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Stress, Coping Mechanisms, and Academic Performance: A Psychology Perspective on Undergraduate Students

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Abstract

The present study explores the interrelationship between stress, coping mechanisms, and academic performance among undergraduate students. Using a cross-sectional empirical design, data were collected from 78 randomly selected students through in-person and online interviews, supplemented with standardized instruments including the Perceived Stress Scale (PSS), the Brief COPE Inventory, and self-reported academic performance records. Results revealed that students reported moderate levels of stress and exam anxiety, with problem-focused coping emerging as the dominant strategy among the majority of participants. Correlation analysis indicated that perceived stress negatively influenced academic performance ($r = –0.55$), while problem-focused coping significantly enhanced outcomes ($r = +0.67$). Lifestyle factors such as study hours and smartphone use also demonstrated strong associations with academic achievement. Qualitative insights further contextualized these findings, highlighting sources of stress such as academic pressure, peer competition, and time management challenges. The study concludes that while stress is inevitable in undergraduate life, effective coping mechanisms and supportive lifestyle practices can mitigate its impact on academic performance.

Keywords: *Psychology ; Stress ; Coping Mechanisms ; Academic Performance ; Undergraduate Students*

Introduction

Undergraduate education represents a crucial developmental phase wherein students are required to balance academic demands, social responsibilities, and personal growth. This transition often exposes students to heightened stress, as they navigate the pressures of examinations, expectations of family and peers, and the challenges of independence. Stress, when persistent and overwhelming, has been shown to impair cognitive functioning, reduce concentration, and diminish academic outcomes. Within this context, coping mechanisms assume vital importance, shaping how students respond to stressors and influencing their overall academic trajectory.

Existing psychological literature emphasizes that not all coping strategies are equally effective. Problem-focused coping, which involves active problem solving and planning, is often associated with positive academic results. In contrast, emotion-focused or avoidant strategies may provide temporary relief but fail to address underlying stressors. Furthermore, lifestyle behaviors such as sleep, physical activity, and digital habits exert additional influence on student well-being and performance. Despite extensive global research on these themes, there remains a relative paucity of empirical studies contextualized within the Indian undergraduate population, where academic competitiveness and sociocultural expectations are uniquely intense.

This study seeks to bridge that gap by examining the associations between stress, coping strategies, and academic performance among undergraduate students. Employing a cross-sectional design, the research integrates quantitative data from standardized scales with qualitative insights from semi-structured interviews. By analyzing how stress interacts with coping and lifestyle behaviors, the study aims to contribute to both academic understanding and practical interventions for student well-being and success.

Methodology

Research Design

The present study adopts an empirical, cross-sectional research design aimed at examining the interrelationship between stress, coping mechanisms, and academic performance among undergraduate students. This design was selected because it provides an appropriate framework for exploring psychological constructs as they exist in a natural educational context without manipulation of variables. Stress and coping mechanisms are inherently subjective and vary from individual to individual; thus, the design allows the researcher to capture these differences at a single point in time. Furthermore, cross-sectional empirical research enables comparisons across a diverse group of participants in order to identify potential patterns and associations. Since the study focuses on undergraduate students' everyday experiences with stress and academic demands, an empirical design anchored in psychological assessment tools, structured interviews, and self-report measures was deemed most suitable.

Sample Size and Sampling Technique

The study was conducted with a sample size of 78 undergraduate students. The choice of 78 participants balances both feasibility and the statistical power required to analyze relationships between variables. This sample size was sufficient to ensure that the findings could be generalized within the limitations of the study, while also being manageable in terms of data collection and analysis.

The participants were selected through random sampling, ensuring that each student had an equal chance of being included in the study. Random selection minimizes bias and provides a more representative sample of the target population. The target population consisted of undergraduate students from multiple academic disciplines, including arts, sciences, commerce, and professional courses. This heterogeneity in academic backgrounds allowed the study to capture varying academic stressors and coping mechanisms across fields of study.

The inclusion criteria specified that participants must be full-time undergraduate students enrolled in their second or third year of study. First-year students were excluded as they may still be in a transitional phase adjusting to college life, and final-year students were excluded due to potential additional stress factors linked to career placement or postgraduate preparation. Students with self-reported chronic mental health disorders were also excluded to maintain the focus on academic stress rather than clinical conditions.

Data Collection Methods

Data for the study were collected using both in-person and online interviews to ensure accessibility and inclusivity. This mixed mode of data collection helped overcome challenges posed by scheduling conflicts, geographical distance, and personal preferences of participants.

In-person interviews were conducted within the university premises in designated quiet rooms, ensuring a comfortable and private environment for respondents. These sessions allowed for deeper

engagement with participants, providing the researcher an opportunity to clarify doubts, encourage elaboration, and observe non-verbal cues. On the other hand, online interviews were carried out via secure platforms such as Zoom and Google Meet, which enabled participants to join from their preferred location. This was particularly helpful for students who faced constraints of time or mobility.

The interviews followed a semi-structured format that combined standardized questions with opportunities for open-ended responses. This approach maintained the rigor of comparability across participants while allowing for richer qualitative insights into individual stressors and coping mechanisms.

Tools and Instruments

To measure the constructs of interest, the study utilized a combination of standardized psychological scales and interview-based data.

1. **Perceived Stress Scale (PSS)**: This widely used instrument assessed the perceived level of stress among students. It helped capture how unpredictable, uncontrollable, and overwhelming students found their lives to be in the last month.
2. **Brief COPE Inventory**: To evaluate coping mechanisms, the Brief COPE Inventory was administered. This scale measures diverse coping strategies, such as problem-focused coping (planning, active coping), emotion-focused coping (seeking emotional support, acceptance), and avoidance strategies (denial, self-distraction).
3. **Academic Performance Records**: Academic performance was measured through the cumulative grade point average (CGPA) or percentage scores as reported by the students. This provided an objective indicator of academic success, which could be statistically related to stress and coping variables.
4. **Demographic Profile Sheet**: A structured sheet was used to gather demographic details such as age, gender, academic stream, family background, and socioeconomic status. These variables served as control factors to explore differences in stress and coping patterns across groups.
5. **Interview Guide**: A semi-structured interview guide was prepared to elicit qualitative data regarding the specific sources of stress, perceived challenges in academic life, and personalized coping strategies that participants relied upon.

Procedure

Before data collection, ethical clearance was obtained from the university's institutional review board to ensure adherence to psychological research standards. After approval, participants were approached randomly through class lists and departmental records. Consent was obtained both in written form for in-person participants and digitally for online participants. Confidentiality was emphasized, and students were assured that their academic records and responses would be used solely for research purposes.

During in-person interviews, students were invited in small groups, and each was allocated approximately 30–40 minutes for completing questionnaires and engaging in the interview session. The online interviews followed a similar structure, where questionnaires were shared via secure survey links, followed by a scheduled video interview.

To avoid fatigue effects, the sessions were divided into two phases: first, completion of the demographic profile, PSS, and Brief COPE; second, a short break, followed by the interview discussion. Academic performance data were self-reported but verified where possible through academic records, ensuring accuracy.

Data Analysis

Data analysis was planned using both quantitative and qualitative techniques. The quantitative data from the PSS, Brief COPE, and academic performance scores were entered into statistical software for descriptive and inferential analysis. Measures of central tendency, variability, and frequency distributions were first computed to describe the demographic and stress-coping profiles of the sample.

Correlation analysis was then conducted to examine the association between stress levels and academic performance. Regression analysis was employed to identify which coping mechanisms significantly predicted academic outcomes after controlling for stress. Group comparisons were also performed to determine differences based on gender, academic stream, and socioeconomic background.

The qualitative data from the semi-structured interviews were transcribed verbatim. Thematic analysis was applied to identify recurring themes regarding sources of stress, preferred coping strategies, and subjective experiences of balancing academics with personal life. These themes provided a contextual interpretation of the quantitative results and enriched the overall findings of the study.

Reliability and Validity

Reliability of the instruments was ensured by using established and widely validated scales such as the PSS and Brief COPE Inventory. Internal consistency reliability of these scales has been well documented in prior psychological research. For the present study, Cronbach's alpha values were computed for both instruments to confirm their reliability within the sample.

Validity was enhanced by combining self-reported measures with objective academic records, ensuring that the findings reflected both subjective experiences and real outcomes. Triangulation of data sources—standardized questionnaires, academic records, and semi-structured interviews—further strengthened the validity of the study by providing multiple perspectives on the same phenomenon.

Ethical Considerations

The study was conducted with strict adherence to ethical principles of psychological research. Informed consent was obtained from all participants, and they were given the right to withdraw from the study at any stage without penalty. Confidentiality and anonymity were maintained by coding responses and securely storing the data. Sensitive questions regarding personal stressors were handled with empathy, and participants experiencing acute stress were referred to the university counseling center for further support.

Results and Discussion

The present study set out to examine the interrelationship between stress, coping mechanisms, and academic performance among undergraduate students. Using a cross-sectional empirical design with a sample of 78 students, data were analyzed across demographic characteristics, stress and exam anxiety, coping styles, lifestyle behaviors, and academic performance indicators. Correlations were further assessed to establish associations among these variables. In this section, the results are presented systematically, followed by a detailed discussion linking the findings with existing psychological literature.

Demographic Profile

Variable	Count	Mean	Std Dev	Top Category	Freq
Age	78	19.95	1.34	–	–
Gender	78	–	–	Male	38
Year	78	–	–	2nd Year	43
Stream	78	–	–	Arts	28

Table 1: Demographic Profile (n = 78)

Variable	Count	Mean	Std Dev	Top Category	Freq
Family Income	78	–	–	₹3–10L	41
Residence	78	–	–	Hosteller	42

The demographic data reveal that the mean age of participants was approximately 20 years, reflecting a cohort typically in the second or third year of undergraduate studies. The gender distribution was nearly balanced, with males comprising 38 participants and females slightly less, indicating gender diversity in the sample. The largest proportion of students were in their second year (43 students), which aligns with the inclusion criteria of focusing on students who have surpassed their transitional first year but are not yet burdened by final-year pressures.

Arts students constituted the largest stream group (28), though students from sciences, commerce, and professional courses were also included, ensuring disciplinary diversity. In terms of family income, most participants came from middle-income families, particularly in the ₹3–10 lakh annual bracket (41 students), reflecting a predominantly middle-class background. Residence status showed a fairly even split, with 42 hostellers and the remainder day scholars.

Discussion:

Demographic characteristics form the foundation for interpreting stress and coping patterns. Age homogeneity suggests that participants were developmentally comparable, limiting age as a confounding variable. However, socioeconomic differences, as indicated by family income, may influence stress, particularly in relation to financial stability and academic opportunities. Hostellers, often living away from family support systems, may experience higher stress due to adjustment difficulties, though they might simultaneously develop independence and resilience. These demographic distributions contextualize later findings on stress and coping.

Stress and Exam Anxiety

Table 2: Stress and Exam Anxiety

Variable	Mean	Std Dev	Min	25%	50 %	75%	Max
Perceived Stress (PSS)	17.37	5.29	6	14.25	18	21.75	28

Variable	Mean	Std Dev	Min	25%	50 %	75%	Max
Exam Anxiety (10–50)	26.96	7.13	11	22	27.5	31	46

The mean Perceived Stress Score (17.37) indicates a moderate level of stress among undergraduates. While some students reported relatively low stress (minimum = 6), others experienced significantly high stress levels, reaching as high as 28. The median (18) aligns closely with the mean, suggesting that most students fall within the moderate stress range.

Exam anxiety levels averaged 26.96, again reflecting a moderate profile. However, variability is noteworthy: while some students scored as low as 11, others reported severe anxiety approaching the upper limit (46). The interquartile range (22–31) demonstrates that at least half the participants clustered within moderate exam anxiety levels.

Discussion:
These findings echo the substantial literature on academic stress, where undergraduate students consistently report moderate to high levels of stress linked to examinations, performance pressure, and workload. Lazarus and Folkman's stress appraisal theory suggests that the perception of stress arises when students judge academic demands as exceeding their coping resources. Here, the variability in scores illustrates individual differences in appraisal processes—while some manage stress effectively, others perceive examinations as overwhelming threats.

Importantly, exam anxiety, while correlated with stress, represents a specific manifestation that can impair concentration and memory. The wide range observed suggests that institutional interventions, such as stress management workshops, could be particularly beneficial for high-anxiety individuals.

Coping Styles

Table 3: Coping Styles

Variable	Mean	Std Dev	Min	25%	50%	75%	Max
Problem-Focused (8–32)	20.53	4.11	12	18	21	23	31
Emotion-Focused (8–32)	17.91	3.01	10	16	18	20	24
Avoidant (8–32)	16.27	3.24	9	14	17	18	26

Dominant coping style distribution:

- Problem-focused → 55 students
- Emotion-focused → 19 students
- Avoidant → 4 students

The data demonstrate that problem-focused coping was the most dominant strategy, endorsed by 55 students. This approach involves active planning, problem-solving, and effortful engagement with academic demands. Emotion-focused coping, such as seeking emotional support or acceptance, was moderately represented, while avoidant coping was used least, with only 4 students adopting it as their dominant strategy.

Discussion:
The preference for problem-focused coping is an encouraging finding, as such strategies are generally adaptive in academic contexts where stressors are controllable. This aligns with Carver's model of coping, which emphasizes that problem-focused strategies enhance resilience and academic outcomes. However, the presence of emotion-focused and avoidant strategies indicates that not all students perceive stressors as controllable. Emotion-focused coping may be useful in circumstances beyond students' direct influence, but excessive reliance on avoidance is maladaptive, often linked to procrastination and academic underachievement.

The variability within coping scores also suggests flexibility: students may shift between strategies depending on context, reflecting the dynamic nature of coping processes.

Lifestyle and Behaviors

Table 4: Lifestyle and Behaviors

Variable	Mean	Std Dev	Min	25%	50 %	75 %	Max
Study Hours/Week	19.25	6.36	6.0	15.23	19.9	23.0	36.6
Sleep Hours/Night	6.63	0.92	4.1	6.1	6.65	7.2	8.8
Smartphone Use (hrs/day)	4.27	1.69	1.0	2.85	4.25	5.3	8.4
Physical Activity (days/wk)	2.15	1.40	0.0	1.0	2.0	3.0	6.0

On average, students reported studying approximately 19 hours per week, with considerable variation ranging from as low as 6 to over 36 hours. Sleep averaged 6.63 hours per night, slightly below the recommended 7–9 hours for young adults, suggesting a potential risk for sleep deprivation. Smartphone use averaged 4.27 hours daily, with some individuals reporting excessive use of over 8 hours. Physical activity was limited, with students exercising only about two days per week on average.

Discussion:
Lifestyle behaviors significantly mediate stress and academic outcomes. Moderate study hours indicate engagement, but extremes on either end may reflect maladaptive patterns—understudying may lead to poor performance, while overstudying may contribute to burnout. Sleep deprivation, evident in below-optimal averages, has well-documented negative impacts on concentration, memory, and mood regulation.

High smartphone use aligns with global findings on digital distraction, often linked with procrastination and poor sleep hygiene. Limited physical activity is another concerning trend, as exercise is a well-established buffer against stress. Together, these behaviors depict a profile where lifestyle modifications—particularly balanced study routines, adequate sleep, digital regulation, and increased physical activity—could enhance both academic performance and psychological well-being.

Academic Performance and Social Support

Table 5: Academic Performance and Support

Variable	Mean	Std Dev	Min	25%	50%	75%	Max
CGPA (out of 10)	7.13	0.72	5.73	6.61	7.13	7.56	8.82
Attendance (%)	82.87	6.21	69.1	78.45	83.65	87.25	92.7
Social Support (1–5)	3.14	0.53	2.0	2.73	3.15	3.50	4.6

Discussion:

The academic outcomes highlight variability consistent with differential stress and coping strategies. Students with higher CGPAs likely employed more adaptive strategies, engaged in consistent study habits, and benefited from supportive networks. Attendance patterns reinforce the role of classroom participation as a predictor of performance.

Moderate social support suggests that while many students feel adequately supported, others may lack strong networks, which can exacerbate stress. Literature emphasizes that perceived support mitigates the effects of stress, offering emotional resources and academic guidance.

Correlation Highlights

Table 6: Correlation Highlights (Selected)

- Stress vs Academic Performance:
  - Perceived Stress negatively correlated with CGPA (r = –0.55).
  - Exam Anxiety negatively correlated with CGPA (r = –0.24).
- Coping vs Performance:
  - Problem-focused coping positively correlated with CGPA (r = +0.67).
  - Avoidant coping negatively correlated with CGPA (r = –0.35).
- Lifestyle vs Performance:
  - Study Hours positively correlated with CGPA (r = +0.63).
  - Smartphone Use negatively correlated with CGPA (r = –0.31).
  - Sleep Hours weakly correlated with CGPA (r = –0.02).
- Stress vs Coping:
  - Perceived Stress positively correlated with Emotion-focused (r = +0.45) and Avoidant (r = +0.48) coping.
  - Perceived Stress negatively correlated with Problem-focused coping (r = –0.33).

The mean CGPA of 7.13 indicates moderate academic success. While some students achieved high performance (up to 8.82), others were at risk of poor outcomes (as low as 5.73). Attendance was relatively high, averaging above 82%, suggesting overall academic engagement. Social support, averaging 3.14 on a 5-point scale, reflects moderately positive perceptions of peer, family, or institutional backing.

Discussion:
The correlations provide robust evidence of interrelationships central to this study. Higher stress was significantly linked with lower academic performance, a finding consistent with cognitive interference theories that stress hampers concentration and executive functioning. Exam anxiety, though less strongly correlated, also detracted from performance, highlighting its disruptive role during evaluations.

Coping strategies played a pivotal role. Problem-focused coping showed the strongest positive correlation with CGPA (+0.67), underlining its

effectiveness in academic contexts. Conversely, avoidant coping undermined performance, likely through procrastination and disengagement. Emotion-focused coping's positive association with stress underscores its role as a reactive rather than proactive strategy, offering temporary relief but not necessarily enhancing performance.

Lifestyle correlations reinforce the practical implications: more study hours predicted higher CGPA, whereas excessive smartphone use eroded performance. Interestingly, sleep hours showed no meaningful correlation, perhaps due to compensatory strategies—students may adapt by studying more despite reduced sleep.

Together, these correlations affirm the transactional model of stress and coping, demonstrating that outcomes hinge on both perceived stress and the strategies employed.

Overall Synthesis

The results collectively highlight the intricate interplay of stress, coping, lifestyle, and academic performance. Stress is a pervasive factor in undergraduate life, yet its impact is mediated by coping mechanisms. Students who adopt problem-focused strategies, maintain balanced study routines, and regulate smartphone use fare significantly better academically. Conversely, avoidant coping, high stress, and maladaptive behaviors undermine success.

These findings echo global studies while adding contextual nuance from Indian undergraduate settings, where academic competition, family expectations, and transitional independence converge. Importantly, the study underscores the need for institutional support systems -counseling services, stress management workshops, and awareness campaigns on digital wellness and physical activity.
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