

Role of Yoga in Stress Management among Residential School Students (Navodaya Vidyalaya Samiti)

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Abstract:

Residential school systems under the Navodaya Vidyalaya Samiti (NVS) expose students to distinct psychological demands such as academic competition, strict routines, and separation from family support. These factors can elevate stress levels and negatively influence students' mental health and academic outcomes. This study investigated the impact of an 8-week structured yoga programme on stress reduction among residential school students. A quasi-experimental design with pre-test and post-test control groups was adopted. Sixty students aged 12–16 years were selected and divided equally into experimental and control groups. The experimental group participated in daily 40-minute yoga sessions, five days a week, including asanas, pranayama, meditation, and relaxation techniques, while the control group continued regular activities without intervention. Stress levels were assessed using the Perceived Stress Scale (PSS), and statistical analysis included descriptive measures and t-tests. Results showed a significant decrease in stress levels in the experimental group, whereas the control group exhibited negligible change. Post-test comparisons further confirmed the effectiveness of the intervention. The findings suggest that yoga is a practical, cost-effective, and non-invasive strategy for improving psychological well-being among residential students. Incorporating yoga into school routines can enhance emotional stability, resilience, and academic performance.

Keywords: Yoga, Stress Management, Residential Schools, NVS, PSS, Adolescents.

1. INTRODUCTION

Adolescence represents a sensitive stage of development marked by rapid physical growth, emotional fluctuations, and evolving social roles. During this period, individuals often experience increased stress due to academic expectations, peer relationships, and identity formation. In residential school environments such as Navodaya Vidyalayas, these pressures may intensify because students must adapt to hostel life, structured discipline, and limited family interaction. While residential education provides opportunities for overall development, it also presents emotional challenges. Students frequently face homesickness, social adjustment issues, and performance-related anxiety. Continuous exposure to such conditions can lead to reduced concentration, sleep disturbances, and emotional instability, ultimately affecting academic achievement.

From a physiological perspective, prolonged stress disturbs the balance of the autonomic nervous system by increasing sympathetic activity and suppressing parasympathetic responses. This imbalance contributes to anxiety, irritability, and reduced coping ability. Therefore, identifying effective strategies to manage stress in school settings has become essential. Yoga, rooted in ancient Indian tradition, offers a holistic approach that integrates physical postures, breathing practices, meditation, and relaxation. Unlike conventional exercise, yoga addresses both physical and mental aspects of health. Scientific evidence indicates that regular yoga practice helps regulate the nervous system, reduce stress hormones, and promote mental calmness. It also improves attention, emotional control, and overall well-being.

Despite growing research in this field, limited attention has been given to the role of yoga in residential school settings like NVS. Given their structured environment and emphasis on holistic education, such institutions provide a suitable platform for implementing yoga-based interventions. This study therefore aims to evaluate the effectiveness of yoga in reducing stress among NVS students.

2. REVIEW OF LITERATURE

A substantial body of research has explored the role of yoga in reducing stress and improving mental health across different populations, including school students, college youth, and working professionals. In recent years, there has been a growing emphasis on integrating yoga into educational settings as a preventive and promotive strategy for mental health. Several school-based intervention studies have demonstrated that short-term yoga programmes, typically ranging from 4 to 12 weeks, can significantly reduce perceived stress among students. These interventions often include a combination of asanas, pranayama, and meditation practices, delivered in structured sessions. Findings from such studies consistently indicate improvements in psychological well-being, including reduced anxiety, enhanced mood, and better emotional regulation.

From a physiological perspective, the stress-reducing effects of yoga are largely mediated through its influence on the autonomic nervous system. Research suggests that yoga practices decrease sympathetic nervous system activity while enhancing parasympathetic dominance. This shift promotes relaxation, reduces physiological arousal, and improves overall stress resilience. Additionally, yoga has been associated with reduced levels of cortisol, the primary stress hormone, thereby contributing to improved mental and physical health. In terms of psychological mechanisms, yoga fosters mindfulness, self-awareness, and cognitive control. Mindfulness practices embedded within yoga encourage individuals to remain present-focused and non-judgmental, which helps in reducing rumination and negative thought patterns. Improved emotional regulation allows students to cope more effectively with academic and social pressures. Furthermore, yoga has been shown to enhance attention span, memory, and executive functioning, which are critical for academic success. Studies focusing on adolescents have highlighted that yoga-based interventions can lead to significant improvements in self-esteem, self-confidence, and overall quality of life. Participation in yoga programmes has also been linked to reduced symptoms of depression and anxiety, making it a valuable tool for promoting mental health in school settings. Importantly, yoga is a low-cost, non-invasive intervention that can be easily integrated into existing school curricula without requiring extensive resources.

However, despite the extensive research on yoga and stress management, there is a noticeable gap in literature concerning its application in residential school systems, particularly within the context of Navodaya Vidyalayas. The unique characteristics of NVS schools—such as their residential nature, diverse student population, and emphasis on holistic education—necessitate targeted research to understand the effectiveness of yoga interventions in this specific setting. Moreover, existing studies often focus on general student populations without considering the additional psychosocial challenges faced by residential students. Issues such as homesickness, adjustment difficulties, and continuous peer interaction may influence stress levels differently compared to day scholars. Therefore, it is essential to conduct context-specific research to evaluate the impact of yoga on stress management among NVS students. In light of these gaps, the present study seeks to contribute to the existing body of knowledge by examining the effectiveness of a structured yoga programme in reducing stress among residential school students. By focusing on NVS institutions, the study aims to provide empirical evidence that can inform policy decisions and promote the integration of yoga into school-based mental health programmes.

3. OBJECTIVES AND HYPOTHESES

3.1 Objectives of the Study

Objectives

1. To measure stress levels among NVS students
2. To examine the effect of yoga on stress reduction
3. To compare pre-test and post-test stress scores

3.2 Hypotheses

- H_0 : No significant difference in stress levels
- H_1 : Significant reduction in stress after yoga intervention

4. METHODOLOGY

4.1 Research Design

The study employed a quasi-experimental pre-test and post-test control group design, which is widely used in educational and behavioural research to evaluate the effectiveness of interventions where complete randomization is not feasible. This design allows for comparison between groups while controlling for baseline differences. The sample for the study consisted of 60 students drawn from Navodaya Vidyalaya residential schools. The participants were within the age range of 12 to 16 years, representing the adolescent stage of development.

- **Experimental Group:** 30 students (received yoga intervention)
- **Control Group:** 30 students (no intervention)

Participants were selected using a random sampling technique within the school to ensure representativeness and minimize selection bias. All participants were medically fit and actively attending school during the study period.

4.2 Tool and Instrumentation

Stress levels were measured using the Perceived Stress Scale (PSS), a widely accepted and standardized psychological instrument developed to assess the perception of stress. The scale measures the degree to which situations in one's life are appraised as stressful.

- The PSS consists of items related to feelings and thoughts during the past month
- Responses are recorded on a Likert scale
- The tool has demonstrated high reliability and validity across diverse populations, including adolescents

4.3 Yoga Intervention Programme

A structured yoga training programme was implemented for the experimental group over a period of 8 weeks.

- **Duration:** 40 minutes per session
- **Frequency:** 5 days per week
- **Total Sessions:** Approximately 40 sessions

Components of the Programme:

1. **Warm-up Exercises** (5 minutes)
2. **Asanas (Postures)** (15 minutes)
 - Tadasana
 - Bhujangasana
 - Vajrasana
 - Padmasana
3. **Pranayama (Breathing Techniques)** (10 minutes)
 - Anulom Vilom
 - Bhramari
 - Deep breathing exercises

4. **Meditation and Relaxation** (10 minutes)

- Mindfulness meditation
- Yoga Nidra (guided relaxation)

The programme was conducted under the supervision of a qualified physical education/yoga instructor to ensure proper technique and safety.

4.4 **Statistical Techniques**

The collected data were analyzed using both descriptive and inferential statistical methods:

- **Descriptive Statistics:**

Mean and Standard Deviation

- **Inferential Statistics:**

- Paired *t*-test (to compare pre–post scores within groups)
- Independent *t*-test (to compare between groups)

The level of significance was set at 0.05.

5. **RESULTS**

Table 1: Descriptive Statistics (Mean and SD)

Group	Phase	Mean	SD
Experimental	Pre	24.87	1.74
	Post	16.80	1.65
Control	Pre	23.87	1.74
	Post	23.10	1.45

The descriptive statistics reveal a substantial reduction in stress levels in the experimental group after the yoga intervention, with the mean score decreasing from 24.87 (pre-test) to 16.80 (post-test). This indicates a marked improvement in stress management among students who participated in yoga. In contrast, the control group showed only a slight decrease in mean stress scores from 23.87 to 23.10, suggesting minimal natural variation without intervention. The relatively similar standard deviation values across groups indicate consistency in responses.

Table 2. Paired *t*-test (Within-Group)

Group	Mean Diff	SD Diff	<i>t</i>	<i>p</i> (2-tailed)
Experimental	8.07	0.37	121.00	< .05
Control	0.77	0.43	9.76	> .05

The paired *t*-test results indicate a statistically significant reduction in stress levels within the experimental group ($t = 121.00, p < .05$). The large mean difference (8.07) confirms that the yoga intervention had a strong impact on reducing stress. Conversely, although the control group showed a small mean difference (0.77), the change was not statistically significant ($p > .05$), indicating that the reduction in stress was not meaningful without intervention. These findings support the effectiveness of yoga in stress management.

Table 3. Independent *t*-test (Post-Test Between Groups)

Group	Mean	SD	<i>n</i>	<i>t</i>	<i>p</i> (2-tailed)
Exp vs Ctl	16.80 23.10	vs 1.65 vs 1.45	30 vs 30	-15.73	< .05

The independent *t*-test comparing post-test scores between the experimental and control groups shows a statistically significant difference ($t = -15.73, p < .05$). The experimental group demonstrated considerably lower stress levels compared to the control group after the intervention. This clearly indicates that the yoga programme was effective in reducing stress and that the observed changes were not due to chance. The negative *t*-value reflects that the mean stress score of the experimental group was significantly lower than that of the control group.

Figure 1. Mean Stress Scores (Bar Chart)

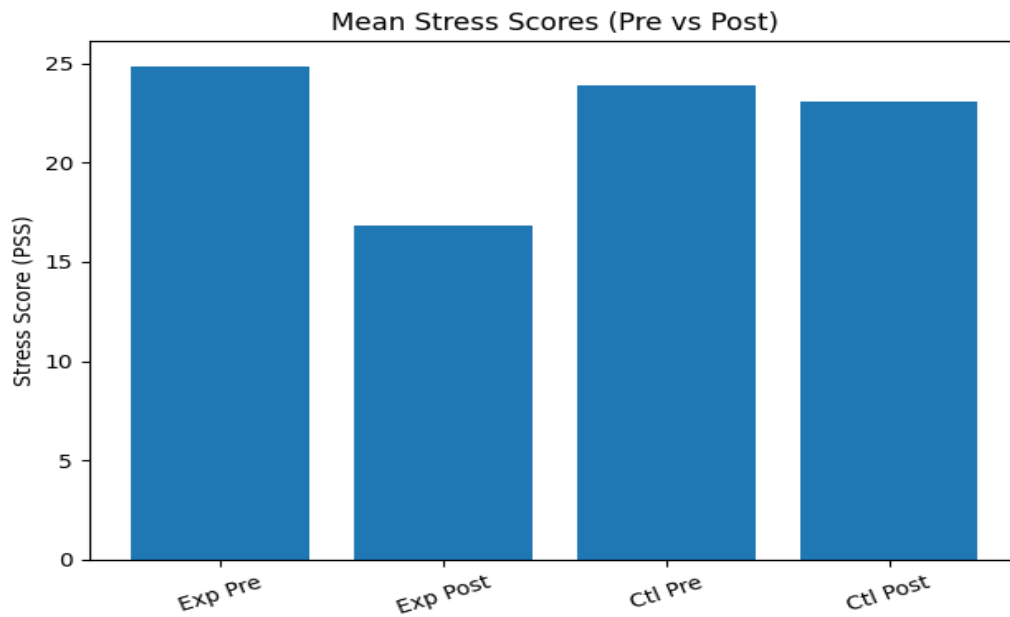
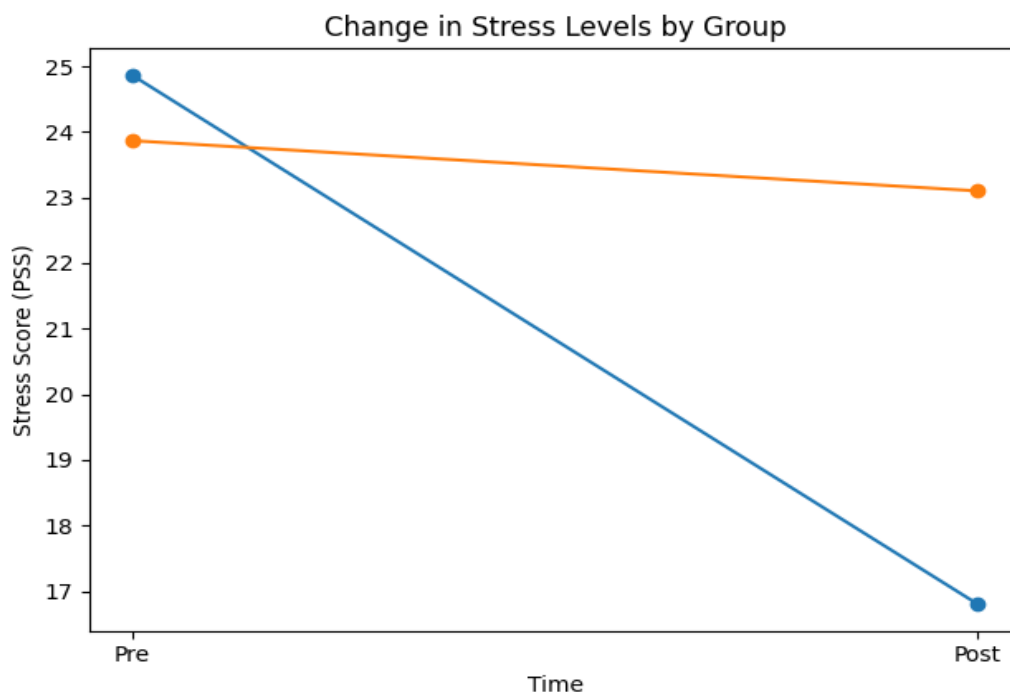


Figure 2. Change in Stress Levels by Group



6. DISCUSSION

The findings of this study clearly demonstrate that the structured yoga programme had a significant impact on reducing stress levels among students in the experimental group. In contrast, the control group showed only minor and statistically insignificant changes, indicating that the observed improvement was directly associated with the intervention.

The substantial mean difference and high statistical significance highlight the effectiveness of yoga as a stress management tool. The large effect size further suggests that the results are not only statistically reliable but also meaningful in practical educational settings. These outcomes align with previous research emphasizing the role of yoga in enhancing mental health and emotional stability.

The effectiveness of yoga can be explained through both physiological and psychological mechanisms. Practices such as pranayama and meditation activate the parasympathetic nervous system, promoting relaxation and reducing stress-related hormonal activity. This leads to improved emotional balance and decreased anxiety levels among students.

Psychologically, yoga encourages mindfulness and self-regulation, allowing students to respond more effectively to academic and social challenges. Improved focus, better emotional control, and reduced mental fatigue are some of the key benefits observed. These improvements contribute indirectly to enhanced academic performance and classroom behavior.

The residential nature of NVS schools adds another dimension to student stress, including separation from family and continuous peer interaction. In such conditions, structured interventions like yoga become particularly valuable. The lack of significant change in the control group reinforces the importance of planned interventions rather than relying on natural adaptation. However, certain limitations should be acknowledged. The study was conducted on a relatively small sample, and the duration was limited to eight weeks. Future research should consider larger samples, longer intervention periods, and additional psychological variables to strengthen the findings.

7. CONCLUSION

The study concludes that an 8-week structured yoga programme is highly effective in reducing stress among residential school students of Navodaya Vidyalaya Samiti. The significant improvement observed in the experimental group confirms the practical value of yoga as a stress management strategy. Yoga not only enhances physical health but also strengthens emotional stability, concentration, and psychological resilience. In residential school environments, where students face multiple stressors, yoga serves as an important supportive practice.

The results strongly support the inclusion of yoga in the daily schedule of schools. Integrating such holistic practices can contribute to creating a balanced educational environment that promotes both academic success and mental well-being.

8. RECOMMENDATIONS

Based on the findings of the study, the following recommendations are proposed:

1. **Integration of Yoga into Daily Routine:**

Yoga should be incorporated as a compulsory or regular activity in the daily schedule of NVS schools to promote mental and physical well-being among students.

2. **Training of Physical Education Teachers:**

Physical education teachers should be provided with specialized training in yoga instruction to ensure proper implementation and supervision of yoga programmes.

3. **Regular Monitoring of Student Mental Health:**

Schools should establish systems for periodic assessment of students' stress levels and overall mental health, enabling early identification and intervention.

4. **Development of Structured Yoga Modules:**

Standardized yoga modules tailored for different age groups should be developed and implemented across NVS schools.

5. **Longitudinal Implementation:**

Yoga programmes should be extended over longer durations to study their sustained impact on stress management, academic performance, and personality development.

6. **Integration with Sports and Physical Education:**

Yoga should be combined with existing physical education and sports programmes to provide a comprehensive approach to student development.

7. **Further Research:**

Future studies should explore gender differences, age variations, and the comparative effectiveness of yoga versus other stress management techniques.

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