

IMPACT OF A 6-WEEK YOGA AND MEDITATION PROGRAM ON STRESS AND ANXIETY LEVELS AMONG FIRST-YEAR MBBS STUDENTS AT GOVERNMENT MEDICAL COLLEGE, SIDDIPET

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Abstract

Background: Stress and anxiety are significant challenges faced by medical students, often stemming from academic pressures and lifestyle transitions. These factors can adversely impact their mental health and academic performance. Yoga and meditation have been widely recognized for their ability to improve physical, psychological, and emotional well-being. This study aimed to evaluate the effectiveness of a structured 6-week yoga and meditation program in reducing stress and anxiety levels among first-year MBBS students at Government Medical College, Siddipet, using the Perceived Stress Scale (PSS) and Beck Anxiety Inventory (BAI). **Materials and Methods:** A cross-sectional study was conducted over six weeks, involving 175 first-year MBBS students, out of which 140 participated (80% response rate). Participants attended a 60-minute yoga and meditation session 5 days a week for 6 weeks. The first 50 students who completed the program were designated as the case group, while the remaining 90 students served as the comparison group. Pre- and post-intervention stress and anxiety levels were assessed using PSS and BAI. Data analysis was performed using SPSS version 22. **Result:** The case group exhibited a substantial reduction in stress and anxiety levels. The mean PSS score decreased by 30% (from 24.6 ± 4.2 to 17.2 ± 3.8), and the mean BAI score decreased by 32% (from 23.1 ± 5.0 to 15.6 ± 4.2), both statistically significant ($p < 0.001$). Conversely, the comparison group demonstrated negligible reductions in PSS (3%) and BAI (3%), which were not statistically significant ($p > 0.05$). These findings emphasize the transformative impact of consistent yoga and meditation practice on mental health. **Conclusion:** The study concludes that a structured yoga and meditation program is highly effective in reducing stress and anxiety levels among medical students. The significant improvement observed in the case group highlights the potential of these practices as essential tools for mental well-being. Incorporating such interventions into the academic routine can help students manage stress, improve resilience, and enhance overall quality of life. These findings advocate for the integration of yoga and meditation programs into medical education as a long-term strategy for fostering mental health.

INTRODUCTION

Stress and anxiety are significant concerns among medical students, who often face intense academic pressures, high expectations, and lifestyle adjustments during their training years.^[1,2] These challenges not only impact their mental health but also hinder academic performance, interpersonal relationships, and overall quality of life. In India, where the medical education system is highly

competitive, the prevalence of stress among medical students is alarmingly high, warranting effective interventions to promote mental well-being.^[3,4]

Yoga and meditation, rooted in ancient Indian traditions, are widely recognized for their holistic approach to improving physical, psychological, and emotional health.^[5] Regular practice of yoga enhances relaxation, reduces cortisol levels, and improves emotional stability, while meditation fosters mindfulness, focus, and mental clarity.^[6]

Together, these practices have been shown to effectively reduce stress and anxiety levels in various populations, including students.^[7]

The current study focuses on first-year MBBS students at Government Medical College, Siddipet, Telangana, who are at a critical stage of transition into the rigorous medical curriculum. This phase often induces significant stress, making it crucial to explore interventions that can mitigate their mental health challenges. A structured 6-week yoga and meditation program was designed to evaluate its impact on perceived stress and anxiety levels using validated tools such as the Perceived Stress Scale (PSS) and Beck Anxiety Inventory (BAI).

By assessing the changes in stress and anxiety levels pre- and post-intervention, this study aims to provide evidence for the inclusion of yoga and meditation as an integral part of medical education to enhance students' mental well-being and academic success.

MATERIALS AND METHODS

Study Design: A cross-sectional study was conducted over six weeks to evaluate the impact of yoga and meditation on stress and anxiety levels among first-year MBBS students.

Study Area and Population

The study was carried out from November to December 2024 at Government Medical College, Siddipet, Telangana. A total of 175 first-year MBBS students were approached for participation. Of these, 140 students willingly participated in the study, yielding a response rate of 80%.

Sampling Method

Universal sampling was employed to include all first-year MBBS students meeting the inclusion criteria.

Inclusion Criteria

First-year MBBS students willing to participate in the study.

Exclusion Criteria

Students unwilling to participate or those unable to complete the 6-week program.

Intervention: Participants attended a structured 6-week yoga and meditation program comprising 60-minute sessions, 5 days a week. The first 50 students who adhered to the program were designated as the case group, while the remaining 90 students were categorized as the comparison group.

Study Tools

Validated questionnaires, including the Perceived Stress Scale (PSS-10) and Beck Anxiety Inventory (BAI), were used to measure stress and anxiety levels pre- and post-intervention.

Data Collection and Analysis

Pre- and post-intervention scores were collected for both groups. Data were analyzed using Microsoft Excel (version 16) and SPSS (version 22). Paired and unpaired t-tests were performed to compare pre- and post-intervention scores and determine statistical significance ($p < 0.05$).

Ethical Considerations

The study was initiated after obtaining approval from the Institutional Ethics Committee. Informed consent was obtained from all participants.

RESULTS

Study Population Characteristics: A total of 175 first-year MBBS students were enrolled in the study, of which 140 students willingly participated, resulting in a participation rate of 80%. The remaining 35 students (20%) did not participate [Table 1]. Among the participants, 50 students who adhered to the 6-week yoga and meditation program were categorized as the case group, while the remaining 90 students formed the comparison group.

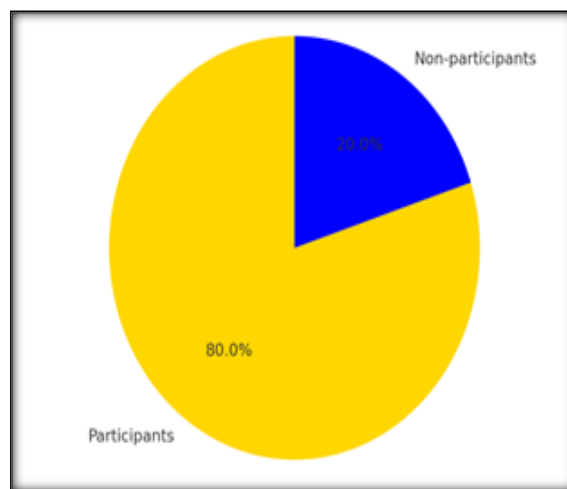


Figure 1: Comparative study of gestational age in both groups

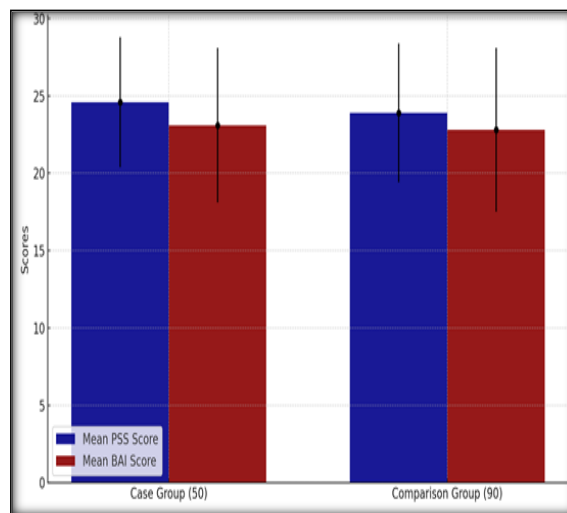


Figure 2: Comparative study of gestational age in both groups

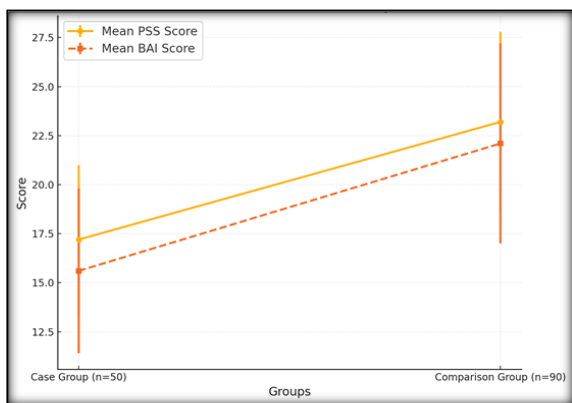


Figure 3: Comparative study of Indication for induction of labour

Baseline Stress and Anxiety Levels: At baseline, both the case group and the comparison group exhibited moderate stress and anxiety levels. The mean Perceived Stress Scale (PSS) score in the case group was 24.6 ± 4.2 , and the mean Beck Anxiety Inventory (BAI) score was 23.1 ± 5.0 . Similarly, the comparison group had a mean PSS score of 23.9 ± 4.5 and a mean BAI score of 22.8 ± 5.3 . There was no statistically significant difference in the baseline stress and anxiety levels between the two groups [Table 2].

Post-Intervention Stress and Anxiety Levels: After 6 weeks of yoga and meditation, the case group showed a significant reduction in stress and anxiety levels. The mean PSS score in the case group decreased to 17.2 ± 3.8 , and the mean BAI score decreased to 15.6 ± 4.2 . In contrast, the comparison

group exhibited minimal reductions, with the mean PSS score decreasing to 23.2 ± 4.6 and the mean BAI score decreasing to 22.1 ± 5.1 . The differences in the post-intervention scores between the two groups were statistically significant [Table 3].

Reduction in Stress and Anxiety Levels: The case group demonstrated a 30% reduction in PSS scores and a 32% reduction in BAI scores. The comparison group showed only a 3% reduction in both PSS and BAI scores, indicating that regular participation in yoga and meditation was instrumental in significantly reducing stress and anxiety levels [Table 4].

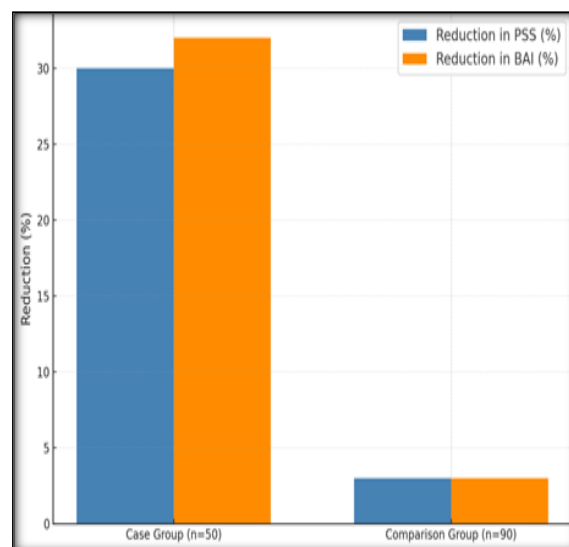


Figure 4: Comparative study of Mode of Delivery and Indications for LSCS

Table 1: Overview of Study Participants

Group	Number	Percentage (%)
Total Students	175	100
Participants	140	80
Non-participants	35	20

Table 2: Baseline Stress and Anxiety Levels

Group	Mean PSS Score	SD PSS	Mean BAI Score	SD BAI
Case Group (50)	24.6	4.2	23.1	5.0
Comparison Group (90)	23.9	4.5	22.8	5.3

Table 3: Post-Intervention Stress and Anxiety Levels

Group	Mean PSS Score	SD PSS	Mean BAI Score	SD BAI
Case Group (50)	17.2	3.8	15.6	4.2
Comparison Group (90)	23.2	4.6	22.1	5.1

Table 4: Reduction in Stress and Anxiety Levels

Group	Reduction in PSS (%)	Reduction in BAI (%)
Case Group (50)	30	32
Comparison Group (90)	3	3

DISCUSSION

This study demonstrates the significant role of yoga and meditation in reducing stress and anxiety levels among first-year MBBS students. The results revealed a substantial reduction in both Perceived Stress Scale (PSS) and Beck Anxiety Inventory (BAI) scores in the case group compared to the

comparison group, underscoring the efficacy of the intervention. Specifically, the case group exhibited a 30% reduction in PSS scores and a 32% reduction in BAI scores after completing the 6-week yoga and meditation program. In contrast, the comparison group, which did not participate in the structured program, showed negligible changes in stress and anxiety levels. These findings align with existing

evidence that highlights the mental health benefits of yoga and meditation.

Bansal et al. (2013) observed similar benefits in their study on medical students, where short-term yoga interventions significantly improved mental well-being.^[8] Likewise, Prasad et al. (2016) reported a marked decrease in stress levels and an enhancement in students' sense of well-being following a six-week yoga and meditation program, corroborating our findings.^[13] These results collectively emphasize the importance of incorporating such practices in medical education to foster emotional regulation and stress management.

Mindfulness-based interventions, including yoga, have been systematically reviewed by Sperling et al. (2023), who noted that these approaches consistently reduce stress among medical students, further validating the outcomes of our study.^[9] The physiological mechanisms underlying these benefits include reduced cortisol levels, enhanced relaxation responses, and improved parasympathetic activation, as highlighted by Saoji (2016) and Elstad et al. (2020).^[10,11]

Our findings also echo those of Sunita et al. (2022), who demonstrated the positive effects of yoga, pranayama, and meditation on the mental health of female medical students.^[14] Similarly, Lemay et al. (2019) emphasized the utility of yoga and meditation in reducing stress and anxiety in students across diverse disciplines, highlighting the universal applicability of these interventions.^[12]

Medical students, particularly in their initial years, encounter numerous stressors, including academic overload, homesickness, and adapting to a highly competitive environment. These challenges can lead to mental health issues if not managed effectively. Interventions such as yoga and meditation offer practical, cost-effective, and accessible solutions to address these stressors. Additionally, regular practice fosters resilience and enhances coping mechanisms, enabling students to perform better academically and maintain their overall well-being.

While the outcomes of this study are promising, certain limitations should be considered. The reliance on self-reported questionnaires such as PSS and BAI may introduce reporting bias. Moreover, the relatively short duration of the intervention may not capture the long-term benefits of yoga and meditation. Future research should focus on longitudinal studies with larger sample sizes and incorporate objective measures such as cortisol levels or heart rate variability to validate these findings further.

CONCLUSION

This study demonstrated that a structured 6-week yoga and meditation program significantly reduced stress and anxiety levels among first-year MBBS students at Government Medical College, Siddipet. The case group showed a 30% reduction in Perceived

Stress Scale (PSS) scores and a 32% reduction in Beck Anxiety Inventory (BAI) scores, while the comparison group exhibited negligible improvements. These findings emphasize the effectiveness of yoga and meditation in promoting mental well-being and resilience in medical students. Integrating such practices into the medical curriculum can serve as a preventive measure against the adverse effects of academic stress, improving both mental health and academic performance. This intervention is a simple, cost-effective, and sustainable strategy for enhancing student well-being.

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