

## Academic Stress in College: The Impact of Gender and Individual Learning Styles

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### ABSTRACT

Academic stress is a growing concern among college students, often affecting their mental health and academic performance. This study investigates the impact of gender and individual learning styles on academic stress among undergraduate college students in Kolkata, India. Utilizing a factorial research design, the study examines how deep and surface learning approaches, along with gender, influence dimensions of academic stress. A sample of 300 students (164 female, 136 male) was assessed using validated tools including the R-SPQ-2F and the Students' Academic Stress Scale. Results revealed that learning style significantly influenced academic stress, with surface learners experiencing higher stress levels across all domains. Gender and the interaction between gender and learning styles were not statistically significant. The findings emphasize the need for educational strategies that promote deep learning to mitigate stress and support student well-being, regardless of gender. Implications for curriculum design and mental health interventions in higher education are discussed.

**Keywords:** *Academic Stress, Learning Styles, Gender Differences, Undergraduate Students*

Academic stress has become a widespread concern among college students, driven by increasing academic demands, competitive environments, and the pressure to perform well. Stress, when prolonged or poorly managed, can negatively impact students' mental health, academic achievement, and overall well-being. Among the various factors influencing academic stress, gender and individual learning styles are particularly significant yet often underexplored in combination.

Academic stress is a psychological condition experienced by students when they are overwhelmed by the demands of academic life, including tests, assignments, deadlines, and expectations for high performance. It is commonly defined as the body's response to academic-related demands that exceed an individual's adaptive capabilities (Wilks, 2008). This form of stress arises when students perceive a significant gap between the academic expectations placed upon them and their perceived ability to meet those expectations (Hamaideh, 2011). Research suggests that males and females may experience and cope with academic stress differently, influenced by both biological and socio-cultural factors (Misra

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& McKean, 2000). For instance, some studies indicate that female students tend to report higher levels of academic stress compared to their male counterparts, potentially due to heightened self-expectations or differing emotional responses (Bayram & Bilgel, 2008).

Another critical variable is students' learning styles, particularly the distinction between deep and surface learning approaches. Deep learners typically engage with material meaningfully, seeking to understand underlying principles, while surface learners often focus on rote memorization and the minimal requirements to pass assessments (Biggs, 1987). These approaches not only shape academic outcomes but may also contribute to varying stress levels, as students with surface learning styles may struggle more with understanding complex content, leading to heightened anxiety and academic pressure (Diseth, 2001).

Despite the recognition of gender differences and learning styles as individual factors influencing academic stress, there is a paucity of research examining the combined effect of these variables. Understanding how gender and learning approaches interact to impact academic stress is crucial for developing targeted interventions and support systems and promoting mental well-being in higher education settings.

The present study aims to explore the interplay between gender and individual learning styles—specifically deep and surface approaches—and their collective impact on academic stress among college students. By investigating these factors, the research seeks to provide insights that can help educators and institutions create more inclusive and supportive academic environments to mitigate academic stress and enhance student well-being.

### LITERATURE REVIEW

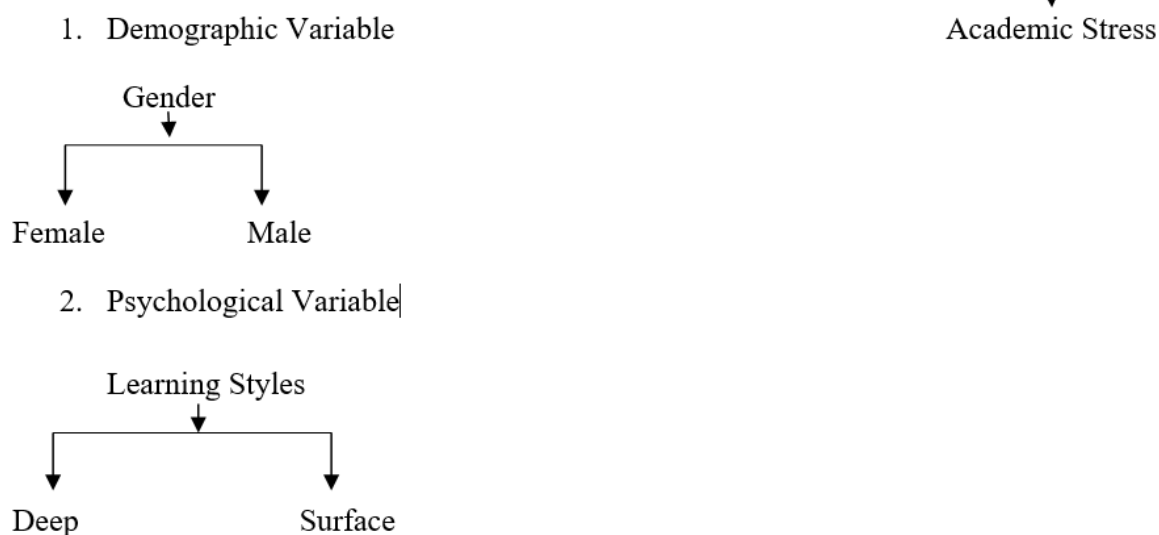
Previous research has highlighted the significant role of individual differences, such as gender and learning styles, in shaping students' academic experiences. Studies suggest that gender can influence how students perceive and manage academic stress, with female students often reporting higher stress levels due to academic, emotional, and social expectations (Misra & McKean, 2000). Learning styles—defined as individuals' preferred methods for processing and retaining information—have also been shown to affect academic outcomes and stress levels. When students are taught in ways that align with their learning preferences, they tend to experience lower stress and improved academic performance (Pashler et al., 2008).

Furthermore, the interaction between gender and learning styles has been explored in educational research, suggesting that a mismatch between instructional approaches and individual learning preferences may heighten stress, particularly among certain gender groups (Honigsfeld & Dunn, 2003). Despite these findings, the existing literature remains inconclusive, particularly within diverse cultural and regional contexts. In India, and specifically in metropolitan areas like Kolkata, there is limited research addressing how gender and learning styles jointly affect academic stress. This study seeks to contribute to the existing body of knowledge by exploring these factors in an urban Indian context.

## METHODOLOGY

### Research Design

Independent Variables → Dependent Variables



The current study employs a factorial research design, which enables the examination of both the main effects and interaction effects of multiple independent variables on dependent variables at the same time. Specifically, this study focuses on exploring how two independent variables—gender and learning styles—individually and interactively influence the dependent variable, academic stress, to provide deeper insight into the contributing factors.

### Hypotheses

1. There is no significant effect of gender on academic stress in terms of personal inadequacy, fear of failure, interpersonal difficulties with teachers, teacher – pupil relationship/ teaching method, and inadequate study facilities.
2. There is no significant effect of learning styles on academic stress in terms of personal inadequacy, fear of failure, interpersonal difficulties with teachers, teacher – pupil relationship/ teaching method, and inadequate study facilities.
3. There is no significant interaction effect of gender and learning styles on academic stress in terms of personal inadequacy, fear of failure, interpersonal difficulties with teachers, teacher – pupil relationship/ teaching method, and inadequate study facilities.

### Sample

The sample for the present study comprised undergraduate college students, both male and female, aged between 19 and 21 years. Participants were selected based on the criteria of having secured between 70% and 90% marks in the Higher Secondary Examination conducted by the West Bengal Board. Inclusion criteria also required that participants had no prior history of academic failure, experiences of ragging, mental health disorders, or chronic physical illnesses. All participants came from intact families, belonged to the middle socio-economic stratum, and were residents of Kolkata. To ensure the generalizability of the research findings, a total of 300 students were selected, including 164 female and 136 male students. A multistage cluster sampling technique was employed in sample selection. This method involves an initial stage of forming clusters, followed by the random selection of

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individuals from each cluster. The respondents were drawn from colleges located across various zones of Kolkata.

### *Tools*

#### **1. Informed Consent Form**

#### **2. A detailed Information Schedule including demographic data of the participants.**

#### **3. Standardized measurement tools–**

- General Health Questionnaire – 28 by Goldberg and Hillier (1979) was used as a screening tool, where only those individuals who scored less than 4 were included for the sample. The split-half reliability of this questionnaire is 0.97.
- Kuppaswamy Socio-economic Status Scale was used which was constructed in 1976 by Kuppaswamy to measure the socio-economic status of individuals based upon occupation of the head of the family, education of the head of the family and total family income from all sources. The latest modification to the scale was made in 2021 (Saleem & Jan, 2021).
- To evaluate the learning approaches of students Revised Study Process Questionnaire (R-SPQ-2F) developed by Biggs, Kember, & Leung, (2001) was used. This scale assessed deep and surface approaches of learning style. The scale consists of 20 items with 5 response choices. The Cronbach alpha values are 0.73 for Deep Approach and 0.64 for Surface Approach. Confirmatory factor analysis indicates a good fit to the intended two factor structure.
- Academic stress was measured by using Students' Academic Stress Scale. Academic Stress Scale was originally developed by Kim (1970). The adapted version known as the Students' Academic Stress Scale has been adapted to Indian conditions by Rajendran and Kaliappan (1990). The test-retest correlation is 0.82. The validated 40-item of Academic Stress Scale has high internal consistency and adequate construct and concurrent validity.

### *Statistical Tools*

Descriptive Statistics and inferential Statistics were conducted by using Statistical Package for Social Sciences Software (SPSS Version 20.0).

### *Procedure*

At first the necessary institutional permissions were obtained, then the participants were selected using a multistage cluster sampling technique from various colleges across different zones of Kolkata. Informed consent was obtained from all participants prior to data collection. Standardized questionnaires were administered in group settings under the supervision of the researcher, ensuring uniform instructions and minimal distractions. Participants were assured of the confidentiality and anonymity of their responses. The collected data were then organized and prepared for statistical analysis to examine the effects of gender and learning styles on academic stress.

### *Ethical Consideration*

The study was conducted in accordance with standard ethical guidelines. Prior to participation, informed consent was obtained after clearly explaining the study's purpose, procedures, and participants' right to withdraw at any stage without any consequences. Confidentiality and anonymity were strictly maintained, with no identifying information

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collected. All data were used exclusively for research purposes, and efforts were made to ensure that the process did not cause any form of psychological or emotional discomfort to the participants.

### RESULTS

**Table -1, Showing the mean and standard deviation for the selected dependent variable i.e. Academic among female, male undergraduate college students with deep and surface learning styles. (N=300)**

Variables	Gender				Learning Style			
	Female		Male		Deep		Surface	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Academic Stress (Personal Inadequacy)	14.06	2.625	14.32	2.791	13.42	2.597	15.06	2.552
Academic Stress (Fear of Failure)	13.74	2.782	14.12	2.711	13.02	2.716	14.94	2.426
Academic Stress (Interpersonal difficulties with Teachers)	13.08	2.978	13.32	3.227	12.55	2.890	13.94	3.158
Academic Stress (Teacher – Pupil Relationship/ Teaching Method)	14.30	2.543	13.99	2.831	13.35	2.322	15.09	2.768
Academic Stress (Inadequate Study Facilities)	11.99	2.855	11.80	3.096	11.17	2.802	12.76	2.963
Academic Stress (Total)	67.17	11.15	67.55	11.78	63.51	10.53	71.78	10.82

**Table 2, Showing the main and interaction effect of gender and learning styles on academic stress in terms of personal inadequacy, fear of failure, interpersonal difficulties with teachers, teacher – pupil relationship/ teaching method, and inadequate study facilities and total among undergraduate college students (N=300) of Kolkata.**

Variables	Academic Stress (Personal Inadequacy)			Academic Stress (Fear of Failure)			Academic Stress (Interpersonal difficulties with Teachers)			Academic Stress (Teacher – Pupil Relationship/ Teaching Method)			Academic Stress (Inadequate Study Facilities)			Academic Stress (Total)		
	F Value	df	Sig.	F Value	df	Sig.	F Value	df	Sig.	F Value	df	Sig.	F Value	df	Sig.	F Value	df	Sig.
Gender	.901	1	.343	1.613	1	.205	.504	1	.478	.983	1	.322	.230	1	.632	.140	1	.709
Learning Styles	31.276**	1	.000	40.422**	1	.000	15.742**	1	.000	35.493**	1	.000	24.249**	1	.000	45.484**	1	.000
Gender*Learning Styles	.962	1	.328	.008	1	.930	.042	1	.838	.899	1	.344	1.819	1	.178	.813	1	.368

\* $p < 0.05$  level

\*\* $p < 0.01$  level

### DISCUSSION

The present study explored the impact of gender and learning styles on academic stress among undergraduate students in Kolkata. The results revealed that learning style was a significant determinant of academic stress, whereas gender and the interaction between gender and learning style were not statistically significant.

The significant influence of learning styles on academic stress aligns with established literature suggesting that students who adopt a surface learning approach are more prone to stress. Surface learners typically engage with material passively, focusing on rote

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memorization and short-term outcomes, rather than understanding concepts deeply (Biggs, 1987). This method often leads to increased academic pressure, as such students may feel unprepared to handle complex tasks, contributing to higher levels of stress across multiple domains including fear of failure and inadequacy (Entwistle & Ramsden, 1983). In contrast, deep learners—those who seek to understand underlying principles, integrate new information with prior knowledge, and think critically—are generally more autonomous and confident in their academic journey. This deeper engagement reduces uncertainty and anxiety, likely explaining the lower academic stress levels observed in this group (Trigwell & Prosser, 1991). The data from Table 1 supports this: students with a deep learning style consistently reported lower mean stress scores across all dimensions.

Despite common assumptions that gender plays a significant role in stress perception, the findings of the current study suggest otherwise. The absence of statistically significant gender differences in stress levels mirrors the findings of Misra and McKean (2000), who reported that although female students often self-report higher stress, actual measurable stress levels do not differ significantly from those of male students when contextual variables are controlled. This may be due to evolving gender roles and increased academic pressure on both genders in contemporary academic environments.

Interestingly, the interaction effect of gender and learning style on academic stress was also not significant. This suggests that regardless of gender, the impact of learning style on stress remains consistent. In other words, surface learning is equally detrimental, and deep learning is equally beneficial for both male and female students. This reinforces the idea that educational interventions aimed at encouraging deep learning strategies could be universally beneficial.

From an applied perspective, these results have important **implications** for curriculum design and academic counseling. Educational institutions should focus on promoting deep learning strategies through teaching methods that emphasize active learning, critical thinking, and application-based evaluation. Training programs that help students develop metacognitive skills, self-regulation, and intrinsic motivation could be instrumental in reducing academic stress (Zimmerman, 2002). Moreover, considering the **mental health implications** of chronic academic stress, institutions should also incorporate stress management resources that target students identified as surface learners. Mindfulness training, peer mentoring, and learning workshops may help bridge the gap between surface and deep learners (Shapiro et al., 2011).

While the study contributes valuable insights, it is not without **limitations**. First, the sample was limited to undergraduate students from colleges in Kolkata, which may restrict the generalizability of the results to other regions or institutional settings. Second, the use of self-reported measures introduces potential biases such as social desirability and subjective interpretation.

The present study opens several avenues for **future research** on academic stress and learning styles among undergraduate students. Experimental studies could evaluate the effectiveness of targeted interventions such as metacognitive training, mindfulness practices, or academic counseling in developing deep learning and reducing stress. Additionally, Expanding the research framework to include psychological variables like motivation, self-efficacy, and emotional intelligence could offer a more comprehensive understanding of

academic stress. Moreover, employing a mixed-methods approach that combines quantitative analysis with qualitative insights—may enrich the interpretation of findings.

### CONCLUSION

This study emphasizes the influence of learning styles on the experience of academic stress among undergraduate students. It highlights how surface learning tendencies can intensify academic stress, while deep learning approaches may offer protective benefits. Rather than attributing stress differences to gender, the findings point toward the importance of learning behavior. By addressing learning behaviors early, educators and institutions can better support students' academic and emotional well-being. As academic stress continues to rise globally, prioritizing adaptive learning strategies becomes essential for building resilient, self-directed learners in higher education settings.

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### **Conflict of Interest**

The author(s) declared no conflict of interest.

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