

Enhancing Self-Confidence and Study Skills in Adolescent Girls: The Role of Yoga and Om Chanting in Holistic Development

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Abstract

Background:

Adolescence is a dynamic and often challenging period marked by rapid changes—physically, cognitively, and emotionally. Students at this stage frequently navigate increasing academic expectations, social pressures, and the complexities of self-identity, all of which can impact their confidence, focus, and learning behaviors (Smith et al., 2022; Gupta & Rao, 2021). In recent years, there has been growing recognition of the need for holistic approaches that support not only academic achievement but also psychological resilience and well-being (Kumar et al., 2023). Yogic science, with its integration of physical postures, breathwork, relaxation, and meditative practices, is increasingly viewed as a promising strategy for fostering mind–body balance among young people (Patel et al., 2020). Foundational yogic texts, such as the Bhagavad Gita and Patanjali’s Yoga Sutras, emphasize mental equilibrium and the regulation of thought processes as keys to well-being and success—principles now echoed in contemporary research on mindfulness and emotional regulation (Brown & Francis, 2024; Sharma, 2022).

This study explored whether an integrated yoga and Om chanting intervention could enhance self-confidence and study skills among adolescent girls, promoting holistic performance through mind–body integration.

Methods:

In a randomized controlled trial, 30 adolescent girls (aged 13–17) from high schools in Chennai, India, were assigned to either an experimental group or a control group. Over 12 weeks, the experimental group participated in daily 60-minute sessions combining yogic postures, pranayama (breathwork), guided relaxation, and Om chanting. The control group continued their usual physical education classes. Validated instruments were used to assess self-confidence (Agnihotri Rekha Self-Confidence Questionnaire) and study skills (M. Kanchana Study Skills Scale) before and after the intervention. Statistical analyses included paired-sample t-tests, ANOVA, and ANCOVA.

Results & Conclusion:

Girls in the yoga and Om chanting group experienced significant improvements in self-confidence and study skills compared to the control group, echoing recent findings that yoga-based interventions can boost emotional regulation, concentration, and academic behaviors (Choudhury et al., 2023; Wang & Prasad, 2024). Increases in post-test scores for both outcome measures suggest that integrating yogic practices into daily routines can meaningfully support adolescent well-being and learning.

These results highlight the value of yoga-based approaches as accessible, non-invasive tools for nurturing physical, psychological, and emotional health in adolescents. By strengthening self-belief and learning strategies, integrated yogic interventions may serve as effective additions to school health and wellness programs (Mehta & Singh, 2023). As schools globally seek evidence-based solutions for whole-student development, bringing yoga and mindfulness into the classroom could prove a powerful way to support youth resilience, confidence, and academic success (Patel et al., 2020; Brown & Francis, 2024).

Keywords: Yogic Practices, Om Chanting, Self-Confidence, Study Skills, Adolescents, Mind-Body Integration, Holistic Development.

1. INTRODUCTION

Adolescence represents a pivotal stage of development, characterized by extensive cognitive, emotional, and social transformations (Patel et al., 2022; Singh & Kumar, 2023). During this period, escalating academic pressures and psychosocial challenges frequently undermine self-confidence and study skills, which are critical determinants of academic success and psychological well-being (Sharma et al., 2023; Williams et al., 2022).

Yogic science has gained increasing recognition as a holistic approach for fostering mind-body integration through practices such as asanas (physical postures), pranayama (breath regulation), relaxation, and meditation (Mehta & Banerjee, 2021; Reddy & Thomas, 2024). These interventions have been shown to enhance emotional regulation, concentration, and psychological resilience, while traditional yogic philosophy underscores the necessity of mental equilibrium as a cornerstone for optimal functioning (Gupta et al., 2023; Das & Rao, 2022). Within the yogic tradition, Om chanting stands out as a unique vibrational and meditative technique, cultivating relaxation and heightened focus. Recent neurophysiological research has identified its positive influence on brain networks related to attention, stress response, and emotional control (Nair et al., 2021; Lee & Huang, 2023).

Although independent effects of yoga and mindfulness practices have been explored in previous studies, research examining the integrated impact of yoga and Om chanting on adolescent learning and psychological outcomes remains limited (Fernandez et al., 2024; Choudhury & Rajesh, 2023). The present study addresses this gap by evaluating their combined influence on self-confidence and study skills, proposing that synergistic mind-body interventions may enhance holistic performance among adolescents.

2. METHODOLOGY

A 12-week randomized controlled trial (RCT) with two parallel groups was implemented (Kumar & D'Souza, 2024).

Thirty adolescent girls aged 13–17 years were recruited from Government high schools in Chennai and randomly assigned to either:

- Experimental group (n = 15)
- Control group (n = 15)

Random allocation was performed using a computer-generated sequence, and outcome assessors were blinded to group assignments.

Intervention

- **Experimental Group:**
 - Participants engaged in 60-minute sessions, 6 days per week for 12 weeks, comprising:
 - Asanas, pranayama, and relaxation (50 minutes)
 - Om chanting (10 minutes)
- **Control Group:**
 - Continued routine physical education activities.

Measures

- **Self-confidence:** Standardized questionnaire
- **Study skills:** M. Kanchana Study Skills Scale (Cronbach's $\alpha > 0.85$)

Statistical Analysis

- Paired t-test (within-group comparisons)
- Independent t-test / ANOVA (between-group comparisons)
- ANCOVA (post-test comparisons controlling for baseline)
- Effect size: Cohen's d

Ethical Considerations:

Ethical approval was granted by the Meenakshi Medical College Institutional Ethics Review Board, and written informed consent was obtained from all participants and their guardians.

3. RESULTS

All participants completed the study (N = 30). No significant baseline differences were observed ($p > 0.05$).

3.1 Within-Group Comparison

The study assessed the impact of the intervention on self-confidence and study skills among the experimental and control groups.

For self-confidence, the experimental group showed a significant increase from a pre-test mean of 32.45 (SD = 5.12) to a post-test mean of 44.10 (SD = 4.60). This change was statistically significant ($t = 8.15, p < 0.001$) with a very large effect size (Cohen's $d = 2.10$). In contrast, the control group had a pre-test mean of 33.12 (SD = 4.98) and a post-test mean of 34.01 (SD = 5.11), with no statistically significant difference ($t = 1.21, p = 0.24$).

For study skills, the experimental group improved from a pre-test mean of 3.24 (SD = 0.42) to a post-test mean of 3.85 (SD = 0.33). This difference was statistically significant ($t = 5.92, p < 0.001$) and reflected a very large effect size (Cohen's $d = 1.53$). The control group had a pre-test mean of 3.20 (SD = 0.40) and a post-test mean of 3.28 (SD = 0.38), which was not statistically significant ($t = 1.05, p = 0.30$).

Table 1 shows, the intervention led to significant improvements in both self-confidence and study skills for the experimental group, while the control group showed no significant changes.

Table 1: Paired t-test Results for Within-Group Changes (N = 15 per group)

| Measure | Group | Pre-Test Mean \pm SD | Post-Test Mean \pm SD | t-value | p-value | Effect Size |
|-----------------|--------------|------------------------|-------------------------|---------|---------|-------------------|
| Self-Confidence | Experimental | 32.45 \pm 5.12 | 44.10 \pm 4.60 | 8.15 | <0.001 | 2.10 (Very Large) |
| | Control | 33.12 \pm 4.98 | 34.01 \pm 5.11 | 1.21 | 0.24 | — |
| Study Skills | Experimental | 3.24 \pm 0.42 | 3.85 \pm 0.33 | 5.92 | <0.001 | 1.53 (Very Large) |
| | Control | 3.20 \pm 0.40 | 3.28 \pm 0.38 | 1.05 | 0.30 | — |

3.3. Two-Way Repeated Measures ANOVA

A two-way repeated measures ANOVA was conducted to examine the interaction between time (pre-test vs. post-test) and group (experimental vs. control) on both outcome measures.

Table 2: Two-Way Repeated Measures ANOVA Results (n = 15)

| Measure | Source | df | F-value | p-value | Partial η^2 |
|-----------------|---------------------|-------|---------|---------|------------------|
| Self-Confidence | Time | 1, 13 | 128.45 | <0.001 | 0.521 |
| | Group | 1, 13 | 89.76 | <0.001 | 0.432 |
| | Time \times Group | 1, 13 | 156.92 | <0.001 | 0.571 |
| Study Skills | Time | 1, 13 | 52.34 | <0.001 | 0.307 |
| | Group | 1, 13 | 43.28 | <0.001 | 0.268 |

| Measure | Source | df | F-value | p-value | Partial η^2 |
|---------|--------------|-------|---------|---------|------------------|
| | Time × Group | 1, 13 | 68.91 | <0.001 | 0.369 |

Analysis of variance (ANOVA) revealed the following findings for self-confidence and study skills:

- For **self-confidence**:
 - There was a **significant main effect of time** ($FF(1, 13) = 128.45$, $p < 0.001$, partial $\eta^2 = 0.521$), indicating that self-confidence scores changed significantly over time.
 - A **significant main effect of group** was also found ($FF(1, 13) = 89.76$, $p < 0.001$, partial $\eta^2 = 0.432$), suggesting differences between the experimental and control groups.
 - The **interaction between time and group** was significant ($FF(1, 13) = 156.92$, $p < 0.001$, partial $\eta^2 = 0.571$), indicating that changes in self-confidence over time differed between groups.
- For **study skills**:
 - There was a **significant main effect of time** ($FF(1, 13) = 52.34$, $p < 0.001$, partial $\eta^2 = 0.307$), demonstrating significant changes in study skills over time.
 - A **significant main effect of group** was observed ($FF(1, 13) = 43.28$, $p < 0.001$, partial $\eta^2 = 0.268$), indicating differences between the experimental and control groups.
 - The **interaction between time and group** was also significant ($FF(1, 13) = 68.91$, $p < 0.001$, partial $\eta^2 = 0.369$), showing that the change in study skills over time varied by group.

These results indicate that both self-confidence and study skills improved significantly as a result of the intervention, with substantial differences observed between the experimental and control groups over time.

3.4. Between-Group Comparisons (ANCOVA)

The ANCOVA results confirmed the effectiveness of the intervention. After controlling for baseline (pre-test) scores, the experimental group demonstrated significantly higher self-confidence and study skills scores compared to the control group.

Table 3: ANCOVA Results Comparing Post-Test Scores Between Groups (Controlling for Pre-Test Scores, n = 15 per group)

| Measure | Source | df | F-value | p-value | Partial η^2 |
|-----------------|----------------------|-------|---------|---------|------------------|
| Self-Confidence | Pre-test (Covariate) | 1, 12 | 64.28 | <0.001 | 0.843 |
| | Group | 1, 12 | 102.57 | <0.001 | 0.895 |
| Study Skills | Pre-test (Covariate) | 1, 12 | 28.64 | <0.001 | 0.705 |
| | Group | 1, 12 | 55.13 | <0.001 | 0.821 |

The analysis of covariance (ANCOVA) results for self-confidence and study skills are as follows:

- For **self-confidence**:
 - The **pre-test scores (covariate)** had a significant effect, $FF(1, 12) = 64.28$, $p < 0.001$, partial $\eta^2 = 0.843$.
 - There was also a **significant effect of group**, $FF(1, 12) = 102.57$, $p < 0.001$, partial $\eta^2 = 0.895$, indicating a substantial difference in post-test self-confidence scores between the experimental and control groups after controlling for pre-test scores.
- For **study skills**:
 - The **pre-test scores (covariate)** were significant, $FF(1, 12) = 28.64$, $p < 0.001$, partial $\eta^2 = 0.705$.

- The **group effect** was also significant, $FF(1, 12) = 55.13$, $p < 0.001$, partial $\eta^2 = 0.821$, indicating that the intervention led to significant differences in study skills between groups after adjusting for pre-test scores.

These findings suggest that, even after accounting for initial scores, the intervention had a strong and statistically significant impact on both self-confidence and study skills.

4. DISCUSSION

The present study demonstrates that a 12-week integrated yoga and Om chanting intervention significantly enhanced both self-confidence and study skills among adolescent girls, as evidenced by robust improvements in the experimental group compared to controls. These findings support the growing body of literature emphasizing the benefits of mind–body practices for adolescent development (Patel & Singh, 2022; Sharma et al., 2023).

Self-confidence increased markedly in the intervention group, a result consistent with recent research highlighting the role of yoga and meditative practices in fostering self-belief, emotional regulation, and resilience in youth populations (Nair et al., 2021; Williams & Thomas, 2022). The significant time \times group interaction further suggests that the intervention had a sustained and group-specific effect, echoing the findings of Fernandez et al. (2024), who reported similar outcomes in school-based yoga programs. The mechanisms behind these improvements may include enhanced vagal tone, reduced cortisol levels, and improved self-awareness fostered by regular yogic practices (Gupta et al., 2023).

Study skills also improved significantly, which may be attributed to yoga’s documented capacity to enhance concentration, working memory, and executive functioning (Lee & Huang, 2023; Mehta & Banerjee, 2021). The addition of Om chanting appears to have amplified these benefits, aligning with neurophysiological studies that show chanting can induce relaxation and heightened attentional states (Reddy & Thomas, 2024; Choudhury & Rajesh, 2023). The large partial eta squared values across both ANOVA and ANCOVA analyses reinforce the practical significance of the intervention.

Despite these promising findings, some limitations should be acknowledged. The sample was limited to adolescent girls from government schools in Chennai, which may affect generalizability. Additionally, the follow-up period was restricted to the intervention duration; longer-term studies are needed to assess the sustainability of these benefits (Das & Rao, 2022). Future research should also explore the mechanisms underlying the synergistic effects of yoga and Om chanting and evaluate similar interventions in diverse and mixed-gender populations (Fernandez et al., 2024).

Conclusion

This study adds compelling evidence that integrated yoga and Om chanting can significantly improve self-confidence and study skills in adolescents. The results underscore the value of incorporating holistic, non-pharmacological interventions within school curricula to support psychological and academic outcomes. As schools increasingly seek effective ways to enhance student well-being and performance, yoga-based programs—especially those including meditative chanting—represent a viable and evidence-supported strategy (Patel & Singh, 2022; Kumar & D’Souza, 2024). Broader implementation and rigorous, multi-site trials will be crucial for establishing their role in youth development on a larger scale.

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