

INFLUENCE OF YOGA PRACTICE ON ANXIETY LEVEL OF APPARENTLY HEALTHY FEMALE SUBJECTS OF BIJAPUR (KARNATAKA)

Lata M Mullur*, Jyoti P Khodnapur, Shrilaxmi C Bagali, Manjunath Aithala

*Department of Physiology, BLDEU's Shri B.M.Patil Medical College Hospital and Research Centre, Bijapur-586103, Karnataka, India

E-mail of Corresponding Author: mail-drlatamullur@gmail.com

Abstract

Background and Objective: Stress and anxiety influences physical and mental health. There is a need for simple and cost effective treatment for anxiety to alleviate the burden on the health caused by anxiety. All over the world the scientists have extensively studied about yoga and claimed that it increases longevity and has therapeutic and rehabilitative effects. This study was undertaken seeking the specific effects of yoga therapy on anxiety. This study was undertaken to determine and compare the effects of Yoga on anxiety levels of apparently healthy female subjects.

Methods and Material: Study was conducted on 50 apparently healthy female individuals aged 20-50 years who attended one month Yoga camp. Hamilton Anxiety (HAMA) Scale was used to evaluate anxiety levels before and at the end of the yoga camp.

Results: Before yoga subjects having mild moderate and severe anxiety were 12.12%, 24.24% and 63.63% respectively. After yoga training subjects having mild, moderate and severe anxiety were 24.24%, 33.33% and 42.42% respectively. There was highly significant ($p=0.001$) difference in the mean values of total score before (32.0 ± 6.10) and after (28.54 ± 6.0) yoga. These results indicate that there was a reduction in the severity of anxiety from severe to moderate and mild indicating improvement in general well being following yoga.

Conclusion: Based on the results of our study, one may conclude that regular yogic practice and adapting and implementing the principals and philosophies of yoga in day to day life reduces the anxiety level and improve the subjective feeling of well being.

Keywords: Anxiety, HAMA scale, Yoga

1. Introduction:

Anxiety is characterized by nervousness, fear, apprehension, and worrying. Several disorders can cause anxiety. In Present scenario modernization and competition are among the many causes leading to anxiety in day to day life. Anxiety in its severe form can have impact on physical and mental well being¹.

Yoga has its origin in India. Now all over the world, people are adapting yoga as a simple and cost effective measure of improving the quality of life².

Yoga consists of three components: gentle stretching; exercises for breath control; and meditation as a mind-body intervention².

A state of mental tranquility is achieved by the practice of yoga as revealed by an increase in alpha index of EEG after short term yoga².

Various studies have reported the effects of yoga on anxiety levels. In a study Ray et al³ observed reduced anxiety levels among male students following yoga. Also there are studies comparing the effects of yoga and other modalities like exercise on anxiety levels.

Berger and Owen⁴ compared the effects of swimming, fencing, body conditioning, and yoga classes and found that yoga was superior to others. In a study among elderly people by Blumenthal et al^{5,6} no beneficial effects of yoga on anxiety were observed. The above reviews provide conflicting results and have involved male subjects.

The present was undertaken to determine and compare the effects of Yoga on anxiety levels of apparently healthy female subjects.

2. Material & Methods:

The study was conducted on 50 apparently healthy female subjects who attended the four week yoga camp organized and conducted by an expert instructor. Participants were between the age group 20 to 50 years. All the subjects had never undergone any kind of yogic trainings earlier.

Institutional ethical committee clearance was obtained. The informed consent was obtained from all the participants.

The yoga camp was conducted between 6pm to 7pm daily for 4 weeks.

The yoga practice schedule consisted of:

1. Prayer - 3 min.
2. Asanas – 20 min.
3. Pranayama - 10 min.
4. Meditation – 15 min.
5. Lecture on fundamentals in nutrition, stress management, meditation and yogic attitude in daily life - 10 min.
6. Prayer - 2 min.

For rating of anxiety level the Hamilton Anxiety (HAMA) ⁷ Scale was used. All the participants were asked to fill the HAMA Scale before and after yoga camp.

HAMA scale is a 5 point scale ranging from 0 (not present) to 4. Level of Anxiety is assessed by total score obtained.

Interpretation of scores:

Mild anxiety: 18+

Moderate anxiety: 25+

Severe anxiety: 30+

3. Stastical Methods:

SPSS version 9.0 was used for statistical analysis. The numbers of subjects in each category i.e mild, moderate and severe anxiety were expressed as percentage. The Mean \pm SD of total score before and after yoga was determined. The score before and after yoga practice compared using paired 't' test.

4. Results:

Table 1: showing percentage of participants with type of opinion for each of 28 items of HAMA scale before and after yoga camp.

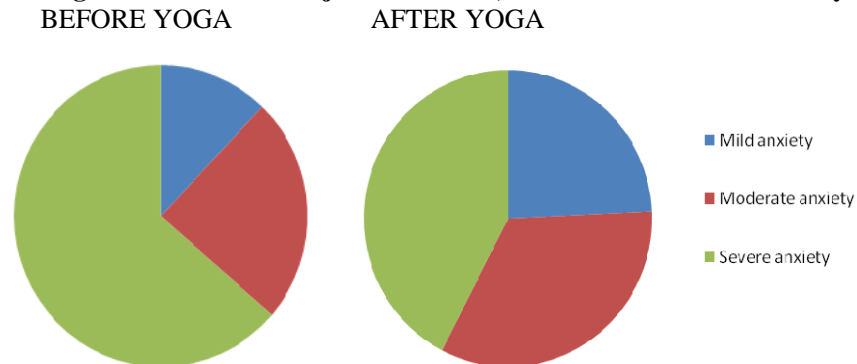
Item no	NEVER%		OCCASIONALLY%		FREQUENTLY %		ALWAYS%	
	BEFORE	AFTER	BEFORE	AFTER	BEFORE	AFTER	BEFORE	AFTER
01	12	39	06	42	12	06	15	12
02	12	21	39	18	21	15	24	45
03	12	55	45	21	24	15	15	09
04	6	18	48	30	33	12	12	39
05	33	39	33	42	12	06	21	12
06	18	36	42	42	21	06	18	15
07	27	61	48	9	18	09	06	21
08	42	64	39	24	12	03	06	09
09	21	45	48	33	12	03	18	18
10	24	21	33	48	03	03	39	27
11	36	42	12	27	03	03	48	27
12	9	18	36	24	03	00	52	58
13	52	55	24	18	06	03	18	24
14	27	27	36	45	12	06	24	21
15	36	48	36	30	12	03	15	18
16	45	64	33	24	6	00	15	12
17	30	55	36	33	18	06	15	06
18	27	42	42	42	9	03	21	12
19	45	45	39	42	9	12	06	06
20	30	48	42	30	15	03	18	18
21	27	30	30	39	12	06	30	24
22	39	48	27	24	3	00	30	27
23	36	45	15	18	3	03	45	33
24	15	12	21	33	18	00	48	55
25	42	52	24	24	12	12	21	12
26	30	58	58	39	3	00	24	03
27	36	52	36	27	6	00	21	21
28	12	30	39	39	9	03	39	27

Table 2: Comparison of Mean±SD of total score before and after yoga training (N=50).

Before	After	t value	p value
32.0±6.10	28.54±6.0	3.650	0.001***

Mean±SD of total score before and after yoga training 32.0±6.10 and 28.54±6.0 respectively.

There was highly significant ($p=0.001$) reduction in the total score after yoga.

Figure1: Percentage distribution of subjects with mild, moderate and severe anxiety.

Before yoga training the percentage of subjects with mild, moderate and severe anxiety were 12.12%, 24.24% and 63.63% respectively. After yoga training the percentage of subjects with mild, moderate and severe anxiety were 24.24%, 33.33% and 42.42% respectively.

5. Discussion:

The results of our study demonstrate the beneficial effects of yoga. There was a significant reduction in the severity of anxiety. The percentage of subjects with severe anxiety was reduced after yoga. Our results are in agreement with several other studies. Shashi and coworkers⁸, Gupta & Gupta⁹, Gupta et al¹⁰ and Jadhav and Havalappanavar¹¹ who also reported decrease in level of anxiety following yoga.

Stress is known to modulate activity of autonomic nervous system as well as central nervous system. Stress may be external (environmental), internal (emotions) or sometimes may be the combination of both, interrupting with each other^{12,13}.

In stressful states, there will be preponderance of sympathetic activity. Practice of yoga and pranayama can lead to reduction in sympathetic activity with shifting of autonomic balance towards relative parasympathetic dominance^{14, 15, 16}.

Some mechanisms have been proposed to explain how yoga reduces the anxiety level¹⁷.

- Anxiety is associated with shallow breathing which can lead to arousal in the sympathetic nervous system. Yoga breathing exercises decrease arousal, which calms and focuses the mind, relaxes the body, oxygenates the blood, soothes anxiety and stress, and promotes clear thinking. The intense concentration and body control involved in

breathing exercises help free the mind from mental distractions, worries, and fatigue¹⁷.

- By improving circulation in the endocrine glands, a consistent yoga practice enhances the functions of hormones that play a primary role in the physiology of depression. This results in a reduction in depression and improved overall mood¹⁷.

It is evident from the result of our present study that practice of yoga and adapting the philosophy of yoga leads to significant improvement in feeling of subjective well being. A high positive feedback score was noticed in parameters such as sense of well being, feeling of relaxation, improved concentration, self confidence, improved efficiency, good interpersonal relationship, attentiveness, lowered irritability level and an optimistic outlook in life. Such results have been shown that Schell *et al*^{18,19,20} who reported the beneficial effect of Hath yoga on various physiological and psychological parameters. In their study, yoga group shown markedly higher scores in life satisfaction and lower scores in excitability, aggressiveness, openness, emotionality and somatic complaints.

Similarly, in his 20 years of experience with yoga in psychiatry, Nespor has emphasized the usefulness of yoga in prevention of stress.

Conclusion:

We conclude that regular yogic practice and adapting and implementing the principals of yoga in day to day life may decrease the severity of anxiety and improve the subjective feeling of well being.

References:

1. Kirkwood G, Rampes H, Tuffrey V, Richardson J, Pilkington K. Yoga for anxiety: A systematic review of the research evidence. *Br J Sports Med* 2005; 39:884–891.
2. Bijalani RL. Understanding of Medical Physiology. 3rd Ed. New Delhi: Jaypee Brothers; 2004.p.871-910.
3. Ray US, Mukhopadhyaya S, Purkayastha SS, et al. Effect of yogic exercises on physical and mental health of young fellowship course trainees. *Indian J Physiol Pharmacol* 2001; 45:37–53.
4. Berger BG, Owen DR. Stress reduction and mood enhancement in four exercise modes: swimming, body conditioning, hatha yoga, and fencing. *Res Q Exerc Sport* 1988;59:148–59
5. Blumenthal JA, Emery CF, Madden DJ, et al. Cardiovascular and behavioural effects of aerobic exercise training in healthy older men and women. *J Gerontol* 1989; 44:M147–57.
6. Blumenthal JA, Emery CF, Madden DJ, et al. Long-term effects of exercise on psychological functioning in older men and women. *J Gerontol* 1991;46:352–61
7. Hamilton M. The assessment of anxiety states by rating. *Br J Med Psychol* 1959; 32: 50-55.
8. Shashi G, Chawla HM, Dhar NK, Katiyar M. Comparative study of progressive relaxation and yogic techniques of relaxation in the management of anxiety neurosis. *Indian Journal of Psychiatry* 1991; 33:27-32.
9. Gupta U, Gupta BS. Effects of yogabased meditation on psychophysiological health of coronary patients. *Indian Journal of Clinical Psychology* 2006; 33:21-27.
10. Gupta N, Khera S, Vempati RP, Sharma R, Bijalani RL. Effect of yoga based life style intervention on state and trait anxiety. *Indian Journal of Physiology and Pharmacology* 2006; 50: 41-47.
11. Jadhav SG, Havalappanavar NB. Effect of yoga on state trait anxiety. *PsychoLingua* 2007; 37: 53-57.
12. Udupa KN. Stress and its management by yoga. 2nd Edn. Narendra Prakash Jain, Dehli, 1985.
13. Brain and psychophysiology of stress. Eds K.N. Sharma, W. Shelvamurthy, N Bhattacharya. Indian Council of Medical Research 1983.
14. Anantharaman V, Subramanya S. Physiological benefits of Hath yoga training. *The yoga review* 1983.
15. Joseph S K, Shridharan SKB, P atil ML, Kumaria,Shelvemurthy W, Joseph N, Nayar H S. Study of some physiological and biochemical parameters in subjects undergoing yogic training. *Indian J Med Res* 1981; 74; 120-124.
16. Shelvemurthy W, Nayar H , Joseph N, Joseph S K. Physiological effects of yogic practices. *NIMHANS J* 1983; 1:71-80.
17. <http://www2.ucsc.edu/counsel/documents/Yoga%20to%20Enhance%20Mood%20and%20Well-Being1.pdf>
18. Schell F.J Allolio B, Schoneche O W. Physiological and psychological effect of Hatyoga exercise in healthy women. *Ind J Psychosom* 1994; 41:46-52.
19. Udupa KN, Sing RN, Yadav RA. Certain studies on physiological and biochemical responses to the practice of hath yoga in normal volunteers. *Indian J Med Res* 1973; 61: 237-244.
20. Wood C. Mood changes and perception of vitality: a comparison of effects of relaxation, visualization and yoga. *J R Soc Med* 1993; 86: 254-258.