress can be detrimental to physical as well as psychological health which leads to mental disorders eventually.[9,10]

Anxiety is a normal human emotion. To stressful incidence, as a physiological phenomenon, it produces a set of anticipatory and adaptive responses to stabilize the systemic and mental functional status. However, continued long-term anxiety destabilizes the physiological processes and therefore dysfunctional state results. Excessive long-term anxiety causes significant distress and psychological impairment.[11]

Depression is classically characterized by persistent sadness and loss of interest in routine activities. It is an extremely common illness affecting people of all ages. In India, its prevalence is largely observed within the age range of 15–49 years.[12] Like anxiety, even depression can also substantially produce adverse impact on overall health including quality, social, and economical aspects of life.[13]

Excessive anxiety, depression, and stress can contribute to physical problems such as heart disease, ulcers, and musculoskeletal problems, weakening of immunity making people prone to disease, which may include common cold to lethal cancer.[14]

Anxiety and depression can strategically and effectively prevented and managed. In addition to routine pharmacological interventions, there, various complementary therapies are of great help. In spite of deleterious effects of anxiety and depression on physical and mental health, unawareness of sufferings form this illness among the community is one of the biggest concerns in health-care sector.[13]

The present study aimed to measure and assess whether regular yoga practice can be applied as complementary therapeutic measure for anxiety and depression in healthy individuals. Physical exercise is among many of them to improve mental health, in general, yoga in particular by reducing anxiety and depressive symptoms.

MATERIALS AND METHODS

Study Design and Place of Study

The present pre- and post-yoga interventional study was carried out in the Department of Physiology, MGM Medical College and Hospital, Aurangabad, during February 2016–February 2018.

Sample Size and Ethics

The study was conducted on healthy individuals (n = 200; 120 male and 80 female) within the age range from 30 to 50 years (Mean age = 39.95 years). The study participants were selected by applying inclusion and exclusion criteria. The sample size was determined using formula.[15]

Written Consent and Ethical Clearance

Written consent was received from all the study participants. The present study was approved and permitted by the institutional ethical clearance committee (Regi. No. ECR/581/INST/MH/2014).

Yoga Intervention and Duration

Integrated yoga intervention (Asanas, Pranayama, and Meditation) was given for 6 months (1 h/day and 6 days/week). Yoga intervention was given under the supervision of qualified yoga instructor.

Data Collection

All the data were collected before (pre-yogic) and after yoga (post-yogic) training. Anxiety, depression, and psychological distress scores along with all other mental health-related attributes were measured using questionnaire-based mental health inventory-38 test scale.[16]

Statistical Analysis

The data collected were statistically analyzed by SPSS (24th version). Pre-yogic and post-yogic scores were compared using paired t-test. P-value was established at 5% level of significance.

RESULTS

Pre-yogic and post-yogic scores for anxiety, depression, loss of behavioral control, general positive affect, emotional ties, life satisfaction, and psychological distress and well-being are recorded and compared as in shown in Table 1.

DISCUSSION

To evaluate the efficacy of yogic exercise on anxiety, depression, and psychological distress, the present study

Table 1: Comparison of pre- and post-yogic interventional scores for anxiety, depression, psychological distress, and other mental health attributes

Attributes	Measurements	Mean±SD (*n*=200)	Mean difference	*P*-value
Anxiety	Pre-yogic	27.91±8.82	6.92	<0.0001***
	Post-yogic	20.99±4.55		
Depression	Pre-yogic	11.28±4.12	3.10	<0.0001***
	Post-yogic	8.18±2.43		
Loss of behavioral or emotional control	Pre-yogic	22.65±7.93	6.05	<0.0001***
	Post-yogic	16.60±3.88		
General positive affect	Pre-yogic	34.50±10.59	8.95	<0.0001***
	Post-yogic	43.45±5.57		
Emotional ties	Pre-yogic	8.24±2.62	1.91	<0.0001***
	Post-yogic	10.14±1.76		
Life satisfaction	Pre-yogic	3.23±1.00	0.44	<0.0001***
	Post-yogic	3.67±0.74		
Psychological distress	Pre-yogic	67.78±29.92	17.63	<0.0001***
	Post-yogic	50.15±10.73		
Psychological well-being	Pre-yogic	49.19±14.28	12.17	<0.0001***
	Post-yogic	61.36a7.54		

SD: Standard deviation, ***P<0.0001: Highly significant

was undertaken. Six months of regular yoga practice caused a significant reduction ($P < 0.0001$) in anxiety, depression, psychological distress, and loss of behavioral control scores [Table 1] than their respective baseline scores. Further, there is a significant ($P < 0.0001$) improvement in general positive affect, emotional ties, life satisfaction, and psychological well-being scores [Table 1] than their respective baseline scores, indicating the recovery from anxiety, depression, and mental distress. This significant change in score of all variables represents the effectiveness of yoga in improving the mental health.

In recent years, a substantial amount of clinical research has been accumulated, confirming the health benefits of yoga.[17-20] Studies have also shown that yoga interventions are beneficial to emotional wellness, with improvements demonstrated in stress management and depressive symptoms.[21,22]

The outcome of this present study matches with the study by Sujatha and Judie where they reported a significant reduction in anxiety following 12 weeks of yoga training.[23] Further, our results are consistent with the results of Kjellgren *et al*. where they reported a significant reduction in anxiety and depression.[24]

In an analogous type of findings, Cahn *et al*. reported a significant increase in brain-derived neurotrophic factor (BDNF) after 3 months of yoga training.[25] According to various researchers, Brain Derived Neurotrophic Factor promotes the differentiation, growth of new neurons along with establishing the new synapses.[26,27] According to them, increase in circulating levels of BDNF is likely to be related to improvements in overall brain health and psychological well-being which is likely brought in by regular yoga practice.[25]

In this context, although we have not estimated BDNF in our study, possible increased BDNF level might be one of the likely causes behind the reduction in distress, anxiety, depression, and psychological distress score after 6 months of yoga practice.

Ray *et al*. found an improvement in mental health and mental well-being along with a significant reduction in anxiety and depression after long-term yogic practice for 10 months.[28] Javnbakth *et al*. and Rocha *et al*. both have separately reported significant reduction in anxiety, depression, and stress scores after yogic training for the period of 2 months. This finding is in accordance with the finding of the present study.[29]

In spite of great heterogeneity in the study design pertaining to the content of yoga model, time of intervention, evaluation methods, and sample size, there, scientific evidences of benefits of yoga on various physiological and psychological health components are increasing. However, the exact physiological basis and mechanism of effects has not yet been entirely understood perfectly. On the contrary, we are failed to find the similar contextual studies in the literature where the effects of yoga on mental health parameters are opposite to our findings. Majority of the studies are confirming the positive mental health benefits of regular yoga practice.

We hypothecate that reduction in anxiety and depression scores after long-term yoga practice might be secondary

to a reduction in the psychological distress score. Perhaps, the balance in autonomic nervous system (ANS) after yoga practice may be its optimizing effect, and therefore, the basis of improvement of mental health. Moreover, stimulatory and relaxing yogic practices are most likely to have reduced sympathetic activity and increased parasympathetic activity to bring calmness and mind-body relaxation and raised tolerance to stress. Hence, stimulation-induced relaxation could be one of the many possible reasons for betterment in mental health due to yoga.

Strength and Limitation of the Study

The present study was conducted on a large sample size with long duration of yoga intervention. However, being it was a pre- and post-interventional and single cohort study, no control group was considered and separate data analysis pertaining to male and female were done.

CONCLUSION

Anxiety, depression and psychological distress reducing and psychological well-being improving the impact of yoga practice signify the effectiveness of long term regular yoga practice in healthy individuals. Therefore, yoga practice may be recommended as a preventive as well as complementary therapeutic measure for anxiety, depression, and psychological distress in healthy individuals.

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