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Yoga Intervention for Stress Management in Dental Preclinical Prosthodontics Training: A Mixed-Methods Study

Running title : "Empowering Dental Students: Yoga for Stress Management"

Corresponding Author: Dr.Arthi Ramalingam
MDS, Junior Resident, Department of Prosthodontics, Sri Venkateshwaraa Dental College,Ariyur, Puducherry

Dr.Arthi Ramalingam
BDS, Junior Resident, Department of Prosthodontics, Sri Venkateshwaraa Dental College, Ariyur, Puducherry

Dr. Varsha Murthy
Prof.& Head, Department of Prosthodontics, Sri Venkateshwaraa Dental College, Ariyur, Puducherry.

Dr. Devameena
Senior lecturer, Department of Prosthodontics, Sri Venkateshwaraa Dental College,Ariyur, Puducherry.

Dr. Vidhya
Senior lecturer, Department of Prosthodontics, Sri Venkateshwaraa Dental College, Ariyur, Puducherry.

Dr. Balaji J
Reader, Department of Prosthodontics, Sri Venkateshwaraa Dental College,Ariyur, Puducherry

Dr. Sadish
Reader, Department of Prosthodontics, Sri Venkateshwaraa Dental College, Ariyur, Puducherry

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Abstract

The field of dentistry presents numerous challenges, exposing students to various sources of stress that can significantly affect their academic performance in dental schools. Preclinical students, in particular, face unique pressures related to the demanding nature of their training. Yoga therapy,

recognized by the National Institutes of Health as a complementary and alternative medicine practice, offers a holistic approach to mental and physical well-being. Incorporating yoga sessions into dental school curricula may help students manage stress and enhance their academic performance. AIMS: To examine the impact of yoga therapy on preclinical stress and academic performance of dental students in prosthodontic departments. MATERIALS AND METHODS: A quantitative questionnaire (Perceived Stress Scale 10) was administered to assess stress levels among the students. Content analysis of eight open-ended questions was conducted using a dual moderator approach, with discussions transcribed and themes identified. Qualitative methodologies were employed to code, categorize, and interpret the emergent themes. Data collection methods included note-taking and participant observation. Following the Yoga Therapy intervention, a focus group discussion was held, and the results were analyzed. RESULTS: The study identified five key themes: (i) Anxiety related to the limited time available for completing preclinical work; (ii) Decreased confidence stemming from a lack of practical experience; (iii) Academic shortcomings perceived by both staff and students, unrelated to the physical environment of clinical training; (iv) Feelings of isolation as staff and students struggled to adapt to new stressors; and (v) Uncertainty regarding the time required to compensate for missed preclinical work. Additionally, there was a noted "gradual lack of guidance from faculty." After the implementation of Yoga Therapy, a subsequent focus group discussion revealed that participants: (i) Achieved a sense of personal integration and positivity; (ii) Felt better equipped to confront these challenges; and (iii) Managed their tasks more efficiently. CONCLUSION: This study concludes that preclinical dental students encountered considerable challenges, including heightened anxiety, diminished confidence, academic shortcomings, feelings of isolation, and uncertainty. The implementation of Yoga Therapy effectively mitigated these challenges by promoting personal integration, enhancing positivity, and improving students' readiness and efficiency in handling their academic responsibilities.

Keywords: dental,education,stress,yoga

INTRODUCTION

Teaching and learning in dental schools are inherently complex and involve multiple components, such as the relationships between undergraduates, patients, and educators; curriculum; integration of theoretical and practical knowledge; institutional setting; educational environment; and prevailing culture.1 Dental education is widely acknowledged as demanding, psychologically taxing, and emotionally exhausting for students. Elevated stress levels among dental students can impair cognitive function, hinder learning, and negatively affect academic performance.2 As dental students progress through rigorous preclinical training, they may experience significant pressure, anxiety, and stress.3 This stress is particularly concerning for institutions where preclinical training may not have previously included structured stress management interventions. Yoga, an ancient practice that originated in India more than 3,500 years ago, was designed to foster optimal physical and mental well-being. With its diverse applications, yoga offers innovative strategies to enhance self-regulation, resilience, and professionalism among dental students.4

MATERIALS AND METHODS

A convenience sample of second-year dental students (n = 97) from the Sri Venkateshwaraa Dental College was recruited for this study. Participation was voluntary, and all participants provided written informed consent. The study protocol was approved by the Institutional Review Board (Approval No: SVDC/IRB/2022/3103/UG Research/43). Prior to the yoga intervention, participants completed a series of online questionnaires, including a demographic survey and the Perceived Stress Scale (PSS), a validated instrument for measuring perceived stress. Focus group discussions were conducted by two trained investigators to assess baseline stress levels. Participants were categorized into high-stress and moderate-stress groups based on the PSS scores.1,2

Following the focus group discussions, participants were randomly assigned to one of two groups: yoga intervention group or control group. The yoga intervention consisted of a 60-minute beginner-friendly session led by a volunteer yoga teacher, who was a fellow healthcare professional student certified by the Yoga Alliance with over four years of experience in teaching yoga, including individuals with mobility limitations or chronic pain. The yoga intervention was conducted in a large hall and was led by a certified yoga instructor with over four years of experience, holding credentials from the Yoga Alliance, who is also a fellow healthcare professional student, experienced in teaching yoga to beginners and individuals with mobility limitations or chronic pain. The participants were provided with yoga mats from a dental school. The 60-minute session was designed to be beginner-friendly and included the following components:

•Introduction (5 min): A brief overview of the ujjayi breathing technique.

• Warm-up (10–15 min): A gentle sequence of movements to prepare the body. (Figure 1)

•Standing Poses and Vinyasa (10–15 min): A series of standing postures linked with breathing performed at a moderate pace. (Figure 2)

• Cool-down (10 min): Seated and supine position to relax the body.

•Final Relaxation (8 min): A guided body scan while lying down.

•Meditation (5 min): Seated meditation focusing on breath awareness. (Figure 3)

•Discussion (5 minutes): Reflection on breath awareness, body mindfulness, and the adoption of a nonjudgmental attitude.

Participants in the control group attended a structured session that did not include yoga practice, but consisted of an alternative activity of similar duration. Three months after the yoga intervention, follow-up focus group discussions were conducted to evaluate the changes in stress levels and the impact of the intervention. (Figure 4)

RESULTS

In this study, stress levels among 90 participants were categorized into three distinct levels: low, moderate, and high, comprising 25 males and 65 females. The distribution of participants across these categories was 20, 65, and 5 in the low, moderate, and high stress groups, respectively. (Figure 5) Focus group discussions uncovered several critical issues prior to the introduction of yoga therapy. Participants expressed significant anxiety exacerbated by the compressed timeframe to complete preclinical work. Additionally, there was a noticeable decline in confidence attributed to reduced opportunities for practical experiences. Academic deficiencies stemmed from a prevalent belief among both staff and students that physical environment constraints do not critically affect clinical training.

Participants also reported an increased sense of isolation and uncertainty about how long it would take to make up for missed preclinical work, compounded by a perceived "progressive lack of faculty guidance."

After the intervention, the introduction of yoga therapy led to several notable improvements. Focus group discussions revealed that the participants experienced enhanced personal integration and a more positive outlook. They also showed increased preparedness to confront the challenges previously identified and demonstrated improved efficiency in managing their academic responsibilities. Additionally, the participants noted a reduction in stress and anxiety levels, which contributed to better overall mental health and academic performance. This suggests that yoga therapy effectively mitigated some of the negative impacts of preclinical stress, enhanced the participants' ability to cope with stress, managed their academic tasks, and fostered a more positive and integrated approach to their personal and professional challenges.

DISCUSSION

Our study evaluated the impact of yoga therapy on dental students, focusing on its potential to alleviate the stress associated with preclinical exercises and improve overall stress management. Participants reported several benefits from yoga sessions, including a heightened sense of personal integration, an optimistic outlook, and an improved ability to remain present. This shift in mindset contributed to increased calmness, composure, and confidence, which facilitated more effective time management and improved the handling of academic challenges.

These findings are consistent with existing literature highlighting the positive effects of yoga on stress reduction and overall well-being.4,5 For instance, previous studies have demonstrated that yoga interventions can significantly reduce stress and stress-related symptoms among students, suggesting that yoga practice can effectively lower perceived stress across various domains.6 This aligns with broader research indicating that yoga is beneficial in mitigating stress among medical and dental students, who often experience high levels of anxiety and musculoskeletal discomfort due to their demanding academic schedules.7,8

The prevalence of stress and anxiety in medical and dental students is well-documented, with numerous studies emphasizing the need for effective stress management interventions. In response, many institutions in developed countries have implemented counseling and wellness programs to support students' mental health. For example, short-term yoga interventions have been shown to improve perceived stress and depressive symptoms among students, reinforcing the value of integrating such practices into academic curricula.9,10

Further support for our findings comes from research demonstrating that even brief yoga and meditation interventions can significantly reduce stress perception and anxiety levels and enhance mindfulness skills among college students. This highlights the potential for incorporating regular yoga practices into educational settings to promote student well-being and academic success.

Despite these promising results, our study has some limitations. The reliance on self-reported data from focus group discussions introduces potential biases such as social desirability bias, which may affect the accuracy of the feedback provided. The study also did not assess the long-term effects of yoga therapy, leaving uncertainty regarding whether the observed improvements were sustained over

time. Additionally, focus group discussions may be subject to acquiescence bias, potentially skewing the results because of group dynamics or perceived expectations. Future research with larger controlled samples and longer follow-up periods is needed to further validate these findings and explore the broader applicability of yoga interventions in educational settings. Overall, integrating yoga and other mindfulness practices into student support programs may offer a promising approach to enhance well-being and resilience among dental students and similar academic populations.

CONCLUSION

Our study demonstrated that yoga therapy significantly improves mental well-being and stress management among dental students. This suggests that incorporating mindful exercises, such as yoga, into the routines of dental students could be an effective strategy for enhancing their mental health. It is imperative for dental school faculty to advocate for and integrate physical- and mindfulness-based interventions into the educational framework. Promoting these strategies will help students manage stress and maintain overall well-being, particularly during demanding periods of their academic training.

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