

# Innovations

## **Predictive Role of Socioeconomic Status and Test Anxiety in Academic Achievement: Evidence of Hatayoga and Psychological Counselling as Interventions among Undergraduate Students**

<sup>1</sup> Dr. Partha Malakar; <sup>2</sup> Ishika Chowdhury

<sup>1</sup> Assistant Professor, <sup>2</sup> Research Scholar

<sup>1</sup> Department of Psychology, South Calcutta Girls' College Kolkata, India

<sup>2</sup> Department of Applied Psychology, University of Calcutta, India

Corresponding Author: **Dr. Partha Malakar**

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**Abstract:** Socioeconomic limitations and psychological stress was found to have a strong impact on academic performance in Indian higher education but little research has been done to understand how socioeconomic status (SES) and test anxiety together affect achievement or how structured interventions such as hatayoga and psychological counselling interventions would buffer these effects. This gap was bridged with this study that explored SES and test anxiety as predictors of academic achievement in undergraduate students and the presence of hatayoga and psychological counselling in affecting these associations. The sample size was 325 students of 12 colleges in Kolkata and was measured with the Updated Kuppuswamy SES Scale, Test Anxiety Scale, and academic scores were measured through SGPA. The participants were classified into intervention group (yoga + counselling) and non-intervention group. Simple and multiple regression analysis revealed that in both groups SES and test anxiety were significant predictors of academic achievement though the predictive power was significantly lower in the students who were subjected to hatayoga and counselling. In the case of non-intervention participants, SES and test anxiety allowed explaining up to 77 percent of the achievement variance, whereas in the case of intervention participants, it reached 36 percent, which serves as a buffering effect of the interventions. These results indicate that mind-body techniques in combination with counselling improve emotional regulation and cognitive stability, which eliminates the drawback of low SES and high test anxiety. The research suggests that hatayoga and counselling programmes should be incorporated into the systems of higher learning to achieve more fair academic results.

**Keywords:** Socioeconomic Status, Test Anxiety, Academic Achievement, Hatayoga, Psychological Counselling, Undergraduate Students

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## 1. Introduction

Academic success has traditionally been the focal point of Indian higher education, especially in undergraduate stage, with grades and cumulative GPAs being the focal point on which the employability, postgraduate degree and social mobility depends. As the competition increases and the students start enrolling in mass, academic attainment has become a personal as well as a social priority. Nonetheless, the result of performances is conditioned not only by the intellectual ability but also socioeconomic and psychologic elements that can affect the learning process and stress levels of students (Deb et al., 2015).

Of these, socioeconomic status (SES) continues to be a prevailing structural factor of educational achievement in India. SES, which is determined by family income, educational levels of parents, and jobs, determines the availability of learning materials, standards of learning institutions and facilitation. Higher-SES students enjoy higher educational stability whereas lower-SES ones typically experience financial instability, overcrowding of the learning settings, and fewer academic opportunities, which heighten not only the students' performances but also emotional distress (Daraei, 2013; Misra & Castillo, 2004). Students may also have their self-efficacy and emotional strength affected by economic pressures, and thus become less engaged and successful in their studies (Sucuoglu, 2018), which can make students anxious and worrisome.

In line with this, test anxiety as a state of anticipatory tension in the form of worry and physiological arousal has always been associated with worse academic performance. The Attentional Control Theory (Eysenck, 2007) suggests that anxiety interferes with working memory and attention control redirecting cognitive resources away to intrusive worrying. Both Indian and international research has revealed that students who are highly anxious have poor concentration, memory lapses, and poor academic results (Deb et al., 2015; Putwain & von der Embse, 2021). Also, SES and anxiety are often interrelated: low-SES students are often under pressure to perform and lack self-efficacy, which exacerbates the test anxiety and expands academic inequalities (Faiza & Daud, 2023; Sucuoglu, 2018).

### 1.1 Hatayoga as an Intervention

Considering these combined issues, stress-reducing interventions and reinforcement of cognitive-emotional regulation are of growing interest. On par with Indian culture, hatayoga- a combination of asana, pranayama and meditative awareness- has been known to have psychological stability effects. It has been pointed out through reviews that yogic practices minimized physiological arousal, improves emotional regulation and general mental well-being (Field, 2011). There are psychological and cognitive advantages of yoga, such as enhanced attention, memory and decreased anxiety, as seen among various groups of students (Parajuli et al., 2022; Castellote-Caballero et al., 2024). It is possible to explain these effects using the Psycho physiological Model of Stress

Regulation that assumes that such a practice of controlled breathing and mindful bodily awareness shift autonomic functioning to the dominance of parasympathetic activity and, thus, decrease arousal and increase cognitive control processes, which are directly related to improved academic functioning (Sahasi et al., 1989). It has also been seen to be associated with high GABA levels which in turn related to acute stress response (Benvenuti et al, 2017).

According to classical yogic philosophy, the Yoga Sutras by Patanjali define yoga as a means of settling mental fluctuations (chitta-vritti-nirodhah) implying that mental steadiness comes about when the mind stops worrying and being tense about things that are not necessary (Adampou & Pandya, 2025). This conceptual model is closely associated with the evidence that yogic practices decline cognitive rumination, enhance attentional stability, and also enhance emotional stability as well. The empirical literature has shown the same results: yogic practices decrease academic stress levels and enable the cognitive clarity, enabling students to cope with the evaluation pressure more efficiently (Parajuli et al., 2022). The psycho physiological action of yoga such as better autonomic balance, less sympathetic activation, and better emotional regulation makes yoga a potential intervention to deal with test anxiety and school problems (Sahasi et al., 1989).

### **1.2 Intervention in the form of Psychological Counselling**

In compliment to hatayoga, psychological counselling also offers the students cognitive and emotional skills to restructure their negative thoughts and acquire healthier coping mechanisms. The theoretical basis of this approach is the Cognitive Behavioural Theory that suggests that the change in maladaptive thoughts decreases the level of distress in emotions and increases the behavioural outcome (Beck, 1976). Research shows that counselling decreases academic stress, improves self-efficacy, and empowers emotional regulation in students in higher education (Park et al., 2017; Finkelstein et al, 2018). Furthermore, Stress and Coping Theory focuses on the fact that how individuals perceive stress, depends on the perceived coping skills; counselling enhances such perceptions by establishing problem solving skills and emotional intelligence (Lazarus & Folkman, 1984).

Counselling combined with yoga provides physiological relaxation and cognitive restructuring, and forms a holistic approach to the management of anxiety related to academic matters (Park et al., 2017). Yoga increases physiological peace and attentional stability, whereas counselling helps to develop better meta cognition, emotional sensitivity, and self-belief. This synergistic effect has been supported by intervention studies, including those that demonstrate that there is a significant stress reduction, attention, and academic outcomes (Park et al., 2017; Nwidi et al., 2025). These integrative strategies could lower dependence on socioeconomic advantage as they calm student's anxiety and enhance focus.

Based on this, a range of empirical research has also investigated the ability of structured interventions to alleviate anxiety and enhance the academic performance. As an example, Dreisbach (2017) implemented *The Effects of a Classroom-Based Yoga Intervention on Test Anxiety, Academic Performance, and Attention in Third-Grade Students*, in which the study sample was 44 students split into the intervention and control groups. The intervention group was presented with a six week yoga program which involved breathing activities, physical poses as well as relaxation exercises prior to mathematics classes. The results revealed that the program led to a big decrease in test anxiety and an increase in academic performance which shows the importance of yoga as a stress reducing effectiveness and academic learning tool, even in younger students.

On the same note when generalizing the evidence base to other countries, in their article entitled *Impact of Cognitive-Behavioural Therapy and Mindfulness-Based Stress Reduction in Mitigating Test Anxiety and Enhancing Academic Achievement among Vocational Education Students in Nigeria Universities*, Nwadi and Edeh (2022) utilized a randomized control trial and sampled 483 participants. Their findings indicated that CBT-grounded and MBSR-grounded programs of anxiety-reduction were very effective in reducing test anxiety and enhancing academic performance. These results strengthen the universal applicability of interventions - cognitive-behavioural or mindfulness-based - to emotional obstacles to learning and enhance education outcomes.

In the literatures, anxiety has been identified everywhere as a major factor of poor performance in academics but these studies still have gaps to fill. First of all, the existing literature dwells upon internal features but not the structural (e.g. socioeconomic conditions) ones. This paper will deal with this using an independent variable, which is the Socioeconomic Status (SES) and in conjunction with test anxiety. Whereas in the past literatures the outcomes included lower level behavioural impacts e.g. academic procrastination, in our research paper; the dependent variable has been extended to the broader and more significant outcome of Academic Achievement.

In spite of these observations, few studies have been conducted to determine the combined effects of SES and test anxiety on academic performance, especially among the undergraduate Indian group. A number of available researches focus on SES and anxiety individually, but not a combination of economic disadvantage and psychological stress as factors influencing performance (Deb et al., 2015). Minute focus has also been made as to whether strategies such as the hatayoga and the psychological counselling can compensate these drawbacks. With educational access and access to resources in the Indian context strongly dependent on SES, it is vital to understand how both financial and social disadvantage lead to psychological strain.

Thus, the current research aims at studying the direct predictors of academic performance as socioeconomic status and test anxiety, and the possibility of alteration of these associations through the involvement in hatayoga and

psychological counselling to overcome the adverse social disadvantage effects and anxiety related to performance.

### **1. Research objective**

To study the predictive role of socioeconomic status and test anxiety in Academic Achievement among undergraduate students who are practicing hatayoga and psychological counselling in combination.

### **2. Hypotheses**

**Hypothesis 1:** Socioeconomic Status does not predict Test Anxiety among participants undergoing Hatayoga and Psychological Counselling.

**Hypothesis 2:** Socioeconomic Status does not predict Test Anxiety among participants who were not part of Hatayoga and Psychological Counselling programs.

**Hypothesis 3:** Test Anxiety does not predict Academic Achievement among participants undergoing Hatayoga and Psychological Counselling.

**Hypothesis 4:** Test Anxiety does not predict Academic Achievement among participants who were not part of Hatayoga and Psychological Counselling programs.

**Hypothesis 5:** Socioeconomic Status does not predict Academic Achievement among participants undergoing Hatayoga and Psychological Counselling.

**Hypothesis 6:** Socioeconomic Status does not predict Academic Achievement among participants who were not part of Hatayoga and Psychological Counselling programs.

**Hypothesis 7:** Socioeconomic Status and Test anxiety do not jointly predict academic achievement among participants undergoing Hatayoga and Psychological Counselling.

**Hypothesis 8:** Socioeconomic Status and Test anxiety do not jointly predict academic achievement among participants who were not part of Hatayoga and Psychological Counselling programs.

### **3. Participants**

To begin with, the officials of different undergraduate colleges in different areas of Kolkata city were approached and out of these, 12 colleges were eventually shortlisted. Initially, 420 learners (male and female) pursuing the CCF system of the New Education Policy at the University of Calcutta were contacted, and finally, 325 students were chosen after the inclusion and exclusion criteria.

The chosen subjects signed written consent forms following the assurance that their information would not be disclosed to any third party and that they could pull out of the study at any time provided that they wanted to quit participating in the study. Mentor teachers of the respective colleges were used to form two groups of students with one group having students who attended hatayoga and psychological counselling sessions and the other group having students who did not attend these sessions in their respective colleges.

The final sample consisted of students who were in the middle to upper-lower socioeconomic classes, according to the Updated and Modified Kuppuswamy Socio-Economic Status Scale (Mandal & Hossain, 2024). Students who attended only either of the hatayoga sessions or psychological counselling sessions was not included. There was also the assurance that the participants who were selected did not have any severe physical or psychological illnesses. Also, the results they obtained (via SGPA) ensured that all the participants had passed their last semester examinations.

#### **4. Tools**

Data were collected using the following tools:

The researcher had to prepare an information schedule before data collection and final sample selection to obtain necessary demographic, familial, and personal information.

The Updated and Modified Kuppuswamy Socio-Economic Status Scale (Mandal & Hossain, 2024) was used to identify the socioeconomic status of the family of the participants. The scores were initially derived under the subheads of Education, Occupation, and Income and added up to obtain the total SES score of each participant. This scale is valid and reliable and can be completed within a few minutes.

The Test Anxiety Scale created by Dr. V. P. Sharma (2009) was employed to assess the degree of test anxiety in the participants. This scale is a 25-item scale that is easy to administer and score. According to the received scores, the levels of test anxiety were the following: 0-7 (Normal), 8-10 (Mild Anxiety), 11-14 (Moderate Anxiety) and 15-21 (Severe Anxiety). It is a valid and reliable scale that takes less than 30 minutes to complete. In this case, the scale was translated and back translated into Bengali so that it is clear and understood in the process of data collection.

In order to determine the academic performance, the total marks of the participants and their Semester Grade Point Average (SGPA) were initially gathered. The SGPA scores obtained were then converted to percentages to use the same as the measure of academic achievement in the current study.

#### **5. Procedure and Analysis**

The study participants were approached and recruited after the specified inclusion and exclusion criteria after obtaining the consent of the authorities of the

involved colleges. The list of final participants was made ready and informed by their respective mentor teachers. Next, the appointments were made with the chosen students, and the written consent was received to ensure their active participation in the study, and they could abandon it at any point.

The selected study tools were then used to collect data and the participants were grouped into small groups of not more than 25 students. After the data collection was completed, the responses were arranged and inputted into Microsoft Excel after which the data was inputted into SPSS version 23 to be statistically analyzed. Inferential statistics involved the analyses of descriptive statistics and regression analysis to test the relationship between the variables of the study.

## 6. Results

Simple linear regression analysis was initially conducted between the relevant predictor and criterion variable for participants undergoing hatayoga and psychological counselling and for participants those who are not undergoing hatayoga and psychological counselling to determine the tenability of the hypotheses. The results of the analysis are presented hereunder. (\*\* indicates significance at  $p=0.000$  level).

**Table 1: Simple Linear Regression of Socioeconomic status as predictor and Test anxiety as criterion variable for participants undergoing hatayoga and psychological counselling**

R value	R square	Adjusted R square	F	Significance
0.22	0.05	0.04	5.1	0.000**

Model	Standardised coefficients beta	t	Significance
Socioeconomic status	-0.18	-2.2	0.000**

Table shows that socioeconomic status significantly predicts test anxiety among participants undergoing hatayoga and psychological counselling,  $F(1, 100) = 5.10$ ,  $p < .001$ . The model explains 5% of the variance in test anxiety, with an adjusted  $R^2$  of .04, indicating a weak but significant relationship.

Socioeconomic status was a negative predictor of test anxiety ( $\beta = -.18$ ,  $t = -2.20$ ,  $p < .001$ ), suggesting that participants with higher socioeconomic status reported slightly lower levels of test anxiety.

**Table 2: Simple Linear Regression of Socioeconomic status as predictor and Test anxiety as criterion variable for participants not undergoing hatayoga and psychological counselling**

R value	R square	Adjusted R square	F	Significance
0.55	0.30	0.27	45.9	0.000**

Model	Standardised coefficients beta	t	Significance
Socioeconomic status	-0.48	-6.8	0.000**

Table shows that socioeconomic status significantly predicts test anxiety among participants not undergoing hatayoga and psychological counselling,  $F(1, 215) = 45.9, p < .001$ . The model explains 30% of the variance in test anxiety, with an adjusted  $R^2$  of .27, indicating a moderate and meaningful relationship.

Socioeconomic status was a significant negative predictor of test anxiety ( $\beta = -.48, t = -6.80, p < .001$ ), suggesting that participants with lower socioeconomic status experienced considerably higher test anxiety compared to those with higher SES.

**Table 3: Simple Linear Regression of Test Anxiety as predictor and Academic Achievement as criterion variable for participants undergoing hatayoga and psychological counselling**

R value	R square	Adjusted R square	F	Significance
0.32	0.10	0.08	10.2	0.000**

Model	Standardised coefficients beta	t	Significance
Test anxiety	-0.27	-3.2	0.000**

Table shows that test anxiety significantly predicts academic achievement among participants undergoing hatayoga and psychological counselling,  $F(1, 100) = 10.2, p < .001$ . The model explains 10% of the variance in academic achievement, with an adjusted  $R^2$  of .08, indicating a weak but significant negative relationship.

Test anxiety was a negative predictor of academic achievement ( $\beta = -.27, t = -3.20, p < .001$ ), suggesting that as test anxiety increased, academic performance tended to decrease slightly; however, the weak association indicates that yoga and counselling may have buffered the negative impact of anxiety on performance.

**Table 4: Simple Linear Regression of Test Anxiety as predictor and Academic Achievement as criterion variable for participants not undergoing hatayoga and psychological counselling**

R value	R square	Adjusted R square	F	Significance
0.81	0.65	0.63	170.4	0.000**

Model	Standardised coefficients beta	t	Significance
Test anxiety	-0.78	-13.1	0.000**

Table shows that test anxiety strongly predicts academic achievement among participants not undergoing hatayoga and psychological counselling,  $F(1, 215) = 170.4, p < .001$ . The model explains 65% of the variance in academic achievement, with an adjusted  $R^2$  of .63, indicating a very strong and significant negative relationship.

Test anxiety was a highly significant negative predictor of academic achievement ( $\beta = -0.78, t = -13.10, p < .001$ ), suggesting that higher test anxiety led to a substantial decline in academic performance.

**Table 5: Simple Linear Regression of Socioeconomic status as predictor and Academic Achievement as criterion variable for participants undergoing hatayoga and psychological counselling**

R value	R square	Adjusted R square	F	Significance
0.50	0.25	0.24	25.4	0.000**

Model	Standardised coefficients beta	t	Significance
Socioeconomic status	+0.42	5.0	0.000**

Table shows that socioeconomic status significantly predicts academic achievement among participants undergoing hatayoga and psychological counselling,  $F(1, 100) = 25.4, p < .001$ . The model explains 25% of the variance in academic achievement, with an adjusted  $R^2$  of .24, indicating a moderate positive relationship.

Socioeconomic status was a significant positive predictor of academic achievement ( $\beta = +0.42, t = 5.00, p < .001$ ), suggesting that students from higher socioeconomic backgrounds performed better academically.

**Table 6: Simple Linear Regression of Socioeconomic status as predictor and Academic Achievement as criterion variable for participants not undergoing hatayoga and psychological counselling**

R value	R square	Adjusted R square	F	Significance
0.84	0.70	0.70	160.2	0.000**

Model	Standardised coefficients beta	t	Significance
Socioeconomic status	+0.79	12.6	0.000**

Table shows that socioeconomic status significantly predicts academic achievement among participants not undergoing hatayoga and psychological counselling,  $F(1, 215) = 160.2, p < .001$ . The model explains 70% of the variance in academic achievement, with an adjusted  $R^2$  of .70, indicating a very strong and meaningful positive relationship.

Socioeconomic status was a strong positive predictor of academic achievement ( $\beta = +.79, t = 12.60, p < .001$ ), suggesting that students from higher socioeconomic backgrounds achieved significantly better academic results when not engaged in hatayoga or counselling practices.

After simple linear regression analysis multiple regression analysis was conducted between the relevant predictors and criterion variable. Socioeconomic Status and Test Anxiety were considered the predictor variables and Academic Achievement was considered the criterion variable. (\*\* indicates significance at  $p=0.000$  level).

**Table 7: Multiple regression analysis of Socioeconomic Status and Test Anxiety as predictor variables and Academic Achievement as a criterion variable**

R value	R square	Adjusted R square	F	Significance
0.60	0.36	0.34	27.1	0.000**

Model	Standardised coefficients beta	t	Significance
Socioeconomic status	+0.35	4.1	0.000**

Model	Standardised coefficients beta	t	Significance
Test Anxiety	-0.24	-2.8	0.000**

Table shows that socioeconomic status and test anxiety together significantly predict academic achievement among participants undergoing hatayoga and psychological counselling,  $F(2, 99) = 27.1, p < .001$ . The model explains 36% of the variance in academic achievement, with an adjusted  $R^2$  of .34, indicating a moderate overall effect.

Socioeconomic status was a significant positive predictor ( $\beta = +.35, t = 4.10, p < .001$ ), while test anxiety was a significant negative predictor ( $\beta = -.24, t = -2.80, p < .001$ ).

**Table 8: Multiple regression analysis of Socioeconomic Status and Test Anxiety as predictor variables and Academic Achievement as a criterion variable**

R value	R square	Adjusted R square	F	Significance
0.88	0.77	0.76	352.4	0.000**

Model	Standardised coefficients beta	t	Significance
Socioeconomic status	+0.62	10.9	0.000**

Model	Standardised coefficients beta	t	Significance
Test anxiety	-0.55	-11.4	0.000**

Table shows that socioeconomic status and test anxiety together significantly predict academic achievement among participants not undergoing hatayoga and psychological counselling,  $F(2, 214) = 352.4, p < .001$ . The model explains 77% of the variance in academic achievement, with an adjusted  $R^2$  of .76, indicating a very strong overall effect.

Socioeconomic status was a strong positive predictor ( $\beta = +.62, t = 10.90, p < .001$ ), whereas test anxiety was a strong negative predictor ( $\beta = -.55, t = -11.40, p < .001$ ).

Simple linear regression indicated that the relationship between socioeconomic status, test anxiety and academic achievement in yoga participants were far weaker than in those in the non-yoga group. This buffering effect was also further substantiated using multiple regressions whereby the yoga group indicated moderate predictive power whilst the non-yoga group indicated a very strong reliance of SES and anxiety to academic performance.

Therefore, from the result analysis it can be stated that all the hypotheses tested for this study were rejected.

## **7. Discussion**

### **8.1 Socioeconomic Status and Test Anxiety**

The outcomes showed that there is a strong negative correlation between socioeconomic status (SES) and test anxiety in the two groups. However, for subjects receiving hatayoga and psychological counselling, SES was a weak negative predictor of test anxiety whereas a better predictor among participants who were not administered with hatayoga or counselling.

With respect to interpretation, this trend suggests that hatayoga and psychological counselling can be used as psycho-physiological balancers-reducing the emotional differences associated with economic variations. This present study is corroborated by the study of Deb et al. (2015), which shows, learners with low social economic status tend to have high levels of academic stress in India because of the financial pressure, resource inaccessibility, and family pressure. The combination of hatayoga and counselling probably equipped the students with the tools of self-regulation (breath awareness, mindfulness, and cognitive reframing), which are helpful in managing the anxiety irrespective of the economic status.

This observation is consistent with the Stress and Coping Theory by Lazarus and Folkman (1984), which states that people who engage in adaptive coping styles would be able to redefine stressors in a more positive way. Yoga improves parasympathetic stimulation and self-awareness upon the body (Sahasi et al., 1989), and counselling improves cognitive restructuring-cumulative to coping appraisal and lessened perceived danger of academic examination. As a result, the association of SES and test anxiety dilutes because the coping capabilities prevail over socioeconomic deprivation.

The same findings were provided by the study of Telles et al. (2019), which concluded that yoga interventions decreased anxiety and enhanced emotional stability in Indian college students who belong to various SES groups. It also emphasized that yoga practiced students exhibited reduced physiological arousal and increased confidence of the exam, regardless of their background.

Practically, the findings highlight the buffering effect of yoga and counselling where the low-SES students acquire psychological resources that offset the structural disparities.

### **8.2 Test Anxiety and Academic Achievement**

Test anxiety was found to have weak negative prediction of academic achievement amongst participants who had gone through hatayoga and psychological counselling, however, significantly greater prediction in those who were not experiencing yoga or counselling. These results reveal clearly that hatayoga and counselling had significant buffering effects on the adverse effects of anxiety on academic performance so that the participants could continue to achieve more consistently under the emotional distress.

Test anxiety is a widespread issue in Indian educational system of higher education and in particular competitive academic systems, which focus on rote performance and social comparison. The fear of failure, social judgement and pressure of family are often internalized by students and sabotage cognitive efficiency in exams (Deb et al., 2010). The lower predictive ability of anxiety in the yoga-counselling group suggests that these form of interventions provided students with emotional stability and control of attention, which reduces the cognitive interference that normally comes hand in hand with test anxiety.

Consistent yogic exercises (pranayama and asana) enhance self-regulation of the body and minimize physiological hyper arousal (Telles et al., 2013; Parajuli et al., 2022). To complement it, the psychological counselling provided through cognitive-behavioural principles allows students to rethink the evaluative situations to be less threatening and more constructive (Beck, 1976; Park et al., 2017). The combination of these practices leads to the improvement of emotional stability, attentional control, and the memory processes, which allows learners to stay attentive and remember information successfully in examinations (Sahasi, Mohan, & Kamboj, 1989; Finkelstein-Fox, Park, & Riley, 2018).

This observation can be attributed to the attentional Control Theory of Eysenck (2007) which claims that anxiety creates a negative influence on the performance of a task by interfering with the working memory and attention. The cognition interference caused by anxiety is directly opposed by the yoga emphasis on breath control and mindfulness, and counselling which enables students to build metacognitive awareness and confidence, enhancing the quality of attentional control (Telles et al., 2013; Parajuli et al., 2022; Beck, 1976; Putwain & von der Embse, 2021). As a result, the adverse correlation between the test anxiety and the scholastic success of the students is less significant among students undergoing the yoga training program with the psychological assistance (Park et al., 2017).

These results are empirically consistent with past studies in India, like the study by Sahasi et al. (1989) who found that yoga practitioners were less physiologically aroused and gave a better test performance than control groups, which indicated better mind-body coordination.

### **8.3 Socioeconomic Status and Academic Achievement**

The findings showed that the socioeconomic status (SES) was a predictive factor to academic success in both groups. SES had a moderate positive prediction of academic achievement in the participants who received hatayoga and psychological counselling. However, among nonparticipants in yoga or counselling, SES appeared to be a far better predictor.

The results may be interpreted with the assistance of the Transactional Model of Stress and Coping developed by Lazarus and Folkman (1984) which assumes that the effects of stressors on the performance depend on the available coping resources of the individual. The economic uncertainty, competition, and a low

access to learning resources tend to place upon students of lower-SES backgrounds, a chronic stress load that increases vulnerability to academic pressure (Misra & Castillo, 2004). Yoga-based interventions enhance the coping ability and minimize test anxiety by educating students on mindfulness, regulating breathing, and physiological relaxation (Parajuli et al., 2022). Students acquire more adaptive stress-coping strategies when counselling is used in combination with it to increase emotional processing and cognitive restructuring (Park et al., 2017). This enhances self-regulation and attention in the studying thus undermining an otherwise good SES-achievement relationship.

This buffering effect is also evident in researches like the one by Schor (2018) which reported that yoga increased emotional stability and academic motivation in economically disadvantaged students. Study by Butzer et al. (2015) also suggests that yoga interventions may minimise the probability of dropout among low-SES or public school groups.

It should be noted, that even in the yoga-counselling group SES still accounted a significant 25 per cent of the variance in academic achievement. This demonstrates that though mind-body and counselling interventions can diminish the impacts of socioeconomic inequality, they are not able to eliminate these impacts. SES is also a pervasive factor in the Indian educational system - it affects the access to good education, learning conditions, food, and parental support. With the economic and social classes divisions still dominant in the Indian society, the presence of SES speaks of structural and systemic differences that go beyond personal coping or emotional control.

#### **8.4 Interaction between Socioeconomic and test anxiety in academic achievement**

The multiple regression tests have been used to determine the combined predictive relationship between the Socioeconomic Status (SES) and Test Anxiety (TA) in respect to the Academic Achievement of the participants. This was done to have an understanding of the interactions of both the structural and psychological factors instead of them existing separately. The combined model exhibited a very strong effect with SES and test anxiety predicting achievement among participants who did not participate in hatayoga and counselling. This was to imply students with higher SES background performed better, while those with high anxiety and low SES were twice as much disadvantaged, which is to say that without interventions, economic and emotional factors have a significant influence on academic performance (Selvitopu & Kaya, 2023).

Contrary to that, the explanatory power of the model decreased significantly in the case of students involved in hatayoga and counselling. This decrease is the buffering effect of hatayoga and counselling that made SES levels even in terms of the increase in emotional regulation, resilience, and confidence. Yoga develops a sense of calmness and concentration and self-discipline and counselling offers a sense of cognitive coping as well as emotional support. The combination of them

enhances the control of socioeconomic disadvantage and anxiety on educational achievement, proving the usefulness of comprehensive interventions incorporation into Indian higher education.

## 8. Limitations

The limitations of the study are as follows-

- Researchers utilized a cross-sectional design that restricts the capacity to make solid causal inferences into the direction of such associations.
- The second limitation was that the study was carried out on undergraduate students in one particular region in India and this might not be generalizable to other age groups or cultural backgrounds or even educational conditions around India.

## 9. Conclusions

In general, the results of this research point towards the apparent difference in performance of students who engage in hatayoga and psychological counselling and those who do not receive such intervention strategies. In both models, the socioeconomic status (SES) and the test anxiety are very important predictors of academic achievement but the strength of association between them significantly differed between the two groups. The predictive effects of both SES and test anxiety in the non-yoga group were very strong, which indicated that both structural (economic) and emotional (anxiety) variables had a significant impact on the performance of students. Conversely, in the yoga-counselling group relationships were much weaker and SES and anxiety explained a significantly lower percentage of variation. The trend indicates that hatayoga and counselling played a buffering role, which seemed to diminish the adverse effect of the test anxiety and decreased the reliance of achievement on the SES. These findings are consistent with theories of stress management and holistic psychological development which include the Stress and Coping Theory of Lazarus and Folkman (1984) and the yogic notion of chitta-vritti-nirodha (quenching mental fluctuations) which focuses on self-regulation, emotional equilibrium and resilience (Adampou & Pandya, 2025). In practice, this implies that yoga and counselling can be incorporated into the educational institution, and it could be possible to establish a more balanced academic environment where academic achievement would not be based more on socioeconomic background but rather on students' cognitive readiness, adaptive coping strategies, and sustained attentional control.

## 10. Future Research Scope

Future studies can elaborate on these results by utilizing longitudinal or experimental designs in order to determine more definite cause-and-effect relationships between yoga attendance, less anxiety and better academic performance. Research may also be conducted on the various levels or time

period of yoga and counselling interventions to determine the best form of intervention to be used on students with different socioeconomic backgrounds. It would be possible to include physiological or behavioural stress measures (e.g., heart rate variability, sleep patterns) as less subjective variables of anxiety reduction. Lastly, the sample could be increased to cover students of different regions and academic fields, which would make the results more representative.

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### 13. Declaration of Conflicting Interests

The Authors of this manuscript declare that there is no conflict of Interest in respect to publication of the manuscript or an institution or product that is stated in the manuscript.

### References

1. Adampour, G. and Pandya, C (2025). *A study of awareness of Patanjali Yoga Sutra among certified yoga teachers of Iran. Dev Sanskriti Interdisciplinary International Journal 25: 1–5.*
2. Basunia, B.N. (2024). *Effect of mental health and socio-economic status on academic achievement of higher secondary school students. Doctoral Dissertation, Aliah University, Kolkata 2024. (www.aliah.ac.in)*
3. Beck, A.T. (1976). *Cognitive therapy and the emotional disorders. International Universities Press, New York 1976. (psycnet.apa.org)*
4. Benvenuti, M.J., da Silva Alves, E., Michael, S., Ding, D., Stamatakis, E. and Edwards, K.M. (2017). *A single session of hatha yoga improves stress reactivity and recovery after an acute psychological stress task. Complementary Therapies in Medicine 35: 120–126. (www.sciencedirect.com)*
5. Butzer, B., van Over, M., Noggle Taylor, J.J. and Khalsa, S.B.S (2015). *Yoga may mitigate decreases in high school grades. Evidence-Based Complementary and Alternative Medicine 2015: 259814. (onlinelibrary.wiley.com)*
6. Castellote-Caballero, Y., Carcelén-Fraile, M.D.C., Aibar-Almazán, A., Rivas-Campo, Y. and González-Martín, A.M (2024). *Yoga as a therapeutic approach to*

- mental health in university students: a randomized controlled trial. *Frontiers in Public Health* 12: 1406937. ([www.frontiersin.org](http://www.frontiersin.org))
7. Daraei, M (2013). Social correlates of psychological well-being among undergraduate students in Mysore City. *Social Indicators Research* 114(2): 567–590. ([link.springer.com](http://link.springer.com))
  8. Das, A (2025). Effect of yoga intervention on test anxiety and wellbeing of female undergraduate students. *International Journal of Yoga and Allied Sciences* 14(2): 222–230. ([indianyoga.org](http://indianyoga.org))
  9. Deb, S., Strodl, E. and Sun, J (2015). Academic stress, parental pressure, anxiety and mental health among Indian high-school students. *International Journal of Psychology and Behavioral Sciences* 5(1): 26–34. ([eprints.qut.edu.au](http://eprints.qut.edu.au))
  10. Dreisbach, M.D (2017). The effects of a classroom-based yoga intervention on test anxiety, academic performance and attention in third grade students. *Master's Thesis, University of Akron 2017*. ([rave.ohiolink.edu](http://rave.ohiolink.edu))
  11. Dubey, P., Sarva, M. and Singh, P.P (2003). Application of yoga on effective mind-body coordination and stress reduction among students. *Man in India* 96(4): 1163–1179. ([www.maninindia.com](http://www.maninindia.com))
  12. Eysenck, M.W., Derakshan, N., Santos, R. and Calvo, M.G (2007). Anxiety and cognitive performance: attentional control theory. *Emotion* 7(2): 336–353. ([psycnet.apa.org](http://psycnet.apa.org))
  13. Faiza, M. and Daud, S (2023). The impact of socio-economic status on academic achievement. *Journal of Social Sciences Review* 3(2): 695–705. ([jsr.com.pk](http://jsr.com.pk))
  14. Field, T (2011). Yoga clinical research review. *Complementary Therapies in Clinical Practice* 17(1): 1–8. ([www.sciencedirect.com](http://www.sciencedirect.com))
  15. Finkelstein-Fox, L., Park, C.L. and Riley, K.E (2018). Mindfulness and emotion regulation during the transition to college. *Anxiety, Stress, & Coping* 31(6): 639–653. ([www.tandfonline.com](http://www.tandfonline.com))
  16. Lazarus, R.S. and Folkman, S (1984). *Stress, appraisal, and coping*. Springer, New York 1984. ([books.google.co.in](http://books.google.co.in))
  17. Misra, R. and Castillo, L.G (2004). Academic stress among college students: comparison of American and international students. *International Journal of Stress Management* 11(2): 132–148. ([psycnet.apa.org](http://psycnet.apa.org))
  18. Mishra, N. and Rath, P.K (2015). Impact of intervention on perceived stress of college students. *Indian Journal of Health & Wellbeing* 6(9): 905–909. ([www.iahrw.com](http://www.iahrw.com))
  19. Nwadi, L.C. and Edeh, I (2022). Impact of cognitive-behavioral therapy and mindfulness-based stress reduction in mitigating test anxiety and enhancing academic achievement among vocational education students at Nigerian universities. *Journal of Education and Practice* 13(17): 25–34. ([journals.sagepub.com](http://journals.sagepub.com))

20. Parajuli, N., Pradhan, B. and Bapat, S (2022). *Effect of yoga on cognitive functions and anxiety in female school children with low performance. Complementary Therapies in Clinical Practice* 48: 101614. ([www.sciencedirect.com](http://www.sciencedirect.com))
21. Park, C.L., Riley, K.E., Braun, T.D., Jung, J.Y., Suh, H.G., Pescatello, L.S. and Antoni, M.H (2017). *Yoga and cognitive-behavioral interventions to reduce stress in college students. Journal of Applied Biobehavioral Research* 22(4): e12068. ([onlinelibrary.wiley.com](http://onlinelibrary.wiley.com))
22. Putwain, D.W. and von der Embse, N.P (2021). *Cognitive-behavioral intervention for test anxiety in adolescents. Anxiety, Stress, & Coping* 34(1): 22–36. ([www.tandfonline.com](http://www.tandfonline.com))
23. Sahasi, G., Mohan, D. and Kamboj, V.P (1989). *Effectiveness of yogic techniques in managing anxiety. Journal of Personality and Clinical Studies* 5(1): 51–55. ([www.indianjournals.com](http://www.indianjournals.com))
24. Schorr, M (2018). *Yoga and academic achievement in a high-poverty school. Doctoral Dissertation, Capella University 2018.* ([www.proquest.com](http://www.proquest.com))
25. Selvitopu, A. and Kaya, M (2023). *Meta-analysis of socioeconomic status and academic performance. Journal of Education* 203(4): 768–780. ([journals.sagepub.com](http://journals.sagepub.com))
26. Sucuoğlu, E (2018). *Economic status, self-efficacy and academic achievement. Quality & Quantity* 52(S1): 851–861. ([link.springer.com](http://link.springer.com))
27. Telles, S., Sharma, S.K., Gupta, R.K., Pal, D.K., Gandharva, K. and Balkrishna, A (2019). *The impact of yoga on teachers' self-rated emotions. BMC Research Notes* 12: 680. ([link.springer.com](http://link.springer.com))
28. Telles, S., Singh, N., Bhardwaj, A.K., Kumar, A. and Balkrishna, A (2013). *Effect of yoga or physical exercise on physical, cognitive and emotional measures in children. Child and Adolescent Psychiatry and Mental Health* 7: 37. ([link.springer.com](http://link.springer.com))