

Yogic Techniques To Reduce Stress And Enhance Academic Scores In Students Of Medicine - A Study Conducted In The Coastal Belt Of Karnataka

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ABSTRACT

Background: Medical education is perceived as being stressful, and a high level of stress may have a negative effect on cognitive functioning and learning of students in a medical school. Yoga and meditation techniques have also been found to reduce stress levels and mood disturbance in young professionals. **Aims and Objectives:** Evaluate the effects of yogic techniques on the stress levels and academic performance of first-year medical students. **Materials and Methods:** This is a cross-sectional study was conducted among medical undergraduate. Institutional ethics committee clearance was obtained before beginning the experiments. A total of 100 1st year medical students from Kasturba medical college Mangalore were the participants in this study. Stress levels were assessed using perceived stress scale. Yogic techniques were given for a period of 6 weeks and post-intervention stress levels and sessional marks in Physiology were taken and compared using student t-test. Statistical package SPSS version 17.0 was used to do the analysis. Significance of the test was set at $P < 0.05$. **Results:** The overall response rate was 95%. Yoga intervention significantly ($p < 0.0001$) decreased the stress levels in the high-stress groups from mean perceived stress scale score of 23.69 (pre-intervention) to 19.72 (post-intervention) There was a non-significant improvement in academic performance. **Conclusion** In medical students, inter-professional intervention using Yoga helps in reducing stress. Regular yoga practice is an effective means to decrease perceived stress and improving academic performance. Integrating Yogic intervention into the medical curriculum may result in decreased work-related stress and fewer burnouts in physicians initiating better doctor and patient interactions, ultimately improving quality of healing and patient care.

KEYWORDS: Yoga, Stress, Academic performance, Medical students.

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1. INTRODUCTION

Academic stress in professional education emerges as a significant mental problem worldwide in recent years.¹ Around one-third of the students experience stress that affects their scholarly performance, psychosocial adjustment along with their overall emotional and physical well-being.¹ Poor academic performance, low peer admiration, psychosomatic symptoms, substance abuse is commonly seen among the students of academic stress without having any knowledge of techniques to overcome it. Medical education is perceived as being stressful, and a high level of stress may have a negative effect on cognitive functioning and learning of students in a medical school. Yoga and meditation techniques have also been found to reduce stress levels and mood disturbance in young professionals.

In the first year of our MBBS curriculum, we get students from all over the world. They come from different background and culture. They do have a lot of stress trying to settle in a new place and making friends. All this adds to the academic stress of the MBBS curriculum. Their rate at which they learn things differ from one individual to another. This stress could have a role in their academic performance. Some perform well in the sessional exams whereas others do not.

Yogic practice has become increasingly popular in India as well as in western countries as a method for coping with stress and improving the quality of life.² Yoga is one of the methods by which a goal of positive health can be achieved. Yoga plays a significant role in augmenting one’s mental health, which is instrumental for their fruitful performance in all domains of life.

This study is aimed at providing Yogic sessions to see effect of reducing the stress levels in First-year medical students on their academic performance.

2. AIMS AND OBJECTIVES

Evaluate the effects of yogic techniques on the stress levels and academic performance of first-year medical students.

3. METHODOLOGY

This was a prospective Intervention-control study conducted on first year MBBS students studying in a private medical college. Students (n=100) who have scored less than 60% in their sessional examination were taken for the study. They were then given the Perceived stress scale Questionnaire to get a baseline data. The perceived stress scale is a globally accepted test for measurement of stress which is a ten-item questionnaire that poses general questions allowing users to respond according to their personal stressors. Questions are based on a five point Likert scale. Scores range from zero to forty with higher scores indicating higher levels of perceived stress.³ Based on their scores students are divided into high stress group (Score ≥20, n=70) and low stress group (Score <20, n=30). Students in each of these groups are equally divided by simple randomization into the control group (n=50 ,35 high stress and 15 low stress) who were not given any intervention on yoga, and the intervention group (n=50 ,35 high stress and 15 low stress) who were given yogic intervention.

3.1. Intervention detail

- Students in the intervention group were given daily yoga sessions by a qualified yoga teacher in the Department of Physiology. Yogic sessions were given 3-4 hours after meals which was at 5 :00 pm. Sessions were conducted for a period of 40 minutes in the evening for 5 days a week for a duration of 6 weeks. The yoga module consisted of Asanas , Bandha Mudra, Pranayama, Meditation and relaxation for a duration of 40 min. Intervention was given to the students which was for 6 weeks(12th March 2018-20th April 2018)
- The pre and post interventional data of both control group and Intervention group were collected.
- Self-assessed reduction in Stress levels were assessed using Perceived stress scale questionnaire. Academic performance was assessed using the sessional exam marks.

3.2. Inclusion criteria

- Students who have scored less than 60% marks in their second sessional examination in any one of the first year subjects.
- Students willing to participate

3.3. Exclusion criteria

Students not willing to participate and students who have scored more than 60% in their exam.

3.4. Statistical methods

Comparison between high stress group and low stress group and the academic exam marks was done using Student’s unpaired t test and paired t test by SPSS(version 16) software. p value <0.05 was considered significant.

4. RESULTS

Table 1: Comparison of PSS scores in students before and after yoga intervention in High stress students⁴

Before intervention - test score (n=35)	After intervention - test score (n=35)
mean±SD	mean±SD

23.69±3.28	19.77±3.75***
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P <0.0001, when stress levels compared before and after intervention.

Table 2: Comparison of PSS scores in students before and after yoga intervention in Low stress students⁴

Before intervention - test score (n=15) mean±SD	After intervention - test score (n= 15) mean±SD	Mean difference	t value	p value
16±3.27	15.27±2.69	0.73	0.97	0.35 (NS)

Table 3: Comparison of Academic scores in students before and after yoga intervention in both High and Low stress students

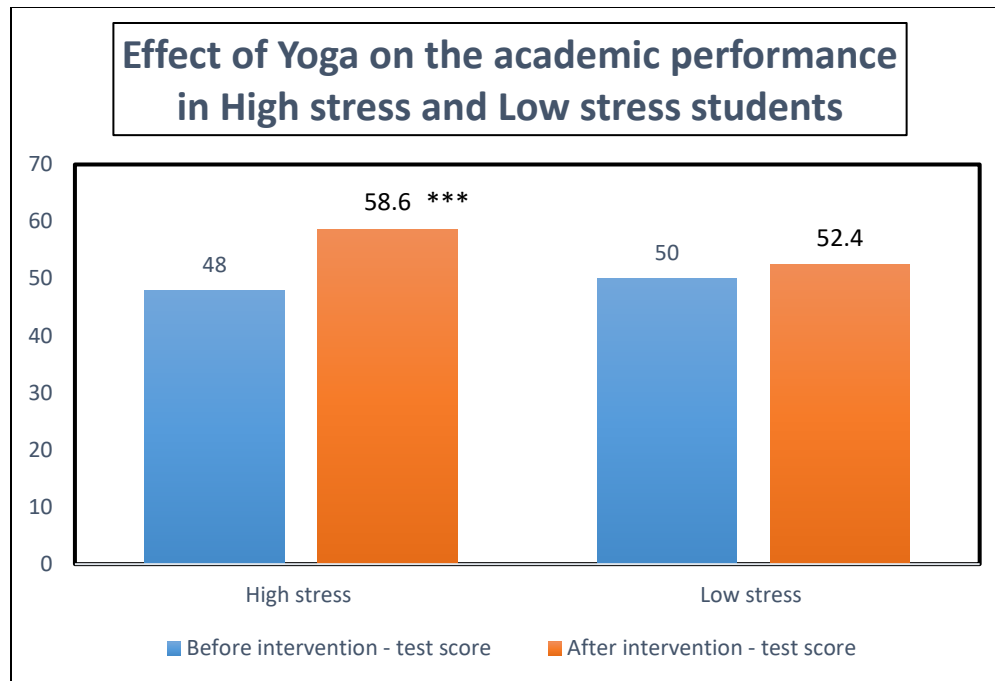
Groups	High stress	Low stress
Before intervention - test score	48±1.8	50±2.3
After intervention - test score	58.6±2.9**	52.4±3.3

p value <0.001

The response rate was 95%. Of 105 students 100 completed and returned the questionnaire giving an overall response rate of 95.32%. The results of the following study showed that in, the high stress group had an average marks of 48±1.8, where as in the low stress group they had an average score of 50±2.3. After the Yoga intervention the marks of the

group high stress students showed a significant improvement(p<0.001). In low stress group individuals too the academic performance had improved but not statistically significant. Yoga intervention significantly decreased the stress levels and improved their academic performance in high stress group individuals in the high stress groups when compared to the low stress groups.

Fig: 1



5. DISCUSSION

The first part of my study has given a lot of insight about the stress levels in medical undergraduates.⁴ Previous studies have shown that academic curriculum, increased number of examinations, competition with fellow mates were sources of anxiety among medical undergraduates.^{5,6,7,8,9} Our results have shown that there is a reduction in the stress levels and improvement in academic performance after 6 weeks of Yogic intervention in both high stress group individuals and low stress group. The study's primary hypothesis that yoga would improve academic performance was however of statistical significance in high stress group individuals. This is in accordance to another case control study conducted by Marshall Haggins et al. Yoga is gaining prominence in boosting the mental health and in the treatment of psychiatric and psychosomatic disorders. This has a direct effect on the quality of their life. As medical students are the footing of the medical profession, they ought to be aware of this complementary therapy of yoga for the enhancement of their own health and that of their patients.

6. CONCLUSION

From the present study it is concluded that yogic intervention helps in reducing stress and an improvement in academic performance in medical undergraduates. This could be used as a remedial method to improve academic performance in low performing students.

Implications: The high stress in medical undergraduates could be a reason for their poor performance in the sessional exams and addressing them by some measures may boost up their confidence and mental health and give the society better doctors in the long run.

Limitations This a cross-sectional study conducted only in one medical college and lacks generalization of results. Since the information was obtained from a self-administered questionnaire, information bias cannot be ruled out.

REFERENCES

1. Vibha Sharma, Smita Shrivastava, S. Malhotra, Ravinder Singh, Tej Bahadur Singh. Yoga and Cognitive Behaviour Techniques for Academic Stress and Mental Wellbeing among School Students Delhi Psychiatry Journal . 13 No.1 Original Article Delhi Psychiatry Journal 2010; 13:(1) :75-78.
2. Mane Abhay B, Krishnakumar MK, Niranjan Paul C, Hiremath Shashidhar G. Differences in perceived stress and its correlates among students in professional courses. J Clin Diagn Res. 2011;5(Suppl 1):1228-33.
3. S. Cohen, T. Kamarck, and R. Mermelstein, "A global measure of perceived stress," Journal of Health and Social Behavior, vol.24, no. 4, pp. 385-396, 1983
4. Sneha Shetty, Kunal, Sharada Rai. An Interprofessional Approach in Reducing the Stress Levels of First Year Medical Students, Indian Journal

of Public Health Research & Development, August 2019, Vol.10, No. 8,1721-1724.

5. Sherina MS, Rampal L, Kaneson N. Psychological stress among undergraduate medical students. Med J Malaysia. 2004;59:207–11. [[PubMed](#)]

6. Shaikh BT, Kahloon A, Kazmi M, Khalid H, Nawaz K, Khan N, et al. Students, stress and coping strategies: A case of Pakistani medical school. Educ Health (Abingdon) 2004;17:346–53. [[PubMed](#)]

7. Ko SM, Kua EH, Fones CS. Stress and the undergraduates. Singapore Med J. 1999;40:627–30. [[PubMed](#)]

8. Brahmhatt KR, Nadeera VP, Prasanna KS, Jayram S. Perceived stress and sources of stress among medical undergraduates in a private medical college in Mangalore, India. Int J Biomed Adv Res. 2013;4:128–36.

9. Marshall Hagins ,Andrew Rundle. Yoga Improves Academic Performance in Urban High School Students Compared to Physical Education: A Randomized Controlled Trial, Mind brain and education.2016;25 May.