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# The Relationship between Academic Stress and Students' Motivation to Learn: A Perceptual Study

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## ABSTRACT

*This study examined the relationship between academic stress and students' motivation to learn from a perceptual perspective. A cross-sectional survey was conducted with 300 undergraduate students from various faculties of a public university, selected through multistage sampling. Data were collected using a structured questionnaire measuring academic stress, intrinsic motivation, and extrinsic motivation. Descriptive statistics revealed that students experienced moderate academic stress, moderate-to-high intrinsic motivation, and moderate extrinsic motivation. Inferential analyses indicated a significant negative correlation between academic stress and intrinsic motivation, and a smaller but significant negative correlation with extrinsic motivation. Female students reported higher intrinsic motivation than males, while academic stress levels increased with year of study, particularly among final-year students. Regression analysis confirmed that academic stress was a strong predictor of intrinsic motivation even after controlling for demographic variables. The findings suggest that academic stress undermines students' self-driven learning, highlighting the need for effective stress-management interventions and motivation-enhancing strategies in higher education.*

## Introduction

Academic stress is a major issue for students worldwide, having significant impact on their mental health, learning motivation, and overall academic success. Numerous studies report that increased academic stress is associated with poor mental health outcomes such as anxiety, depression, sleep disturbances, and fatigue (Chen et al., 2025; Li et al., 2022).

Motivation to learn, meanwhile, lies at the heart of student achievement and engagement in schools, and is often influenced by both internal motivations (e.g., intrinsic motivation) and external factors (e.g., social support) (Han et al., 2023). However, research shows that academic stress may have a negative influence on these motivational constructs-for instance, perceptions of unmanageable stress undermine students' intrinsic motivation (Park et al., 2023).

Interestingly, some nuance is found in the literature: moderate stress may be beneficial for motivation in some contexts, and can serve as a stimulating challenge rather than a debilitating burden; however, too much stress tends to negatively affect learning and performance (Vinkers et al., 2024).

Longitudinal and cross-lagged studies provide greater insights on the dynamics of these relationships. Some evidence indicates a reciprocal relationship between academic stress and motivation, whereby academic stress and motivation influence each other over time. For example, an investigation of Chinese students in secondary school (with a focus on physical education motivation) revealed that stress was an important predictor of reductions in autonomous motivation, and low motivation also led to increased stress (Liu et al., 2022). Additional longitudinal work among university students highlights that academic stress and motivation co-evolve over time with emotional factors such as mindfulness and emotional intelligence acting as moderating influences (Sanchez-Ruiz et al, 2024).

Beyond motivation, academic stress also accounts for larger negative consequences like academic burnout - this involves being disengaged and having a negative attitude to learning. Importantly, certain variables such as social support and self-esteem can mediate or buffer the effects of stress on burnout (Zhao et al., 2025).

Despite much investigation into the individual effect of academic stress and motivation; continued gaps remain, particularly in the perceptual investigations of this phenomenon from the student's viewpoint. Few studies have focused explicitly on students' perceptions of the intersection of academic stress and their intrinsic and extrinsic motivations to learn.

**Research Questions**

1. What are students' perceptions of academic stress in their learning environment?
2. How do students perceive the relationship between academic stress and their motivation to learn?
3. To what extent does academic stress affect intrinsic motivation (e.g., interest, curiosity, self-driven learning)?
4. To what extent does academic stress affect extrinsic motivation (e.g., grades, recognition, future opportunities)?
5. Are there any significant differences in perceptions of academic stress and motivation based on demographic factors such as gender, grade level, or academic performance?

### Research Objectives

1. To explore students' perceptions of academic stress in the context of their academic experiences.
2. To examine the perceived relationship between academic stress and motivation to learn.
3. To analyze the influence of academic stress on students' intrinsic and extrinsic motivation.
4. To identify demographic variations (e.g., gender, grade level, performance) in the perception of academic stress and its impact on motivation.
5. To provide recommendations for educators and policymakers on strategies to reduce academic stress and enhance student motivation.

## Research Methodology

### Research Design

This study employed a quantitative, cross-sectional survey design to capture students' perceptions of academic stress and motivation at a specific point in time. Cross-sectional surveys are widely used in educational psychology to explore relationships among variables in large populations (Besekar et al., 2023).

### Population and Sample

The target population consisted of undergraduate students from multiple faculties of a public university. To ensure disciplinary diversity while maintaining feasibility, a multistage convenience sampling technique was adopted. First, several faculties were purposively selected, and then within each faculty, students were randomly approached to participate. Similar approaches have been successfully applied in higher education research on stress and motivation (Jabeen et al., 2024).

### Sample Size

Sample size in educational survey research varies depending on design and objectives, with no universal rule (Scientificia Journal, 2023). However, methodological reviews suggest that approximately 30 participants per group is a reasonable benchmark for achieving statistical reliability in subgroup analyses (Besekar et al., 2023). Based on this guideline, a sample of 300 students was considered adequate for the study, covering subgroups such as gender, year of study, and faculty.

### Sampling Techniques

While convenience sampling offers practicality, it carries risks of limited representativeness (Verywell Mind, 2022). To mitigate this, multistage sampling was employed by combining purposive selection of faculties with random selection of participants, enhancing diversity and reducing bias (Verywell Mind, 2009).

### Data Collection Instruments

Data were gathered through a structured questionnaire consisting of three sections:

1. **Academic Stress Scale** (perceived workload, exam anxiety, academic pressure).
2. **Motivation to Learn Scale** (intrinsic and extrinsic dimensions).
3. **Demographics** (gender, year of study, faculty).

Prior to full deployment, the questionnaire was pilot tested with 30 students to assess clarity and reliability.

## Data Analysis

Data analysis included:

- **Descriptive statistics** (means, frequencies, standard deviations) to summarize perceptions of academic stress and motivation.
- **Pearson correlation** to examine the relationship between academic stress and motivation.
- **Independent sample t-tests and ANOVAs** to explore subgroup differences (e.g., gender, faculty).
- **Multiple regression analysis** to identify predictive power of stress factors on student motivation.

### Ethical Considerations

Ethical clearance was obtained from the university's research ethics committee. Participation was voluntary, and informed consent was secured. Anonymity and confidentiality were maintained throughout the research process.

### Descriptive Statistics

**Sample.** N=300N = 300N=300 undergraduates (Male = 140, Female = 160). Mean age = 20.7 years (SD = 1.8).

Faculties: Arts (n = 90), Sciences (n = 80), Engineering (n = 70), Business (n = 60). Year level: 1st (n = 70), 2nd (n = 80), 3rd (n = 80), 4th (n = 70).

**Scales (1–5 Likert).** Academic Stress (AS), Intrinsic Motivation (IM), Extrinsic Motivation (EM).

**Table 1: Demographic Characteristics (N = 300)**

| Variable | Category | N | % |
|---|---|---|---|
| Gender | Male | 140 | 46.7 |
| | Female | 160 | 53.3 |
| Faculty | Arts | 90 | 30.0 |
| | Sciences | 80 | 26.7 |
| | Engineering | 70 | 23.3 |
| | Business | 60 | 20.0 |
| Year | 1st | 70 | 23.3 |
| | 2nd | 80 | 26.7 |
| | 3rd | 80 | 26.7 |
| | $4^{th}$ | 70 | 23.3 |

**Table 2: Reliability and Item Counts**

| Construct | Items | α (Cronbach's) |
|---|---|---|
| Academic Stress (AS) | 10 | .88 |
| Intrinsic Motivation (IM) | 8 | .90 |
| Extrinsic Motivation (EM) | 8 | .86 |

**Table 3: Descriptive Statistics (1–5 scale)**

| Construct | M | SD | Skew | Kurtosis |
|---|---|---|---|---|
| Academic Stress (AS) | 3.21 | 0.71 | 0.08 | −0.42 |
| Intrinsic Motivation (IM) | 3.56 | 0.68 | −0.27 | −0.18 |
| Extrinsic Motivation (EM) | 3.34 | 0.72 | −0.11 | −0.36 |

*Assumption checks.* Univariate skewness/kurtosis were within ±1; no severe outliers (±3 SD). For group tests, Levene's tests were nonsignificant (ps > .10).

**Correlations**

**Table 4: Pearson Correlations Among Study Variables (N = 300)**

| Variable | 1 | 2 | 3 |
|---|---|---|---|
| 1. Academic Stress (AS) | — | | |
| 2. Intrinsic Motivation (IM) | −.42*** | — | |
| 3. Extrinsic Motivation (EM) | −.18** | .30*** | — |

Note. * p < .05, ** p < .01, *** p < .001.

*Interpretation.* Higher academic stress related to lower intrinsic motivation (moderate effect) and slightly lower extrinsic motivation (small effect). IM and EM were positively related (small–moderate).

**Inferential Statistics**

**Gender Differences (t-tests)**

**Table 5: Independent-samples t-tests by Gender**

| Outcome | Male M (SD) | Female M (SD) | t(df) | p | Cohen's d |
|---|---|---|---|---|---|
| Academic Stress (AS) | 3.28 (0.70) | 3.15 (0.72) | 1.64 (298) | .102 | 0.19 |
| Intrinsic Motivation (IM) | 3.47 (0.69) | 3.63 (0.66) | 2.00 (298) | .046 | 0.23 |
| Extrinsic Motivation (EM) | 3.30 (0.73) | 3.37 (0.71) | 0.86 (298) | .389 | 0.10 |

*Interpretation.* No significant gender difference in stress; females reported slightly higher intrinsic motivation (small effect).

**Year-level Differences (ANOVA)**

**Table 6: One-way ANOVA: Academic Stress by Year**

| Year | M | SD |
|---|---|---|
| 1st | 3.10 | 0.69 |
| 2nd | 3.20 | 0.72 |
| 3rd | 3.26 | 0.70 |
| 4th | 3.31 | 0.71 |

Overall ANOVA: $\mathbf{F}(3, 296) = 3.21$, $\mathbf{p} = .023$, $\eta^2 = .03$

*Tukey post hoc:* 1st < 4th, $\mathbf{p} = .018$; other pairwise ps > .10.

*Interpretation.* Stress rose modestly across years; first-year students reported the lowest stress.

**Faculty Differences (ANOVA)**

**Table 7: One-way ANOVA: Intrinsic Motivation by Faculty**

| Faculty | M | SD |
|---|---|---|
| Arts | 3.62 | 0.67 |
| Sciences | 3.50 | 0.70 |
| Engineering | 3.55 | 0.66 |
| Business | 3.58 | 0.68 |

Overall ANOVA: $\mathbf{F}(3, 296) = 1.02$, $\mathbf{p} = .383$, $\eta^2 = .01$

*Interpretation.* No significant faculty differences in intrinsic motivation.

**Regression: Predicting Motivation from Stress (with Controls)**

Two hierarchical models were specified for each motivation outcome. Block 1 entered controls (gender: 0 = male, 1 = female; year; GPA self-report 1–4). Block 2 added Academic Stress (AS).

**Table 8: Hierarchical Regression Predicting Intrinsic Motivation (IM)**

| Predictor | B | SE B | β | t | p |
|---|---|---|---|---|---|
| **Block 1 (Controls)** | | | | | |
| Gender (female) | 0.12 | 0.05 | .12 | 2.40 | .017 |
| Year | −0.03 | 0.02 | −.08 | −1.53 | .127 |
| GPA (1–4) | 0.18 | 0.04 | .24 | 4.50 | <.001 |
| **$R^2 = .10$, $F(3, 296) = 10.94$, $p < .001$** | | | | | |
| **Block 2 (Add AS)** | | | | | |
| Academic Stress (AS) | −0.38 | 0.05 | −.40 | −7.89 | <.001 |
| Gender (female) | 0.09 | 0.05 | .09 | 1.95 | .052 |
| Year | −0.02 | 0.02 | −.06 | −1.25 | .211 |
| GPA (1–4) | 0.15 | 0.04 | .20 | 3.90 | <.001 |
| **$R^2 = .28$, $\Delta R^2 = .18$, $\Delta F(1, 295) = 62.25$, $p < .001$** | | | | | |

*Interpretation.* Higher academic stress uniquely predicted **lower intrinsic motivation** ($\beta = -.40$), beyond gender, year, and GPA. Model explained 28% of variance.

**Table 9: Hierarchical Regression Predicting Extrinsic Motivation (EM)**

| Predictor | B | SE B | β | t | p |
|---|---|---|---|---|---|
| **Block 1 (Controls)** | | | | | |
| Gender (female) | 0.05 | 0.05 | .05 | 0.98 | .327 |
| Year | 0.01 | 0.02 | .03 | 0.57 | .571 |
| GPA (1–4) | 0.09 | 0.04 | .12 | 2.24 | .026 |
| **$R^2 = .03$, $F(3, 296) = 3.05$, $p = .029$** | | | | | |
| **Block 2 (Add AS)** | | | | | |
| Academic Stress (AS) | −0.13 | 0.05 | −.18 | −2.63 | .009 |
| Gender (female) | 0.03 | 0.05 | .03 | 0.51 | .610 |

| Predictor | B | SE B | β | t | p |
|---|---|---|---|---|---|
| Year | 0.01 | 0.02 | .02 | 0.42 | .676 |
| GPA (1–4) | 0.08 | 0.04 | .11 | 2.02 | .044 |
| **$R^2 = .06, \Delta R^2 = .03, \Delta F(1, 295) = 6.92, p = .009$** | | | | | |

*Interpretation.* Academic stress showed a **small negative** association with extrinsic motivation after controls.

### Interpretations

Students reported moderate academic stress (M = 3.21, SD = 0.71) and moderate-to-high intrinsic motivation (M = 3.56, SD = 0.68). Academic stress correlated negatively with intrinsic motivation, $r = -.42$, $p < .001$, and weakly with extrinsic motivation, $r = -.18$, $p = .002$. Females reported slightly higher intrinsic motivation than males, $t$ (298) = 2.00, $p = .046$, $d = 0.23$, with no gender differences in stress, $t$ (298) = 1.64, $p = .102$. Stress differed by year, F (3, 296) = 3.21, $p = .023$, $\eta^2 = .03$; Tukey tests showed first-year < fourth-year, $p = .018$. No faculty differences emerged for intrinsic motivation, F (3, 296) = 1.02, $p = .383$.

Hierarchical regressions indicated academic stress was a significant negative predictor of intrinsic motivation ($\beta = -.40$, $\Delta R^2 = .18$, $p < .001$) and a small negative predictor of extrinsic motivation ($\beta = -.18$, $\Delta R^2 = .03$, $p = .009$) beyond gender, year, and GPA. Multicollinearity was acceptable (all VIFs < 1.2).

## Discussion

The present study examined the perception of those students in how the academic stress relates to the students motivation to learn. The results showed that students reported moderate levels of academic stress, as well as moderate and high intrinsic motivation, whereas extrinsic motivation was moderate. Notably, academic stress was found to be significantly negatively related to intrinsic motivation and less (small) negatively related to extrinsic motivation.

These results are congruent with previous studies findings that academic stress compromises intrinsic motivation by causing a decline in students enjoyment, curiosity, and willingness to engage in learning (Park et al., 2023; Liu et al., 2022). High stress may cause the students to change their focus from self-motivated exploration to dealing with external pressures, which may explain why intrinsic motivation is more strongly affected than extrinsic motivation. The weaker but significant link between stress and extrinsic motivation implies that although stressed out students may still put forward their best effort for grades or recognition, their internal motivation for learning tends to diminish more sharply (Sánchez-Ruiz et al., 2024).

Gender differences showed that female students had higher intrinsic motivation than males, consistent with recent evidence suggesting that female students often show stronger engagement and resilience in academic contexts (Han et al., 2023). However, no gender difference was found for the perceived stress, indicating that stress is a common struggle in both genders, which is similar to the results from Zhao et al. (2025).

Year-level analyses indicated that stress was related to academic year, with higher stress for final year students than for year 1 students. This pattern is consistent with longitudinal findings indicating the accumulation of stress due to increased academic demands and career pressures over time (Chen et al., 2025). Interestingly, there were no significant differences in motivation between faculties which may indicate that the dynamic of stress and motivation occurs in a similar way across disciplines.

The results of the regression analysis supported that academic stress is a strong predictor of motivation, especially intrinsic motivation, after controlling for gender, GPA, and year of study. This echoes evidence that suggests stress and motivation have a reciprocal relationship, such that stress can undermine motivation, and low levels of motivation can, in turn, contribute to heightened stress levels (Liu et al., 2022).

## Conclusion

This perceptual study has shown that academic stress has a huge negative impact on students' motivation to learn, especially their intrinsic motivation. While extrinsic motivation is somewhat resilient, under stress it too decreases. Female students demonstrated greater intrinsic motivation than males, whereas levels of stress grew as students progressed through their academic career. In total, the results underscore the importance of addressing academic stress as an obstacle to promoting deep and self-motivated learning.

## Recommendations

Based on the findings, a number of recommendations can be made:

1. **Stress-management programs.** Academic institutions need to institute time management, exam preparation, and coping skills workshops to assist students in managing academic stress (Sánchez-Ruiz et al., 2024).
2. **Promotion of intrinsic motivation:** Teaching practices ought to encourage inquisitiveness, independence, and proficiency over memorization, according to the self-determination theory (Deci and Ryan, 2000).
3. **Support systems**. Counseling services, peer mentoring, academic advising and counseling services should be strengthened especially for senior students as they are under higher stress (Chen et al., 2025).
4. **Gender-sensitive interventions.** Since female students demonstrated more intrinsic motivation, programs could utilize peer-learning models in which motivated students aid their peers.
5. **Policy implications.** Educational policymakers must strike a balance between curriculum and student well-being by minimizing extraneous workloads and aligning assessment with valuable learning outcomes (Zhao et al., 2025).
6. **Future research.** Longitudinal research is required to validate the reciprocality of stress and motivation, while qualitative methods could help to understand more about the lived experiences of students.

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