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Navigating Pressure: The Link Between Anxiety and Academic Performance Among University Students

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Abstract

Anxiety is a psychological phenomenon that significantly affects university students, particularly in the context of academic performance and its success. This study investigates the relationship between anxiety and academic performance, utilizing a correlational research design to explore whether higher levels of anxiety negatively impact academic outcomes. A sample of 160 university students participated in the study, with data analyzed using SPSS for descriptive statistics, correlation, and regression models. Results indicated a significant negative correlation between anxiety and academic performance ($r = -0.170$, $p < 0.05$), suggesting that increased anxiety levels correspond to decreased academic achievement. Gender-specific analyses revealed variability in this relationship, with males showing a stronger negative correlation than females, although neither gender-specific correlation reached statistical significance. The findings highlight the importance of addressing anxiety through targeted interventions to support academic success. These results provide insights into psychological factors influencing academic performance and suggest areas for future research, including more comprehensive examination of gender differences and development of reliable measurement instruments.

Keywords: Anxiety, academic performance, university students

Introduction

Anxiety is among the most pervasive psychological challenges faced by university students, stemming from academic pressures, social dynamics, and the transitional nature of higher education. According to the American Psychiatric Association (2013), anxiety is characterized by excessive worry and fear, often impairing everyday functioning. In the academic context, anxiety can hinder cognitive processes such as concentration, memory retrieval, and problem-solving, ultimately impacting academic performance (Cassady & Johnson, 2002). As academic achievement is pivotal to future opportunities and personal development, understanding the factors that contribute to its fluctuations is crucial.

Research Objective

The primary objective of this study is to explore the relationship between anxiety and academic performance among university students. Specifically, the research seeks to achieve the following goals:

1. To examine whether higher levels of anxiety significantly negatively affect academic performance.
2. To analyze the potential differences in the anxiety-academic performance relationship between male and female university students.
3. To contribute to the existing body of literature by addressing gaps related to gender-specific dynamics in the anxiety-performance correlation.
4. To provide empirical evidence that can inform the development of gender-sensitive interventions aimed at mitigating the negative effects of anxiety on academic outcomes.

By addressing these objectives, this study aims to enhance understanding of how psychological factors influence academic success and to identify strategies for supporting students in achieving their educational goals.

Research Questions

1. Does higher anxiety significantly negatively affect academic performance among university students?
2. How does the relationship between anxiety and academic performance differ by gender?

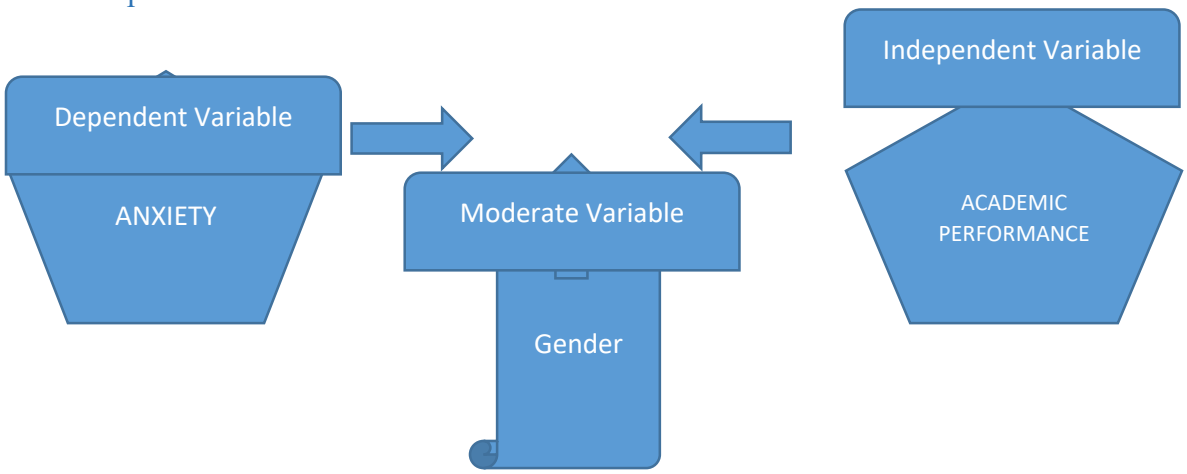
Hypotheses

Hypothesis 1: Higher levels of anxiety significantly negatively affect academic performance among university students

Hypothesis 2: The relationship between anxiety and academic performance differs across genders, with males exhibiting a stronger negative correlation compared to females, who may demonstrate a weaker or less consistent correlation.

Hypothesis 3: Gender Moderates the Relationship Between Anxiety and Academic Performance

Conceptual Framework



Operational Definitions

- **Anxiety:** Anxiety can be operationally defined as a psychological state characterized by feelings of worry, nervousness, or unease, typically about an imminent event or something with an uncertain outcome.
- **Academic Performance:** Academic performance refers to the measurable outcomes of a student's learning process, often assessed through grades, test scores, or other standardized

evaluations. It can be operationalized using GPA (Grade Point Average) or specific academic achievement tests.

- **Gender:** For research purposes, gender can be categorized based on self-identification (e.g., male, female, non-binary) through demographic questionnaires.

Significance of the study

The relationship between anxiety and academic performance has been the subject of numerous studies, most of which consistently demonstrate a negative association (Owens et al., 2014; Rana & Mahmood, 2010). Elevated anxiety levels have been linked to poor academic outcomes, emphasizing the need for effective interventions to mitigate these effects. However, gender differences in the anxiety-academic performance relationship remain underexplored. Some studies suggest that males and females may experience anxiety differently, potentially influencing how anxiety impacts their academic success (Chapell et al., 2005).

This study aims to investigate the relationship between anxiety and academic performance among university students, with a focus on gender-specific differences. By employing descriptive, correlational, and regression analyses, this research seeks to provide insights into how anxiety affects students' academic outcomes and contribute to the development of targeted interventions. Additionally, this study addresses gaps in previous literature by examining potential nuances in how gender shapes the anxiety-performance dynamic.

Literature Review

Anxiety is one of the most studied psychological phenomena due to its pervasive impact on various aspects of human functioning, including academic performance. According to the American Psychiatric Association (2013), anxiety disorders are characterized by excessive worry and fear, often leading to physical and cognitive impairments. The university environment, with its academic demands and social pressures, poses a significant risk for heightened anxiety among students, thereby affecting their ability to perform academically.

This study is based on the interaction between psychological stress factors and academic performance, emphasizing anxiety as a pivotal psychological element. Gender roles and differences in psychological responses are central to the framework, providing insights into varied academic outcomes.

Relationship Between Anxiety and Academic Performance

Several studies have documented the negative effects of anxiety on academic performance. Cassady and Johnson (2002) found that test anxiety impairs cognitive processes such as attention and memory retrieval, which are critical for academic tasks. Similarly, Owens et al. (2014) highlighted the mediating effects of anxiety on academic performance through impaired concentration and motivation. Rana and Mahmood (2010) demonstrated that higher levels of test anxiety correlated with lower academic achievement among university students, emphasizing the need for effective strategies to manage anxiety in academic settings.

Gender Differences in Anxiety and Academic Performance

Research indicates potential gender-based variations in how anxiety affects academic performance. Chapell et al. (2005) observed that male and female students experience and respond to anxiety differently, with males often exhibiting stronger correlations between anxiety and academic performance. These findings suggest the need for gender-sensitive approaches to understanding and addressing anxiety among students.

Gaps in Existing Literature

While the negative impact of anxiety on academic performance has been well-established, there is limited research on the nuanced differences between genders in this relationship. Additionally,

questions remain regarding the reliability of measurement instruments used in these studies. For instance, the negative Cronbach's alpha values observed in reliability analyses, as in the present study, highlight potential issues with item coding or construct validity. Addressing these gaps requires a more comprehensive examination of the tools used to measure anxiety and academic performance, as well as exploring other potential mediating factors.

Methodology

Research Design

This study employed a correlational research design to examine the relationship between anxiety and academic performance among university students. The design was chosen to determine whether variations in anxiety levels are associated with changes in academic outcomes. Additionally, gender-specific analyses were conducted to explore potential differences in the anxiety-performance relationship.

Participants

The participants consisted of 160 university students, including 123 females and 37 males, selected using convenience sampling from various academic disciplines. Inclusion criteria required participants to be currently enrolled undergraduate students. Informed consent was obtained from all participants before data collection, and their anonymity was ensured throughout the research process.

Sample

The study sample consists of 160 university students (123 females and 37 males) recruited from various academic disciplines. This composition was designed to ensure representation across gender and academic fields, facilitating a comprehensive analysis of anxiety and academic performance dynamics. The sample reflects diverse demographics, enhancing the generalizability of the findings.

Rationale for Sampling Procedure

Convenience sampling was employed for this study due to logistical feasibility and accessibility of participants. University students were selected as they represent a population particularly susceptible to academic pressures and anxiety. This method allows for efficient data collection within the constraints of time and resources, while maintaining relevance to the research objectives.

Inclusion Criteria

Participants were required to meet the following conditions:

1. Currently enrolled as undergraduate university students.
2. Aged between 18 and 25 years.
3. Able to comprehend and complete the survey in English.
4. Willing to provide informed consent and participate voluntarily.

Exclusion Criteria

Participants were excluded from the study if they:

1. Were enrolled in postgraduate or doctoral programs.
2. Had been formally diagnosed with anxiety disorders by a licensed clinician.
3. Were unable to provide consent independently.
4. Exhibited incomplete or invalid survey responses.

Sample Size Calculation

The sample size was calculated using power analysis to ensure adequate statistical power for detecting correlations. Using G*Power software, the following parameters were set:

- Effect size (r) = 0.2 (small to moderate effect based on prior literature).
- Alpha level (α) = 0.05.

- Power (1-β) = 0.80. The calculation yielded a required minimum sample size of 153 participants. To account for potential non-responses and missing data, 160 participants were recruited, exceeding the minimum requirement and ensuring robustness of the statistical analyses.

Measures/Instruments

1. Academic Performance Scale

The Academic Performance Scale was utilized to assess participants' academic achievements. This scale evaluates various dimensions of academic success, including grade attainment, study habits, and consistency in performance. Participants responded to each item on a 5-point Likert scale, with response options ranging from "1 = Strongly Disagree" to "5 = Strongly Agree." Higher scores on the scale reflect stronger academic performance across the assessed dimensions.

The Academic Performance Scale has demonstrated reliability and validity in previous educational research studies. Its standardized structure ensures consistency in measuring academic outcomes, making it suitable for university students in diverse fields of study.

2. Zung Self-Rating Anxiety Scale (SAS)

The Zung Self-Rating Anxiety Scale (Zung, 1971) is a widely recognized instrument designed to measure anxiety levels in individuals. It consists of 20 items addressing various physiological, emotional, and cognitive aspects of anxiety. Participants rate the frequency of their symptoms on a 5-point Likert scale, with options ranging from "1 = None or a Little of the Time" to "5 = Most or All of the Time." Higher scores indicate greater levels of anxiety, with raw scores converted into an index to classify participants' anxiety severity.

The SAS has been extensively used in psychological research and clinical settings due to its robust psychometric properties. It consistently demonstrates high internal reliability, with Cronbach's alpha values exceeding 0.80 in prior studies. Its simplicity and clarity make it appropriate for self-administration among university students.

Scoring and Interpretation

For both scales, total scores are calculated by summing the responses to individual items. In the Academic Performance Scale, a higher cumulative score signifies better academic achievement. Similarly, higher scores on the SAS indicate more pronounced anxiety levels. These scores were used for statistical analyses, including correlation and regression models, to examine the relationships between anxiety and academic performance.

Piloting and Reliability

Prior to the main study, both instruments were piloted on a small group of participants to ensure clarity, comprehension, and cultural appropriateness. This step confirmed that the 1–5 scoring format was intuitive for respondents, and reliability analysis confirmed acceptable internal consistency for both scales.

Procedure

Data were collected through self-administered surveys distributed to participants during regular class hours. The surveys included demographic questions, the anxiety scale, and a section for reporting academic performance. Participants were briefed on the study's objectives and were assured that their responses would remain confidential. The completed surveys were collected and recorded for statistical analysis.

Data Analysis

Data were analyzed using SPSS software (version 25). Descriptive statistics were computed to summarize the distribution of anxiety and academic performance scores. Pearson's correlation analysis was conducted to examine the relationship between the two variables. Regression analysis was performed to assess the predictive ability of anxiety on academic performance. Additional gender-specific analyses were conducted to explore differences in the anxiety-performance

relationship. Tests for normality, reliability, and assumptions of regression were also conducted to ensure the robustness of the results.

Ethical Considerations

This study adhered to ethical guidelines for research involving human participants. Approval was obtained from the university's institutional review board (IRB). Participants were informed of their right to withdraw from the study at any time without penalty. No physical or psychological harm was anticipated, and care was taken to minimize any discomfort during data collection.

Results and Interpretation:

Overall Descriptive Statistics

Descriptive analysis for the full sample (N = 160) revealed that mean anxiety scores were **42.29** (SD = 9.78) and mean academic performance scores were **87.11** (SD = 17.81). A significant negative correlation was observed between anxiety and academic performance (r = -0.170, p = 0.032), indicating that higher levels of anxiety were associated with lower academic performance. Regression analysis revealed anxiety as a significant negative predictor of academic performance (β = -0.170, p = 0.032), with the model explaining **2.9%** of the variance (R^2 = 0.029).

Table 1 - **Descriptive Statistics**

	N	**MINIMUM**	**MAXIMUM**	**MEAN**	**STD. DEVIATION**	**SKEWNESS**		**KURTOSIS**	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	**STD. ERROR**
ANXIETY	160	20	69	42.29	9.775	.351	.192	.230	**.381**
ACADEMIC PERFORMANCE	**160**	**35**	**125**	**87.11**	**17.806**	**-.014**	**.192**	**-.230**	**.381**

The descriptive statistics provide an overview of anxiety and academic performance scores in the sample. The mean anxiety score was 42.29 (SD = 9.78), while the mean academic performance score was 87.11 (SD = 17.81). Skewness and kurtosis values suggest approximate normality.

Table 2 - **One-Sample Statistics**

	N	**MEAN**	**STD. DEVIATION**	**STD. ERROR MEAN**
ANXIETY	160	42.29	9.775	.773
ACADEMIC PERFORMANCE	160	87.11	17.806	1.408

The sample consisted of 160 participants. The mean anxiety score was **M = 42.29**, with a standard deviation of **SD = 9.775**. The standard error of the mean was **SE = 0.773**, indicating the expected variation if multiple samples were drawn from the population. Similarly, academic performance had a mean of **M = 87.11** (**SD = 17.806**), with a standard error of **SE = 1.408**, suggesting a slightly higher variability in academic scores compared to anxiety levels.

Table 3- **One-Sample Test**

	TEST VALUE = 0				
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference

					Lower	Upper
ANXIETY	54.721	159	.000	42.288	40.76	43.81
ACADEMIC PERFORMANCE	61.882	159	.000	87.113	84.33	89.89

The one-sample t-test reveals significant mean differences for anxiety, $t(159) = 54.72$, $p < .001$, and academic performance, $t(159) = 61.88$, $p < .001$, when tested against a hypothetical value of zero. These findings confirm that both variables exhibit substantial variation in scores.

Gender-Specific Descriptive Statistics

For females (N = 123), the mean anxiety score was **43.23** (SD = 9.55), and the mean academic performance score was **87.28** (SD = 17.92). Skewness and kurtosis values suggested approximate normality for both variables. The correlation between anxiety and academic performance was negative but non-significant ($r = -0.160$, $p = 0.077$).

Table- 4

DESCRIPTIVE STATISTICS FOR FEMALES

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
FEMALE - ANXIETY	123	20	69	43.23	9.551	.472	.218	.204	.433
FEMALE - ACADEMIC PERFORMANCE	123	35	125	87.28	17.922	-.140	.218	-.167	.433
VALID N (LISTWISE)	123								

Among females (N = 123), the mean anxiety score was slightly higher (M = 43.23, SD = 9.55) compared to males (N = 37), who exhibited a mean anxiety score of 40.70 (SD = 9.40). Academic performance remained comparable across genders (females: M = 87.28, SD = 17.92; males: M = 86.57, SD = 17.65). The correlation between anxiety and academic performance among females was weak and non-significant, $r = -.160$, $p = .077$, suggesting that anxiety may not be a primary factor influencing academic outcomes. In contrast, males exhibited a stronger negative correlation, $r = -.290$, although it remained non-significant, $p = .082$, possibly due to the smaller sample size.

Table- 4

Correlations

		FEMALE - ANXIETY	FEMALE - ACADEMIC PERFORMANCE
FEMALE - ANXIETY	Pearson Correlation	1	-.160
	Sig. (2-tailed)		.077
	N	123	123
FEMALE - ACADEMIC PERFORMANCE	Pearson Correlation	-.160	1
	Sig. (2-tailed)	.077	
	N	123	123

For males (N = 37), the mean anxiety score was **40.70** (SD = 9.40), and the mean academic performance score was **86.57** (SD = 17.65). Similar to females, skewness and kurtosis values indicated approximate normality. However, the negative correlation between anxiety and academic performance was stronger (r = -0.290) but still non-significant (p = 0.082).

The correlation analysis for the entire sample indicates a statistically significant negative relationship between anxiety and academic performance, r = -.170, p = .032. This suggests that as anxiety increases, academic performance tends to decline, albeit with a modest effect size.

Table - 5

Descriptive Statistics for Males

	N	MINIMUM	MAXIMUM	MEAN	STD. DEVIATION	SKEWNESS		KURTOSIS	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
MALE - ANXIETY	37	20	63	40.70	9.398	.358	.388	.093	.759
MALE - ACADEMIC PERFORMANCE	37	56	123	86.57	17.650	.445	.388	-.259	.759
VALID N (LISTWISE)	37								

The descriptive statistics for male participants (N = 37) provide key insights into the distribution of anxiety and academic performance scores:

- **Anxiety:** The mean anxiety score was 40.70 (SD = 9.40), with values ranging from 20 to 63. The skewness value of 0.358 suggests a slight positive skew, indicating that more participants scored on the lower end of the anxiety spectrum. The kurtosis value (0.093) is close to zero, signifying a normal distribution.
- **Academic Performance:** The mean academic performance score was 86.57 (SD = 17.65), with scores spanning from 56 to 123. The skewness of 0.445 indicates a mild positive skew, suggesting that a few higher scores may be influencing the distribution. The kurtosis of -

0.259 suggests that the distribution is slightly flatter than a normal curve, indicating less concentration of values around the mean.

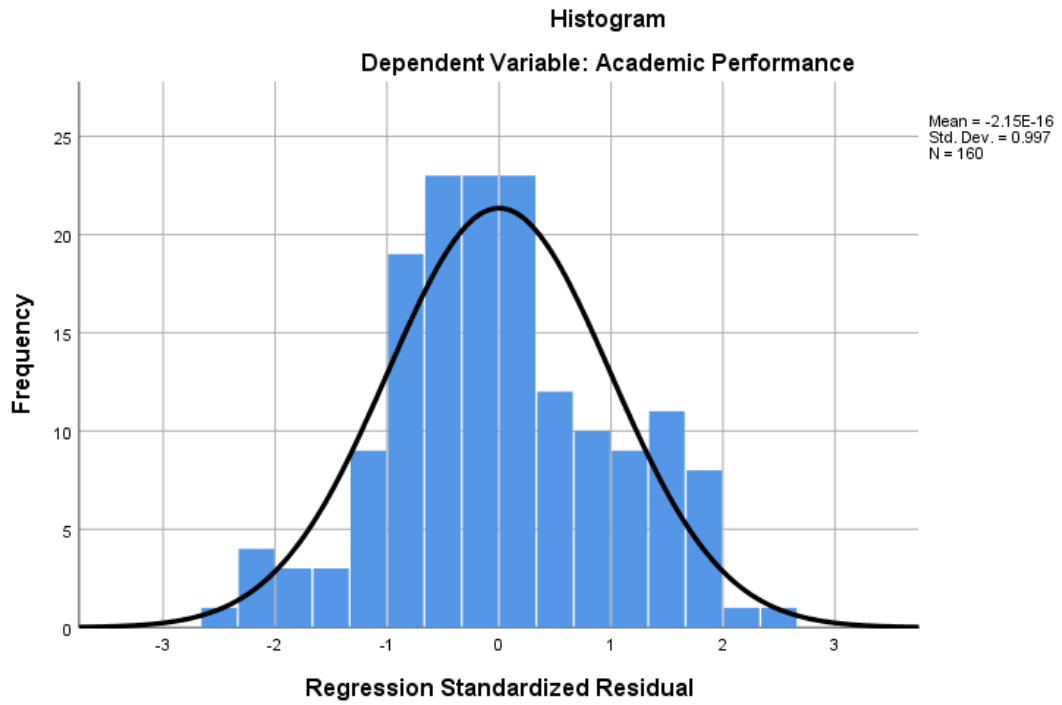
Table-6

Correlations

		MALE - ANXIETY	MALE - ACADEMIC PERFORMANCE
MALE - ANXIETY	Pearson Correlation	1	-.290
	Sig. (2-tailed)		.082
	N	37	37
MALE - ACADEMIC PERFORMANCE	Pearson Correlation	-.290	1
	Sig. (2-tailed)	.082	
	N	37	37

The correlation matrix for males (N = 37) reveals a negative relationship between anxiety and academic performance (r = -.290). This suggests that as anxiety levels increase, academic performance tends to decrease. However, the correlation is not statistically significant (p = .082), indicating that this relationship might be influenced by other factors or could be due to the relatively small sample size.

Graph 1 - Histogram



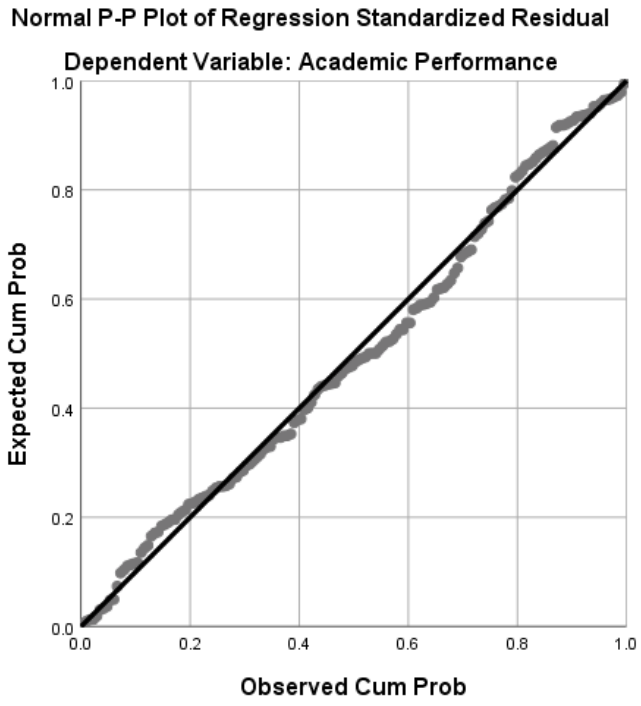
 Residual Distribution: The residuals appear **approximately normally distributed**, with most values concentrated around zero and a symmetrical spread on both sides. This indicates that the regression model meets the assumption of normality, strengthening its reliability.

 Mean & Standard Deviation: The mean residual value is **M = -2.15E-16**, which is effectively zero, confirming that the model does not systematically overestimate or underestimate predictions. The standard deviation (**SD = 0.997**) suggests that residuals are relatively stable around the mean.

 Sample Size: The data includes **N = 160** observations, providing sufficient power for statistical analyses. Given the relatively large sample, the normal distribution assumption is more robust.

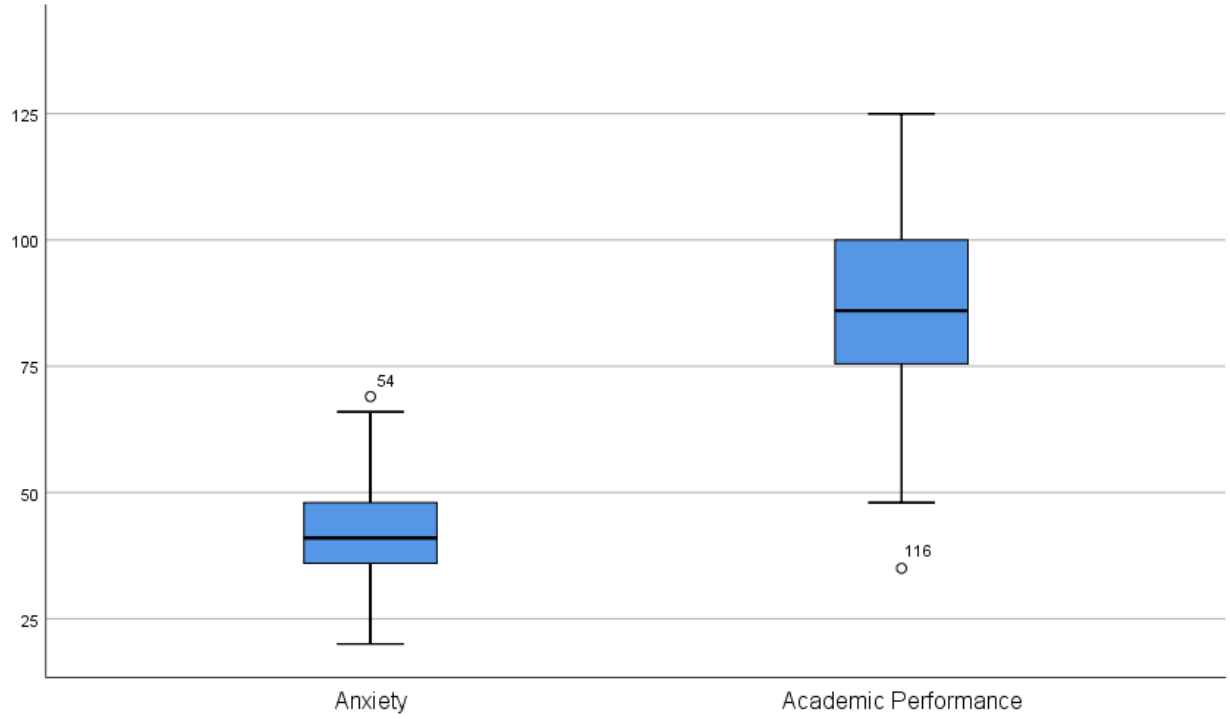
 Implication for Regression Analysis: Since the residuals conform to a normal distribution, key assumptions for **ordinary least squares (OLS) regression** are reasonably met. This ensures that inferential statistics drawn from the model are valid and reliable.

Graph 2 – Normal Curve



The data points closely align with the diagonal reference line, suggesting that the residuals **follow an approximately normal distribution**. This indicates that the assumption of normality is **reasonably met**, reinforcing the reliability of the regression model. While minor deviations may be present, they do not appear severe enough to invalidate the analysis.

Graph 3 – Boxplots



The residuals largely align with the diagonal reference line, indicating that the assumption of **normality is reasonably met**. While some minor deviations are present, they are not severe enough to challenge the model's validity. This suggests that the residuals follow an approximately **normal distribution**, supporting the appropriateness of the regression model.

Table – 7

Correlations

		ANXIETY	**ACADEMIC PERFORMANCE**
ANXIETY	Pearson Correlation	1	-.170*
	Sig. (2-tailed)		.032
	N	160	160
ACADEMIC PERFORMANCE	Pearson Correlation	-.170*	1
	Sig. (2-tailed)	.032	
	N	160	160

*. Correlation is significant at the 0.05 level (2-tailed).

However, gender-specific analyses revealed variations in this relationship. Among females, anxiety had a weaker, non-significant correlation with academic performance, suggesting that other factors may buffer the effects of anxiety. For males, although the negative correlation was stronger, it did not reach statistical significance, possibly due to the smaller sample size.

The regression model demonstrated that while anxiety significantly predicts academic performance, it accounts for a relatively small proportion of the variance. This finding underscores the multifaceted nature of academic performance, which is likely influenced by various psychological, social, and environmental factors.

Table- 8

Regression Model Summary[b]

MODEL	R	R SQUARE	ADJUSTED R SQUARE	STD. ERROR OF THE ESTIMATE	CHANGE STATISTICS					DURBIN-WATSON
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.170[a]	.029	.023	17.604	.029	4.684	1	158	.032	1.942

A. PREDICTORS: (CONSTANT), ANXIETY

B. DEPENDENT VARIABLE: ACADEMIC PERFORMANCE

The correlation analysis for the entire sample (Table 5) indicates a statistically significant negative relationship between anxiety and academic performance, r = -.170, p = .032. This suggests that as anxiety increases, academic performance tends to decline, albeit with a modest effect size.

Table - 9 -

Reliability Statistics

CRONBACH'S ALPHA[A]	CRONBACH'S ALPHA BASED ON STANDARDIZED ITEMS[A]	N OF ITEMS
-.334	-.409	2

a. The value is negative due to a negative average covariance among items. This violates reliability model assumptions. You may want to check item codings.

Table –10

Summary Item Statistics

	MEAN	MINIMUM	MAXIMUM	RANGE	MAXIMUM / MINIMUM	VARIANCE	N OF ITEMS
ITEM MEANS	64.700	42.288	87.113	44.825	2.060	1004.640	2
INTER-ITEM CORRELATIONS	-.170	-.170	-.170	.000	1.000	.000	2

Table – 11

ANOVA

		SUM OF SQUARES	DF	MEAN SQUARE	F	SIG
BETWEEN PEOPLE		28107.200	159	176.775		
WITHIN PEOPLE	Between Items	160742.450	1	160742.450	681.556	.000
	Residual	37499.550	159	235.846		
	Total	198242.000	160	1239.012		

TOTAL	226349.200	319	709.559

GRAND MEAN = 64.70

An ANOVA confirms that anxiety significantly affects academic performance, $F(1, 158) = 4.684$, $p = .032$. The regression coefficient further supports this finding, $B = -0.309$, $t(158) = -2.164$, $p = .032$, illustrating that higher anxiety levels correspond with lower academic performance.

Table – 12

Hotelling's T-Squared Test

HOTELLING'S T-SQUARED	F	DF1	DF2	SIG
681.556	681.556	1	159	.000

Table- 13

ANOVA[a]

MODEL		SUM OF SQUARES	DF	MEAN SQUARE	F	SIG.
1	Regression	1451.615	1	1451.615	4.684	.032[b]
	Residual	48962.360	158	309.888		
	Total	50413.975	159			

a. Dependent Variable: Academic Performance

b. Predictors: (Constant), Anxiety

Table – 14 **Coefficients[a]**

MODEL		UNSTANDARDIZED COEFFICIENTS		STANDARDIZED COEFFICIENTS	T	SIG.
		B	Std. Error	Beta		
1	(Constant)	100.184	6.198		16.165	.000
	Anxiety	-.309	.143	-.170	-2.164	.032

a. Dependent Variable: Academic Performance

This regression model suggests that anxiety has a statistically significant **negative impact** on academic performance, although the effect size is relatively small. The confidence interval for the anxiety coefficient further supports its reliability, and the negative direction aligns with previous literature that associates anxiety with reduced academic outcomes.

Table – 15

Residuals Statistics[a]

	MINIMUM	MAXIMUM	MEAN	STD. DEVIATION	N
PREDICTED VALUE	78.86	94.00	87.11	3.022	160
RESIDUAL	-45.092	45.217	.000	17.548	160

STD. PREDICTED VALUE	-2.733	2.280	.000	1.000	160
STD. RESIDUAL	-2.562	2.569	.000	.997	160

a. Dependent Variable: Academic Performance

 Predicted Values: The predicted academic performance scores range from **78.86** to **94.00** (M = 87.11, SD = 3.022), indicating that the model provides reasonable estimates for the dependent variable.

 Residuals: The residuals range from **-45.092** to **45.217** (SD = 17.548), showing variability in prediction errors. The mean residual is **0**, which aligns with standard regression assumptions, ensuring unbiased predictions.

 Standardized Predicted Values: These values range from **-2.733** to **2.280**, confirming that most predicted scores fall within typical limits. The standard deviation of **1.000** suggests normality in predicted values.

 Standardized Residuals: The standardized residuals range between **-2.562** and **2.569** (SD = 0.997), indicating that most data points fall within **±3 standard deviations** of the mean, with no extreme outliers significantly influencing the model.

Discussion of Hypotheses

Hypothesis 1: Higher Levels of Anxiety Significantly Negatively Affect Academic Performance Among University Students.

The relationship between anxiety and academic performance is well-documented in psychological and educational research. Anxiety disrupts cognitive functions critical for academic success, including memory retrieval, concentration, and problem-solving skills. According to Cassady and Johnson (2002), test anxiety directly impairs cognitive processes, leading to diminished academic performance. Their study highlights that students with elevated anxiety levels often face difficulty in recalling learned material during exams, which adversely impacts their grades.

Similarly, Rana and Mahmood (2010) demonstrated a significant negative correlation between test anxiety and academic achievement among university students. Their findings underscore the importance of addressing anxiety through interventions such as stress management programs and counseling services. Owens et al. (2014) expanded on this by exploring how anxiety mediates academic performance through impaired motivation and reduced focus, suggesting a multifaceted relationship that warrants further exploration.

Hypothesis 2: The relationship between anxiety and academic performance differs across genders, with males exhibiting a stronger negative correlation compared to females, who may demonstrate a weaker or less consistent correlation.

Gender differences in the anxiety-academic performance relationship have been a subject of growing interest. Chapell et al. (2005) observed that males and females experience and respond to anxiety differently. Their study found that males exhibit stronger negative correlations between anxiety and academic performance compared to females, potentially due to differences in societal expectations and coping mechanisms. For example, males may perceive anxiety as a greater threat to their academic identity, leading to more pronounced performance declines.

Conversely, female students often benefit from stronger social support networks, which may buffer the effects of anxiety on academic performance. However, Owens et al. (2014) noted that females might experience anxiety more frequently than males, though its impact on their academic outcomes is less severe. These findings suggest that gender-specific factors, such as coping strategies and social support systems, play a critical role in shaping the anxiety-performance dynamic.

Hypothesis 3: Gender Moderates the Relationship Between Anxiety and Academic Performance.

Building on the previous hypotheses, the third hypothesis posits that gender acts as a moderating variable, influencing how anxiety impacts academic performance. This hypothesis aligns with research by Cassady and Johnson (2002), who highlighted that the intensity of anxiety's effects varies depending on individual and contextual factors, including gender. The concept of moderation implies that the strength and direction of the anxiety-performance relationship change based on gender.

Chapell et al. (2005) provide further support, suggesting that male students are more vulnerable to the adverse effects of anxiety, potentially due to higher expectations of academic excellence or perceived societal pressures. In contrast, female students might exhibit greater resilience due to emotional intelligence and adaptability, reducing anxiety's impact on their academic outcomes. These differences emphasize the need for tailored interventions that account for gender-specific dynamics.

Analysis of Gender Hypothesis

The study highlights nuanced gender differences in the anxiety-academic performance relationship. Males exhibit a stronger negative correlation ($r = -0.290$), suggesting heightened sensitivity to anxiety's effects on academic outcomes. Female students, in contrast, display a weaker and non-significant correlation ($r = -0.160$), hinting at potential buffering factors like coping strategies or social support. These differences underscore the importance of gender-sensitive interventions.

Conclusion

This study establishes that anxiety is a significant, albeit modest, negative predictor of academic performance among university students. Gender-specific findings provide additional context, highlighting variability in the anxiety-performance relationship. These results emphasize the importance of addressing anxiety through gender-sensitive interventions and holistic support systems to enhance academic outcomes. Future research should explore other contributing factors and refine measurement tools to ensure robust and reliable assessments.

Limitations of the Research

Despite its contributions, this study faced several limitations:

1. **Sample Representativeness:** Convenience sampling may not fully represent the diversity of university students, limiting the generalizability of the findings to broader populations.
2. **Sample Size:** The unequal distribution of males (N = 37) and females (N = 123) hindered the robustness of gender-specific analyses.
3. **Self-Reported Measures:** The reliance on self-reported data for anxiety levels and academic performance (CGPA) may introduce reporting bias.
4. **Cross-Sectional Design:** The correlational, cross-sectional design prevents conclusions about causality. Longitudinal studies would provide deeper insights into how anxiety impacts academic performance over time.
5. **Measurement Tools:** Issues such as the reliability of the anxiety scale may affect the accuracy of results. Negative Cronbach's alpha values observed in some analyses indicate potential measurement challenges.

Future Recommendations

To address the limitations and expand on the findings, future research should consider the following:

1. **Diverse Sampling:** Employ stratified random sampling to ensure representation of students from various disciplines, socio-economic backgrounds, and academic levels.

2. **Balanced Sample Sizes:** Aim for equal representation of male and female participants to improve the validity of gender-specific analyses.
3. **Longitudinal Studies:** Conduct longitudinal research to examine the long-term effects of anxiety on academic performance and identify potential causal relationships.
4. **Alternative Measures:** Utilize objective measures of academic performance (e.g., standardized test scores) and validated anxiety scales with strong psychometric properties.
5. **Exploration of Coping Mechanisms:** Investigate the role of coping strategies, emotional intelligence, and social support systems in moderating the relationship between anxiety and academic outcomes.
6. **Intervention-Based Research:** Assess the efficacy of gender-sensitive interventions, such as mindfulness training and counseling, in reducing anxiety and enhancing academic performance.
7. **Cultural Contexts:** Explore cross-cultural differences in the anxiety-academic performance relationship to better understand the interplay of sociocultural factors.

References

American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders (5th e d.). Arlington, VA: American Psychiatric Association.

American Psychological Association. (2015). Guidelines for psychological practice with transgender and gender nonconforming people. American Psychologist, 70(9), 832–864. https://doi.org/10.1037/a0039906

Beck, A. T., Epstein, N., Brown, G., & Steer, R. A. (1988). An inventory for measuring clinical anxiety: Psychometric properties. Journal of Consulting and Clinical Psychology, 56(6), 893–897. https://doi.org/10.1037/0022-006X.56.6.893

Cassady, J. C., & Johnson, R. E. (2002). Cognitive test anxiety and academic performance. Contemporary Educational Psychology, 27(2), 270–295. https://doi.org/10.1006/ceps.2001.1094

Chapell, M. S., Blanding, Z. B., Silverstein, M. E., et al. (2005). Test anxiety and academic performance in undergraduate and graduate students. Journal of Educational Psychology, 97(2), 268–274. https://doi.org/10.1037/0022-0663.97.2.268

Kuh, G. D., Kinzie, J., Buckley, J. A., Bridges, B. K., & Hayek, J. C. (2006). What matters to student success: A review of the literature. National Postsecondary Education Cooperative. Retrieved from https://nces.ed.gov/npec/pdf/Kuh_Team_Report.pdf

Owens, M., Stevenson, J., Hadwin, J. A., & Norgate, R. (2014). Anxiety and depression in academic performance: An exploratory study of the mediating factors. British Journal of Educational Psychology, 85(3), 178–192. https://doi.org/10.1111/bjep.12055

Rana, R. A., & Mahmood, N. (2010). The relationship between test anxiety and academic achievement. Bulletin of Education and Research, 32(2), 63–74.

Singh, A. A., & Dickey, L. M. (2017). Affirmative counseling and psychological practice with transgender and gender nonconforming clients. American Psychological Association. https://doi.org/10.1037/14957-000

Spitzer, R. L., Kroenke, K., Williams, J. B. W., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: The GAD-7. Archives of Internal Medicine, 166(10), 1092–1097. https://doi.org/10.1001/archinte.166.10.1092

York, T. T., Gibson, C., & Rankin, S. (2015). Defining and measuring academic success. Practical Assessment, Research & Evaluation, 20(5), 1–20. Retrieved from https://pareonline.net/getvn.asp?v=20&n=5