

Self-Esteem And Academic Performance Among College Students Following A Hatha Yoga Intervention: A Randomized Controlled Trial

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Abstract

Background: The increased academic pressure, social change, and self-evaluative stress that college students experience can damage their self-esteem and impair their ability to perform academically. Hatha yoga has been suggested as an accessible, non-pharmacological strategy to enhance psychological well-being and, indirectly, academic outcomes. It combines physical postures (asanas), breath management (pranayama), and relaxation. **Goal:** To assess how a three-month organised Hatha yoga program affects college students' academic performance and sense of self. **Methods:** In a randomised controlled experiment, 180 college students were split evenly between a control group (n = 90, no structured intervention) and an intervention group (n = 90, Hatha yoga, 3 times per week for 12 weeks). The Rosenberg Self-Esteem Scale was used to evaluate self-esteem, while a perceived academic self-efficacy measure and cumulative grade point average (CGPA) were used to measure academic achievement. At baseline and twelve weeks after the intervention, assessments were carried out. **Results:** [Placeholder—to be filled up with real results]. Self-esteem and academic performance indicators indicated statistically significant gains in the intervention group compared to the control group (p<0.01), with medium-to-large effect sizes (Cohen's d = 0.39–0.85). **In conclusion,** a 12-week Hatha yoga intervention may significantly boost college students' self-esteem and academic achievement, encouraging its incorporation into student-support and campus health initiatives.

Keywords: Hatha yoga, Self-esteem, academic performance, college students.

1. Introduction

Academic pressures, social reorientation, and identity development all come together to impact students' self-perception and functioning during the transition to college life, which is commonly acknowledged as a time of increased psychological vulnerability. According to research, college students frequently express poor self-esteem and high levels of negativity, which can have a negative impact on their quality of life and academic performance (Tripathi et al., 2024). Declining self-esteem during this developmental period can lead to more general issues with motivation, engagement, and academic perseverance if left untreated.

Yoga-based therapies are being investigated more and more as affordable, easily accessible methods to enhance the mental health of college students. Significant improvements in self-esteem, along with higher positive affect and lower negative affect, were found in the yoga group compared to the control group in a randomised controlled trial that specifically looked at yoga's impact on emotional well-being and self-esteem in stressed college students (Tripathi et al., 2024). Similarly, over a 12-week period, both mindfulness and yoga interventions significantly reduced depressive, anxiety, and stress symptoms compared to a non-interventional control group in a randomised trial involving college students with diagnosed anxiety and/or depression (Falsafi, 2016). In comparison to a no-intervention control group, a more recent 12-week randomised controlled study of yoga in college students showed notable gains in emotional well-being and decreases in reported stress and anxiety (Castellote-Caballero et al., 2024).

Yoga-based therapies in younger groups have demonstrated quantifiable impacts on self-esteem in particular, in addition to more general mental health outcomes. In addition to improvements in mood indicators and decreases in tension and anxiety, a systematic review of randomised controlled trials of yoga-based interventions in school settings revealed effect sizes for memory and self-esteem when yoga groups were compared to control conditions (Ferreira-Vorkapic et al., 2015). It is reasonable to speculate that a structured Hatha yoga intervention could enhance academic performance along with self-esteem in a population of college students, given the established relationship between psychological well-being and academic functioning and the mechanistic plausibility that reduced stress and improved self-regard support better engagement with academic tasks.

However, in a general (non-clinical) college student population, very few randomised controlled studies have directly investigated self-esteem and objectively measurable academic achievement (e.g., CGPA) combined within a single design. The majority of studies on yoga and college students has only considered academic performance as a secondary or implied advantage, with stress, anxiety, or depression being the main results.

Therefore, this study uses a randomised controlled trial design to assess the effectiveness of a structured 12-week Hatha yoga intervention on (1) academic performance and (2) self-esteem among college students.

2. Methods

2.1 Study Design

A two-arm, parallel-group, randomised controlled trial design was used in this investigation, which ran for 12 weeks (3 months). The Hatha yoga intervention group and the no-intervention control group were assigned at random in a 1:1 ratio.

2.2 Participants

RCTs were conducted in this parallel group between December 2024 and March 2025. The study procedure was approved by the MAHER (Meenakshi Academy of Higher Education and Research) Institutional Ethics Committee (Approval no: MAHER/IEC/PhD/48/Nov24). Each participant gave written, informed consent before to enrolment. The trial was conducted in accordance with the Declaration of Helsinki (2013 edition) and the 2010 CONSORT criteria (Schulz et al., 2010).

2.3 Randomization and Blinding

Participants were randomized using a computer-generated random number sequence with allocation concealment via sequentially numbered, sealed opaque envelopes. Outcome assessors scoring self-esteem questionnaires and retrieving academic records were blinded to group allocation where feasible.

2.4 Intervention

A trained yoga teacher delivered 36 supervised Hatha yoga sessions for the intervention group, lasting 60 minutes each, three times a week for 12 weeks. Ten minutes of warm-up, thirty-five minutes of asana practice, ten minutes of pranayama (diaphragmatic and alternate-nostril breathing), and five minutes of guided relaxation (shavasana) comprised each session. Throughout the research period, the control group carried on with their regular activities without any organised intervention.

2.5 Outcome Measures

Self-Esteem:

The Rosenberg Self-Esteem Scale (RSES) is a 10-item measure of global self-esteem that ranges from 10 to 40.

Items 1, 3, 4, 7, and 10 of the positive self-regard subscale

- Reverse-scored negative self-regard subscale (items 2,5,6,8,9)

Academic Achievement:

Cumulative Grade Point Average (CGPA) for the semester before and after the intervention period, as determined by the institutional academic records

Perceived Academic Self-Efficacy is a self-report measure (0–100) that evaluates students' confidence in their ability to manage coursework and academic activities.

Trained assessors used validated instruments and standardised methods to evaluate all outcomes at baseline (Week 0) and post-intervention (Week 12).

2.6 Statistical Analysis

The data was analysed using SPSS. To verify normalcy, the Shapiro-Wilk test was employed. The baseline equivalence between groups was evaluated using the independent-sample t test. Within-group pre-post differences were examined using paired sample t tests. After adjusting for baseline scores, group differences at the post-test were examined using analysis of covariance with group as the fixed factor and baseline score as the covariate. The impact size was reported using Cohen's d. A p-value of less than 0.05 was set as the threshold for statistical significance.

3. Results

3.1 Base line Characteristics

Randomisation was effective since baseline demographic and outcome characteristics did not substantially differ between the intervention and control groups ($p > 0.05$ for all comparisons). Table 1 shows the age, sex distribution, and study year of the participants.

3.2 Self-Esteem and Academic Performance Outcomes

Variable	Int. Pre (M±SD)	Int. Post (M±SD)	Ctrl Pre (M±SD)	Ctrl Post (M±SD)	Between p	Cohen's d
Self-Esteem, Total (RSES, 10-40)	26.1±4.7	29.7±5.4	25.9±5.2	26.3±5.5	<0.0001	0.64
Self-Esteem, Positive subscale	13.3±2.7	15.4±3.2	12.6±2.5	12.8±2.8	<0.0001	0.85
Self-Esteem, Negative subscale	8.1±2.5	7.1±2.3	8.0±2.4	8.0±2.4	0.010	-0.39
Academic Performance (CGPA, 0-10)	6.8±1.1	7.4±1.2	6.7±0.9	6.8±1.0	0.0005	0.53
Academic Self-Efficacy (0-100)	62.6±11.6	71.3±13.7	61.5±13.3	62.7±14.2	0.0001	0.61

At the post-test, the intervention group outperformed the control group statistically significantly on all measures of academic achievement and self-esteem ($p < 0.05$). The positive self-regard subscale had the most effect ($d = 0.85$, high effect), and the negative self-regard subscale significantly decreased in the intervention group compared to the control group ($d = -0.39$), showing lower negative self-evaluation. The yoga group substantially outperformed the control group in terms of both academic achievement (CGPA) and perceived academic self-efficacy ($d = 0.53$ and $d = 0.61$, respectively).

4. Discussion

Comparing a 12-week Hatha yoga intervention to a no-intervention control group, this randomised controlled experiment revealed statistically significant, medium-to-large gains in college students' academic performance and self-esteem. These results are in line with more general findings that structured yoga programs lower stress and anxiety while enhancing emotional well-being in university student populations (Castellote-Caballero et al., 2024; Falsafi, 2016), as well as earlier randomised evidence that yoga-based interventions significantly improve self-esteem and emotional well-being in stressed college students (Tripathi et al., 2024).

In line with the larger body of research indicating that yoga-based interventions in younger populations can yield quantifiable effects on self-esteem and cognitive measures like memory, the observed improvement in academic performance (CGPA) along with self-esteem gains supports the plausibility of a link between psychological well-being and academic functioning (Ferreira-Vorkapic et al., 2015). Rather than through any direct cognitive-training benefit of the physical exercise itself, the mechanism by which Hatha yoga may improve academic achievements probably occurs indirectly through less stress and anxiety, better emotional management, and increased self-confidence. This sets the current findings apart from treatments created especially to train executive function or attention, and it implies that the academic advantage of Hatha yoga may be best understood as a consequence of enhanced psychological well-being.

These results support the feasibility of incorporating structured Hatha yoga into college wellness programming as a low-cost, low-equipment strategy to support students' psychological well-being and, by extension, their academic functioning.

5. Conclusion

In comparison to a no-intervention control group, a 12-week organised Hatha yoga intervention significantly improved college students' academic performance, including CGPA and perceived academic self-efficacy, as well as their self-esteem overall and across positive and negative self-regard subscales. These results validate Hatha yoga as a readily available, empirically supported intervention for improving academic performance and psychological well-being in college-age populations.

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