Relationship between Anxiety and Mental Health of Students Studying Statistics: A Descriptive-Correlational Approach

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Abstract

Statistics at the college level is one of the most technical subjects that needs to have good mental health so that the students can perform well. This study focused on the investigation of the level of anxiety and mental health of college students in learning statistics. A total of 120 engineering students participated in the survey selected as complete enumeration. Data collection was done through a modified students' statistics anxiety questionnaire and level of mental health. Descriptive measures were computed to describe the data, and regression and correlation analysis to explain its relationship. Results depicted that engineering students have moderate anxiety and they have moderate mental health in learning statistics. This suggests that these students are somewhat anxious but still have a positive learning experience. The correlation and regression analysis revealed that the level of anxiety and mental health of students are negatively but weakly associated, however not statistically significant. This implies that students' anxiety level has somehow adversely affected the mental health of students but its likelihood is negligible. The study strongly suggests that statistics teachers must manage the class well and apply teaching strategies that boost student confidence as well as improve academic achievement. Moreover, teachers should be trained to recognize signs of anxiety and mental health issues and equipped with strategies to support student learning and well-being needs.

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Introduction

Anxiety and mental health are critical concerns for students at all educational levels, significantly influenced by factors such as academic pressure, social dynamics, financial worries, and an imbalance between work and life (Faisal et al., 2022). Anxiety disorders are prevalent among students, particularly during high-stress periods like exams, leading to symptoms such as excessive worry, restlessness, difficulty concentrating, sleep disturbances, and physical issues like headaches or stomachaches (Doğan & Doğan, 2019). This anxiety can adversely affect academic performance, resulting in decreased focus, lower grades, and higher dropout rates (Martos et al., 2023). To cope, students can benefit from effective time management, mindfulness practices like meditation and yoga, regular physical activity, building a supportive social network, and seeking professional help from counselors (Hatunoglu, 2020). Moreover, many schools and universities are recognizing the importance of mental health by offering counseling services and resources to support students. It is vital for those struggling with anxiety to reach out for help, as support can lead to significant improvements in overall well-being (Ali et al., 2019).

Researchers studying anxiety and mental health among students highlight several key perspectives regarding the increasing prevalence of anxiety disorders, particularly exacerbated during the COVID-19 pandemic due to stressors like social isolation and uncertainty about the future (Byrne et al., 2021). Adolescence and young adulthood are critical developmental phases, making students particularly susceptible to anxiety as they navigate identity formation, peer relationships, and academic pressures (Morales-Muñoz et al., 2023). The causes of anxiety are multifaceted, including academic stress from high expectations, social dynamics influenced by social media, and socioeconomic factors such as financial concerns and student debt, all of which can lead to feelings of isolation and inadequacy (Chen et al., 2020). Studies indicate that anxiety negatively impacts academic performance by affecting concentration, motivation, and overall achievement, creating a cycle of increased stress (Mulya, 2021). Researchers also explore various coping strategies that enhance resilience, showing that mindfulness, physical activity, social support, and effective time management can help mitigate symptoms (Hughes et al., 2021). Many advocate for the implementation of mental health programs within educational institutions, including counseling services and mental health awareness initiatives, while some call for systemic changes to reduce stigma, promote a culture of well-being, and ensure accessible mental health resources (Tan et al., 2020).

Students face numerous challenges related to anxiety and mental health that significantly impact their academic performance, social interactions, and overall well-being (Sustarsic & Zhang, 2022). Key issues include the stigma surrounding mental illness, which discourages seeking help; academic pressure leading to stress and feelings of inadequacy; and social isolation due to difficulties in forming relationships (Dong et al., 2024). Financial stress from tuition fees and living expenses further exacerbates these problems. The transition to college life, balancing academics with personal life, and limited access to mental health resources intensify these struggles (Conley et al., 2019). Additionally, digital pressure from social media, unhealthy coping mechanisms, and the risk of burnout contribute to students' mental health difficulties (Urbina-Garcia, 2020). Comprehensive strategies are required to address these challenges effectively.

Educational institutions need to provide better mental health resources, reduce stigma, and create supportive environments (Ohadomere & Ogamba, 2021). Mental health professionals should offer accessible counseling and interventions. Supportive communities must foster open discussions about mental health to ensure students access the necessary resources to thrive (Stanford et al., 2023). By implementing these strategies, we can promote mental well-being, reduce anxiety, and enhance the overall quality of life for students (Cilar et al., 2020).

Hence, this study aimed to evaluate the statistical anxiety and mental health of engineering students. Specifically, the research article aimed the following objectives: (a) to measure the level of anxiety in learning statistics; (b) to estimate the level of mental health of students in learning statistics; and (c) to know the relationship between the level of anxiety mental health of students in learning statistics. The research objectives of evaluating the statistical anxiety and mental health of engineering students are significant in several ways. By measuring the level of anxiety in learning statistics, estimating the students' mental health levels, and understanding the relationship between anxiety and mental health, this study can provide valuable insights into the psychological challenges faced by engineering students. This research can inform educational policy by highlighting the need for mental health support services and tailored interventions to reduce anxiety and improve mental well-being. Educational institutions can use these findings to develop targeted programs and resources, such as counseling services, stress management workshops, and changes in teaching methodologies to create a more supportive learning environment. Additionally, policymakers can leverage this information to advocate for increased funding and resources for mental health initiatives within educational settings, ultimately contributing to the overall academic success and well-being of students.

Framework of the Study

This study aims to evaluate the statistical anxiety and mental health of engineering students, focusing on three primary objectives mentioned in the introduction section. By investigating these dimensions, the study contributes to the existing body of knowledge on educational psychology and mental health within the context of engineering education. Understanding the interplay between statistical anxiety and mental health is crucial for informing the development of targeted interventions and support systems within academic institutions (Ong, 2020). Statistical anxiety, a specific form of academic anxiety, can significantly hinder students' ability to perform well in their coursework, potentially affecting their overall academic trajectory and career prospects (Casinillo & Miñoza, 2020; Kuhfeld et al., 2020). Concurrently, poor mental health can exacerbate feelings of anxiety, creating a detrimental feedback loop that further impedes student success. This study's findings are expected to provide valuable insights into the psychological challenges faced by engineering students (Bork & Mondisa, 2022). High levels of anxiety and poor mental health can lead to decreased academic performance, lower retention rates, and increased dropout rates. By identifying the specific factors contributing to these issues, educators, administrators, and policymakers can develop more supportive and effective learning environments (Brownfield et al., 2020). For example, institutions might implement specialized

counseling services, stress management workshops, and modifications to teaching methodologies to alleviate the pressures associated with learning statistics (Raissi et al., 2020). Moreover, examining the relationship between anxiety levels and mental health in this context allows for a more nuanced understanding of student well-being. Mental health is a multifaceted construct that includes emotional, psychological, and social well-being (Mcdermott et al., 2020). By exploring how statistical anxiety interacts with these various aspects of mental health, the study provides a comprehensive analysis that can guide holistic approaches to supporting students. Through this research, the goal is to promote a holistic approach to student well-being that encompasses not only academic performance but also personal development (Faraci & Malluzzo, 2024). Enhanced mental health support can lead to improved resilience, better coping strategies, and a more positive overall educational experience. Ultimately, fostering a supportive environment for engineering students can contribute to their success both academically and personally, preparing them for the challenges of their future careers (Brewer et al., 2019). This study's comprehensive analysis of statistical anxiety and mental health among engineering students aims to fill a critical gap in the literature and provide actionable insights for improving educational practices. By addressing the psychological needs of students, academic institutions can create environments that not only support academic achievement but also promote overall well-being and personal growth.

Methodology

Research Design

The study investigated the level of anxiety and mental health of students in learning statistics using descriptive-correlational design. The first part of the design is to describe and look into the data utilizing statistical measures such as quantitative and qualitative methods that explain the given phenomenon or situation. Secondly, the relationship between the two variables was investigated and estimated the increase or decrease of one variable with respect to the other variable.

Research Respondents and Ethical Considerations

The target population of the research survey is the engineering students who satisfied the following conditions: (1) officially enrolled in Visayas State University, Baybay City, Leyte, Philippines; (2) second-year students; and (3) took up "Engineering Data Analysis" during the conduct of the study. Due to a manageable number of students, the study employed a complete enumeration, that is, all students who meet the conditions were considered as participants. These students were chosen to be the most suitable source of information for this research survey since they are rigorously introduced to the subject for it is one of the core courses for their curriculum. Since this study took place during the COVID-19 lockdown, Google Form was employed for the data collection process. In that case, an ethical procedure was done first. Permission from the head

of the Department of Statistics at VSU was asked through a letter and another consent was asked from the teachers of "Engineering Data Analysis." After accomplishing the approval of the consent letters, students (participants) were informed what is the study all about and its purpose. They were also educated that their participation is voluntary and all the information collected from them is treated as confidential by the Data Privacy Act of the Philippines.

Research Instrument and Data Collection

In determining the anxiety level of students, the Mathematics Anxiety Scale (MAS) by Betz (1978) was modified to measure the statistical anxiety of engineering students. The modifications of the MAS instruments are as follows: (1) the word mathematics was replaced by statistics, and (2) the questions were fitted to the current situation of the students. In the instrument, a total of 10 questions were asked to students, questions 1 to 5 are positively worded and questions 6 to 10 are negatively worded. Table 1 shows the scoring guidelines used in the instrument.

Table 1: Scoring Guidelines for Anxiety Questionnaire in Learning Statistics

Questions 1 to 5		Questions 6 to 10	
Response	**Score**	**Response**	**Score**
Strongly agree	1	Strongly agree	5
Agree	2	Agree	4
Undecided	3	Undecided	3
Disagree	4	Disagree	2
Strongly disagree	5	Strongly disagree	1

For each student, the score for each question was added up and considered as continuous data as suggested by Carifio and Perla (2008). Hence, the anxiety instrument has a minimum total score of 10 and the maximum total score is 50. In that case, the scale indicates the no anxiety (10) to very high anxiety (50) student in learning statistics. Table 2 presents the possible anxiety scores and their corresponding interpretation.

Table 2: Possible Anxiety Scores in Learning Statistics

Possible anxiety score	Interpretation
10.0-18.0	No anxiety
18.1-26.0	Slight anxiety
26.1-34.0	Moderate anxiety
34.1-42.0	High anxiety
42.1-50.0	Very high anxiety

A reliability test was done for the anxiety questions and found that it is reliable based on the Cronbach alpha coefficient of 0.75. The second part of the research instrument is the mental health of students in learning statistics wherein they were asked to rate from 1 to 10 scaling; 1 being the lowest (not healthy) and 10 being the highest (very healthy). Table 3 shows the possible mental health perception score and its verbal interpretation.

Table 3: Mental Health Perception Score and its Interpretation

Possible mental health score	Interpretation
1.00 - 2.80	Not healthy
2.81 - 4.60	Slightly healthy
4.61 - 6.40	Moderately healthy
6.41 - 8.20	Healthy
8.21 - 10.00	Very healthy

Moreover, to guarantee the validity of the instrument, three experts in social science have evaluated and found that it measures the well-being and experiences of students in learning statistics accurately.

Data Analysis

The gathered information from participants was encoded into Microsoft Excel and was cleared of outliers and missing data. To summarize and give a meaningful description of the data, descriptive measures were calculated such as mean, median, standard deviation (SD), minimum (min), and maximum (max) values, and the Chi-square test for equality of distributions. In determining the relationship between anxiety level and mental of students studying statistics, correlation analyses were employed such as Spearman's rank (r_s) and Pearson product-moment correlation (r_p). In interpreting the correlation coefficient, the following information in Table 3 was used. Additionally, the coefficient of determination was also computed to provide a more meaningful interpretation of the correlation analysis.

Table 4: Range of Correlation Coefficient and its Degree of Relationship

Range of correlation (r)	Degree of relationship
$0 < |r| \leq 0.3$	Weak
$0.3 < |r| \leq 0.7$	Moderate
$|r| > 0.7$	Strong

Source: (Casinillo & Guarte, 2018)

In estimating the change in the mental health perception score of students in every 1 unit change in anxiety perception score, ordinary least square (OLS) regression was constructed. Moreover, ordinal logistic regression models were employed to measure the likelihood of the relationship between the anxiety level and mental health of students. STATA version 14.0 was used for the statistical calculation, and all results were presented in statistical tables and tested at the appropriate level of significance.

Results

Descriptive Statistics

Table 5 depicted that the anxiety perception score is close to 29.06 (SD=4.36) which can be interpreted as moderate anxiety. About 50% of the students' anxiety scores are above and below 29.5. The minimum anxiety score is 16 which can be interpreted as no anxiety and the maximum is 50 which means a student has a very high anxiety. Meanwhile, the student's mental health perception score is close to 4.78 (SD=2.29) which indicates that they are very healthy learning statistics. The median score of 5 indicates that 50% of the students have a perception score of 5 or above and another 50% of them have scored 5 or below. The minimum mental health score is 1 which means not healthy and the maximum is 10 which indicates a very healthy student.

Table 5: Descriptive Statistics for Anxiety Level and Mental Health

Perception score	Mean	Median	SD	Min	Max	Description
Anxiety[a]	29.06	29.5	4.36	16	50	Moderate anxiety[c]
Mental health[b]	4.78	5	2.29	1	10	Moderately healthy[d]

Note: a -the minimum score is 10 and the maximum score is 50; b - 1 to 10 scaling; c - see Table 2; d - see Table 3.

Correlation Analysis

The Pearson product-moment correlation coefficient depicted that the relationship between anxiety level and mental health of students studying statistics is negatively weak (r_p=-0.123[ns]) and not significant (p-value=0.180). Only 1.51% of the variation in mental health was attributed to the anxiety level of students and vice versa with respect to the Pearson correlation. On the other hand, the Spearman rho correlation coefficient revealed that the relationship between anxiety level and mental health is also negatively weak (r_s=-0.134[ns]) and not significant (p-value=0.146). A very small variation in mental health (1.80%) was attributed to the anxiety level of students and vice versa with respect to the Spearman correlation. This implies that anxiety level has a small adverse effect on the mental health of students, however, not statistically significant.

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Table 6: Correlation Analysis for Anxiety and Mental Health of Statistics Students

	Observation	Correlation	R^2 (%)	p-value	Degree of relationship[a]
Anxiety and mental health	120	$r_p = -0.123^{ns}$	1.51	0.180	Weak
	120	$r_s = -0.134^{ns}$	1.80	0.146	Weak

Note: ns - not significant; a - see Table 4.

It is depicted in Table 7 that most (68.33%) of the students have moderate anxiety in learning statistics, about 25% of them have slight anxiety, and only 0.83% of them have no anxiety. About 5% of these students have high anxiety and only 0.83% have very high anxiety. On the other hand, most (33.33%) of the students were moderately mentally healthy, 21.67% were slightly healthy, and 20% of them were not mentally healthy. Moreover, about 20% of the students are healthy in learning statistics and only 5% of them are very healthy. The Chi-square test revealed that the anxiety level and mental health of students are independent ($X^2 = 14.598^{ns}$; p-value=0.554) of each other. This implies that the mental health of students in learning statistics is not affected by their anxiety level.

Table 7: Cross Tabulation for Anxiety Level and Mental Health of Students

Anxiety level	Mental health					Total
	Not healthy	Slightly healthy	Moderately healthy	Healthy	Very healthy	
No anxiety	0	1	0	0	0	1 (0.83%)
Slight anxiety	6	4	11	6	3	30 (25.00%)
Moderate anxiety	17	20	25	17	3	82 (68.33%)
High anxiety	0	1	4	1	0	6 (5.00%)
Very high anxiety	1	0	0	0	0	1 (0.83%)
Total	24 (20.00%)	26 (21.67%)	40 (33.33%)	24 (20.00%)	6 (5.00%)	120 (100.00%)
Chi-square test	$X^2 = 14.598^{ns}$ (p-value=0.554)					

Note: ns - not significant.

Regression Analysis

The OLS model revealed that in every one-unit change in the anxiety perception score, the perception score of students in their mental health decreases by 0.065. This means that anxiety can adversely affect mental well-being, however, based on the p-value (0.180), this estimation is not statistically significant. The coefficient of determination (R^2=0.015) supports that there is very little goodness of fit in the data which indicates a weak relationship between anxiety level and mental health. It is shown in Figure 1 that the OLS regression line is negatively sloping, which indicates that as anxiety level increases, the level of student's mental health is decreasing. Moreover, the ordered logistic regression model showed that in every one-unit change in the anxiety level, there is a 0.065 decrease in the log of odds for the mental health of students in learning statistics. This implies that as the student's anxiety increases, there is a probability that their mental health will decrease. However, based on the pseudo R^2, there is only a very little goodness of fit (0.004) in the data and the p-value (0.213) portrays that it is not statistically significant.

Table 7: Regression Models for Mental Health as Dependent Variable

	OLS model	Ordinal logit model
Constant	6.661	-
Anxiety level	-0.065	-0.049
No. of observation	120	120
F-test computed	1.82	-
X^2-test computed	-	1.55
p-value (two-tailed)	0.180	0.213
R^2	0.015	-
Psuedo R^2	-	0.004

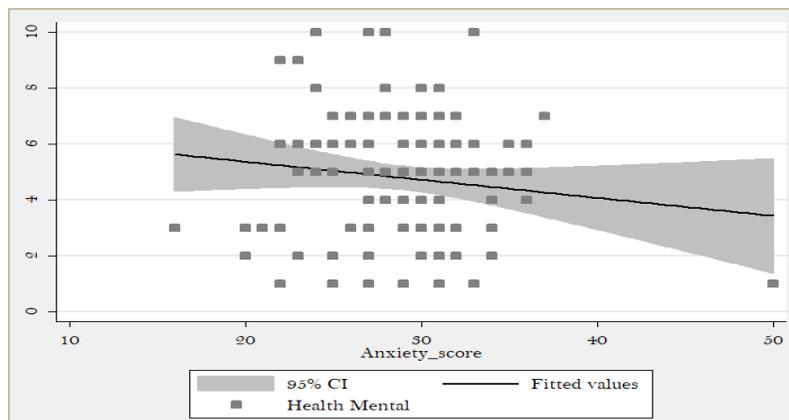Note: * - highly significant at 1% level; standard errors are enclosed with parenthesis.

Figure 1: Regression Line of Mental Health and Anxiety

Discussion

Descriptive Statistics

Descriptive statistics for anxiety levels and mental health among students show a moderate level of anxiety in learning statistics. About half of the students have anxiety scores above and below the median. The anxiety scores range from no anxiety to very high anxiety (Trassi, et al., 2022). Conversely, the average mental health perception score suggests that students generally perceive themselves as moderately healthy when learning statistics. The median score indicates that half of the students rated their mental health above and half below the midpoint, with scores ranging from poor to excellent health (Leath et al., 2023). The moderate anxiety levels imply that while students are somewhat anxious about learning statistics, their mental health is generally perceived as positive. This discrepancy highlights the need for targeted interventions to address specific anxiety issues without overshadowing the overall mental well-being of the students (Gibbons et al., 2019) Previous studies have shown that statistical anxiety is a common issue among students, particularly in fields that require substantial quantitative skills (Abdalla, 2021). Trassi et al. (2022) mentioned that statistical anxiety can significantly impair academic performance and affect students' attitudes toward their studies. A strong correlation between high levels of statistical anxiety and lower academic achievement. The data indicates a moderate level of anxiety, which aligns with existing literature on the prevalence of statistical anxiety in higher education. However, the high perception of mental health suggests that students might be employing effective coping mechanisms or benefiting from a supportive educational environment (Mansoor, 2023). This dichotomy between anxiety and mental health perception warrants a deeper investigation into the specific factors that contribute to statistical anxiety and how they differ from general mental health factors. The moderate anxiety levels combined with generally positive mental health perceptions infer that students experience anxiety in specific academic contexts rather than pervasive mental health issues. This distinction is crucial for developing targeted strategies to mitigate anxiety without assuming broader mental health interventions are necessary. Understanding the specific anxiety and mental health dynamics in learning statistics can inform the development of tailored educational strategies and support systems. By focusing on reducing statistical anxiety through curriculum adjustments, enhanced tutoring, and stress management workshops, educators can help students achieve better academic outcomes without compromising their overall mental health.

Correlation Analysis

The Pearson product-moment correlation coefficient indicated that the relationship between anxiety levels and mental health among students studying statistics is weakly negative and not statistically significant (Malik & Perveen, 2023). This implies that a very small percentage of the variation in mental health can be attributed to anxiety levels. Similarly, the Spearman rho correlation coefficient also demonstrated a weakly negative and non-significant relationship, with a similarly small percentage of the variation in mental health explained by anxiety levels (Wang

et al., 2024). These findings imply that while anxiety levels have a minor adverse effect on students' mental health, the effect is not statistically significant. The weak and non-significant correlation between anxiety levels and mental health suggests that anxiety related to learning statistics does not substantially impact students' overall mental health. Therefore, policy interventions should focus on specific academic support rather than broad mental health initiatives. Educational institutions might prioritize developing targeted support mechanisms, such as specialized tutoring for statistics and anxiety reduction workshops, rather than allocating extensive resources to general mental health programs. Previous research has often highlighted a significant relationship between academic anxiety and mental health. For instance, studies by Hasty et al. (2021) have shown that academic anxiety can adversely affect mental health and academic performance. However, the weak correlation found in this study aligns with findings by Coulombe and Krzesni, (2019), who reported that specific academic anxieties might not significantly affect overall mental health, suggesting that context and individual differences play crucial roles. The study's findings highlight the need for a nuanced understanding of how academic anxiety impacts mental health. The weak correlation suggests that students might possess effective coping mechanisms for managing anxiety in the context of learning statistics, or that other factors, such as social support and resilience, play a more significant role in maintaining mental health (Chung and Park, (2024). The weak relationship between anxiety levels and mental health indicates that while anxiety in learning statistics exists, it does not significantly detract from students' overall mental well-being. This suggests that interventions should be specific to the academic context rather than generalized mental health strategies. Focusing on enhancing students' academic skills and providing resources to manage specific anxieties could be more effective. Comprehending the weak correlation between statistical anxiety and mental health is significant for developing targeted educational strategies. This insight allows educators and policymakers to design interventions that address specific academic anxieties without overgeneralizing the mental health needs of students. By concentrating efforts on academic support and anxiety management specific to statistics, educational institutions can create more effective and efficient support systems, ultimately improving academic outcomes and student well-being.

Conversely, the cross-tabulation of anxiety levels and mental health among students shows that most students experience moderate anxiety while learning statistics. A smaller proportion exhibit slight anxiety, and only a few report no anxiety at all. A minor percentage of students experience high or very high anxiety (Ralston et al., 2021). Regarding mental health, a significant portion of students are moderately healthy, with some being slightly healthy and a portion not being mentally healthy. Additionally, there are students who are generally healthy, though only a few report being very healthy in the context of learning statistics (Røset et al., 2020). The Chi-square test results indicate that anxiety levels and mental health are independent of each other, suggesting that the level of anxiety does not significantly impact students' mental health in the context of learning statistics. The findings that anxiety levels and mental health are independent highlights the need for specialized academic support rather than broad mental health interventions (Thompson et al., 2021). Educational institutions should consider implementing specific programs to address moderate and slight anxiety in statistics learning, such as tailored tutoring sessions, anxiety management workshops, and stress-relief activities. Additionally, mental health resources

should focus on providing general well-being support rather than targeting anxiety related to statistics. Previous research has often established a connection between academic anxiety and mental health. For example, Hasty et al. (2021) noted that high academic anxiety could negatively impact mental health and academic performance. However, this study's findings align with the work of Sridhar et al. (2023), who suggested that specific academic anxieties might not significantly influence overall mental health. This discrepancy underscores the importance of context-specific investigations in understanding academic anxiety. The data reveals that a significant proportion of students experience moderate anxiety in learning statistics, yet this anxiety does not significantly impact their mental health. This suggests that students might have effective coping strategies or support systems that help them manage their anxiety without it detracting from their overall mental well-being. It also implies that anxiety in learning statistics is a common yet manageable issue for most students. The independence between anxiety levels and mental health suggests that interventions should be context-specific. For instance, providing academic support tailored to statistics learning could help reduce anxiety without necessarily requiring mental health interventions. This approach can help ensure that resources are efficiently allocated and that interventions are directly addressing the student's needs. Recognizing that anxiety in learning statistics does not significantly impact mental health is crucial for developing effective educational strategies. This insight allows educators and policymakers to design interventions that specifically target academic anxieties, thereby enhancing students' learning experiences and academic outcomes without overgeneralizing mental health needs. By focusing on academic support and anxiety management in the context of statistics and mathematics, educational institutions can foster a more supportive and effective learning environment (Casinillo et al., 2022).

Regression Analysis

The Ordinary Least Squares (OLS) model indicates that as students' anxiety perception increases, their perception of mental health decreases slightly. Although this suggests a potential negative impact of anxiety on mental well-being, the effect is not statistically significant. The model shows a very weak relationship between anxiety levels and mental health, with minimal goodness of fit (Huang, 2020). The regression line, which slopes downward, reflects that higher anxiety levels are associated with lower mental health. Similarly, the ordered logistic regression model suggests that an increase in anxiety is linked to a decreased likelihood of better mental health (Robinson et al., 2021). However, the model's fit is poor, and the relationship is not statistically significant, highlighting the limited impact of anxiety on mental health in this context. The weak and non-significant relationship between anxiety and mental health suggests that interventions should be nuanced and context-specific (Sridhar et al., 2023). Educational policies should prioritize developing specialized support systems aimed at reducing academic anxiety through targeted academic assistance, rather than broad mental health initiatives. Institutions might consider incorporating stress management and academic coaching specifically for statistics courses to address anxiety without assuming a generalized mental health crisis (Jiménez-Mijangos et al., 2023). Existing literature often emphasizes the significant impact of academic anxiety on

mental health. Ladejo, (2023) documented how anxiety negatively influences academic performance and overall mental well-being. However, the current study's findings align more closely with Cooke and Xu, (2024), who suggested that specific academic anxieties might not have a substantial impact on general mental health, underscoring the importance of contextualizing academic stressors. The findings highlight that while anxiety in learning statistics does affect students' mental health, the impact is minor and not statistically significant. This indicates that students may possess effective coping mechanisms or benefit from existing support systems that mitigate the adverse effects of anxiety on mental health (Massazza et al., 2023). It suggests a need for academic-specific interventions rather than broad mental health strategies. The weak correlation between anxiety and mental health implies that anxiety related to learning statistics, though present, does not significantly detract from students' overall mental well-being. This suggests that academic institutions should focus on providing specific academic support and stress-relief resources targeted at statistics learning rather than broad mental health interventions. Knowledge of the weak and non-significant relationship between statistical anxiety and mental health is crucial for developing effective educational policies. This insight allows educators and policymakers to design targeted interventions that address specific academic anxieties, thereby enhancing the learning environment and academic performance without overextending mental health resources. By focusing on academic support tailored to anxiety in learning statistics, educational institutions can foster a more supportive and effective learning environment, ultimately promoting better academic outcomes and student well-being.

Conclusion and Recommendations

The study's findings reveal that while students generally experience moderate levels of both anxiety and mental health, the correlation between anxiety levels and mental health is weak. Regression analysis indicates that although anxiety has a negative impact on mental health, this effect is not statistically significant. This weak relationship suggests that widespread mental health interventions may not be the most effective approach. Instead, policies should prioritize targeted academic support specifically designed to address anxiety related to learning statistics. By focusing on interventions that directly address the unique challenges associated with statistics coursework, educational institutions can implement more efficient and effective strategies. Such targeted support ensures that resources are allocated appropriately, addressing students' specific needs and potentially reducing anxiety in a more focused manner. This approach will likely be more impactful than broad-based mental health programs, providing a more tailored response to the issues identified in the study.

To address anxiety related to learning statistics, it is essential to implement several targeted strategies. First, develop specialized programs such as tutoring services, study groups, and workshops focused on statistics to reduce anxiety. Additionally, offers stress management workshops tailored to students in demanding courses, incorporating techniques like mindfulness, time management, and relaxation exercises. Enhance academic resources by providing online tutorials, problem-solving sessions, and access to statistical software to boost student confidence.

Faculty should be trained to recognize signs of anxiety and mental health issues and equipped with strategies to support and refer students to appropriate resources. Establish peer support programs where students can share experiences and coping strategies related to statistics. Finally, conduct regular assessments of student anxiety and mental health to identify at-risk individuals and evaluate the effectiveness of interventions, allowing for timely adjustments to support strategies.

       Finally, the study highlights that while anxiety in learning statistics does have an adverse effect on mental well-being, the impact is minor and not statistically significant. This insight allows for the development of targeted interventions that address specific academic anxieties without overgeneralizing mental health needs. By focusing on academic support and anxiety management tailored to statistics learning, educational institutions can enhance the learning environment, improve academic outcomes, and better allocate mental health resources. This approach ensures that interventions are effective, efficient, and directly address the students' needs, ultimately promoting both academic success and overall well-being.

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