

Research Article

THE RELATIONSHIP BETWEEN DEPRESSION, ANXIETY, STRESS, AND ACADEMIC PERFORMANCE AMONG UNIVERSITY STUDENTS

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Abstract

Background: University students face escalating mental health challenges, yet the collective impact of depression, anxiety, and stress on academic performance remains underexplored. This study addresses this gap by investigating their interrelationships and academic performance.

Methods: A cross-sectional, correlational design was employed with 85 university students (77.6% female, mean age=20.4 years). Validated measures (DASS-21 for depression/anxiety/stress; academic performance scale) were administered. Pearson's correlation analyses tested associations between these psychological distress variables and academic performance.

Results: Significant negative correlations emerged between academic performance and depression ($r^*=-0.50$, $p^*<0.01$), anxiety ($r^*=-0.47$, $p^*<0.01$), and stress ($r^*=-0.47$, $p^*<0.01$). Strong positive intercorrelations among depression, anxiety ($r^*=0.74$), and stress ($r^*=0.84$) highlighted their co-occurrence.

Implications: Findings underscore the need for integrated mental health interventions (e.g., mindfulness programs, policy reforms) to mitigate students' anxiety, stress, depression and enhance academic performance. Future research should adopt longitudinal designs to explore causal pathways. *ASEAN Journal of Psychiatry, Vol. 27 (02) May, 2026; 1-8.*

Keywords: Depression; Anxiety; Stress; Academic Performance; University Students; DASS-21; Academic Performance Scale

Introduction

University students face unique challenges that significantly affect their mental health and academic performance. Psychological distress, including depression, anxiety, and stress have been identified as critical factors influencing cognitive functions like attention, memory, and problem-solving, as well as motivation and engagement in academic tasks [1]. However, existing research often overlooks how these factors collectively impact academic performance. This study therefore aims to address this gap by investigating the relationships between depression, anxiety, stress, and academic performance.

Academic performance or academic functioning, refers to the students' ability to successfully meet educational objectives, typically measured through indicators such as grades, GPA, coursework completion, and perceived academic competence [2]. The transition to university life often coincides with increased exposure to psychological distress, particularly in the form of depression, anxiety, and stress. These mental health challenges can impair concentration, motivation, and overall cognitive functioning, which in turn may hinder students' academic performance [3]. Given the prevalence of such difficulties during this critical phase, focused research is needed to understand how these specific psychological factors affect academic performance.

This study aims thereby, to explore the relationships between depression, anxiety, stress, and academic performance among university students.

This study addresses a critical gap in the existing literature by examining the interrelationships among depression, anxiety, and stress, and their associations with academic performance among university students. The findings offer preliminary insights that may inform the development of educational strategies and student support services aimed at mitigating psychological distress and enhancing academic performance.

Hypothesis

There would be a negative correlation between the psychological distress factors of university students (stress, anxiety, and depression) and their academic performance.

Academic performance is often highlighted as a key indicator of student success in higher education, influencing future professional opportunities [4]. Supporting this, Ercole emphasizes that cognitive factors affected by depression, such as concentration and memory, play a crucial role in academic performance. Therefore, to comprehensively understand academic performance, it is necessary to consider both objective outcomes and subjective emotional

experiences.

Depression is widely recognized as a major psychological factor affecting university students, consistently shown to impair academic performance primarily by disrupting cognitive functions such as concentration, memory, and motivation. A meta-analysis conducted by Sheldon et al., synthesizing data from 238 studies, reports that approximately 25% of university students experience significant depressive symptoms. This widespread prevalence underscores the critical need for targeted mental health interventions. Additionally, Ercole concurs that those depressive symptoms such as persistent feelings of hopelessness directly contribute to a decline in academic performance. While both studies reinforce the negative correlation between depression and academic performance. While both studies reinforce the negative correlation between depression and academic outcomes, Muhammed, however, offers a contrasting viewpoint, suggesting that while depression may impair focus and learning efficiency, in some instances, students experiencing mild depressive symptoms may channel their distress into structured academic routines or performance. This divergence highlights the nuanced nature of depression's impact, indicating that variations in depressive severity could differentially influence academic functioning.

Anxiety similarly disrupts students' academic functioning, as shown in the meta-analytic review by Tang and He. Their analysis confirms the consistent negative correlation between anxiety and academic performance, with students reporting higher anxiety levels demonstrating poorer academic results. Perrotta adds that anxiety manifests in both physical and psychological symptoms, such as restlessness and difficulty concentrating, further compounding its negative impact. However, Adeoye-Agboola and Evans present a nuanced view by suggesting that moderate levels of anxiety may actually enhance academic performance by increasing motivation and focus. This idea of "facilitative anxiety" contrasts with the predominantly negative perspective seen in Sheldon et al. and Suparlan, thereby highlighting the complex and dual nature of anxiety in academic contexts.

Stress, while a natural physiological response to academic challenges, becomes detrimental when it is chronic and overwhelming [5]. Among university students, academic-related stressors such as difficult course content, high assignment loads, and exam pressures are frequently reported. For instance, Fathiyah found that 27% of students cited trouble understanding subject material as their primary source of stress, followed by excessive assignments (18%), challenging test items and negative faculty interactions (17%), and homework load (15%). Prolonged exposure to such academic stressors has been shown to impair cognitive functions particularly memory, concentration, and executive functioning thereby disrupting students' academic functioning [6]. Supporting this, Cho and Hayter conducted a systematic review of 34 studies and concluded that chronic academic stress significantly reduces cognitive capacity and emotional resilience, both of which are crucial for sustaining academic functioning. These findings highlight the need for

targeted research and interventions focused specifically on how academic stress impairs university students' ability to meet day-to-day academic demands.

Lazarus and Folkman's stress and coping theory provides a foundational framework for understanding the relationship between psychological distress and academic performance. According to this theory, stress occurs when perceived environmental demands exceed an individual's available coping resources [7]. In the context of university life, academic pressures such as complex coursework, frequent assessments, and performance expectations can surpass students' coping capacity and contribute to elevated levels of depression, anxiety, and stress. When students rely on adaptive coping strategies, such as time management and problem-solving, they are more likely to maintain cognitive and emotional balance, thereby supporting academic functioning. In contrast, maladaptive strategies such as avoidance, procrastination, or emotional disengagement can intensify psychological distress and disrupt the focus, motivation, and executive functioning required for academic success [8]. This framework underscores the critical role of coping mechanisms in moderating the impact of stress-related psychological factors on students' ability to meet academic demands.

Bandura's social cognitive theory highlights the central role of self-efficacy in academic functioning and performance. Self-efficacy the belief in one's ability to succeed in academic tasks influences how students approach challenges [9]. High self-efficacy enhances motivation and persistence, while psychological distress such as depression and anxiety can undermine it, leading to reduced effort and disengagement. Observational learning, another key aspect of the theory, suggests that students benefit from modeling peers and educators who demonstrate effective academic behaviors. Supportive environments that provide mastery experiences and verbal encouragement can buffer the impact of psychological distress, so forth improving and performance.

Sweller's cognitive load theory emphasizes the mental effort required to process and retain information, highlighting the limits of working memory. Psychological distress such as depression, anxiety, and stress increases cognitive load by diverting mental resources away from academic tasks. Symptoms like intrusive thoughts and reduced concentration intensify this strain, impairing students' academic functioning and ultimately lowering academic performance. Educational strategies that reduce extraneous cognitive load such as simplifying content and providing clear, structured instructions can help students manage these cognitive demands. This theory underscores the need to design learning environments that support both cognitive efficiency and student mental health.

Materials and Methods

The study employed two validated self-report instruments: The Academic Performance Scale (APS) and the Depression, Anxiety, and Stress Scale (DASS-21).

The APS, developed by Carson Birchmeier et al. is an 8-item scale designed to assess students perceived academic performance. Each item is rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Items reflect academic performance attitudes such as preparedness, attentiveness, and effort. For this study, selected items were reverse-coded to align scoring directionality, such that higher scores reflected better perceived academic performance, while lower scores indicated poorer performance.

The DASS-21, developed by Lovibond and Lovibond, is a 21-item questionnaire assessing depression, anxiety, and stress. Each of the three subscales consists of 7 items, rated on a 4-point Likert scale from 0 (Did not apply to me at all) to 3 (applied to me very much or most of the time). Higher scores on each subscale denote greater symptom severity, while lower scores indicate fewer or no symptoms.

Both instruments demonstrate strong internal consistency reliability within university student populations in the literature (e.g., Cronbach's $\alpha > .80$).

Research design, data collection and data analysis procedures

This study adopted a quantitative, cross-sectional correlational design to examine the relationships between depression, anxiety, stress, and academic performance among university students. This design allowed for a snapshot analysis of participants' psychological and academic states at a single point in time, facilitating the identification of statistical associations between variables.

Data were collected using an online survey administered through Qualtrics, integrated with the Research Participation Scheme (RPS). The survey comprised an informed consent form, demographic items, and two standardized instruments: The Academic Performance Scale (APS) and the Depression, Anxiety, and Stress Scale (DASS-21). Participants were recruited through RPS, a university platform designed to engage psychology students in research participation.

The present study was grounded in a positivist research philosophy, applying a hypothetico-deductive approach to explore operational relationships between the targeted psychological constructs and academic performance.

Data analysis was conducted using SPSS (Version 29). Demographic variables were coded appropriately, and subscale scores for the DASS-21 were calculated according to the official scoring procedure. Descriptive statistics and normality checks (including skewness, kurtosis, and Q-Q plots) were performed to assess assumptions for parametric

tests. Subsequently, Pearson's correlation analysis was employed to examine associations between the psychological variables and academic performance. While this approach supports statistical rigor, it is important to note however, that correlational designs does not imply causation.

Ethics

The study has followed the British Psychological Society's (BPS) 2021 guidelines for human research. The research proposal, including the study's aims, methodology, and ethical considerations (e.g., informed consent, participants information sheet, and research contact details) was approved by the student's research supervisor and subsequently by the Faculty Research Ethics Committee (FREC). Approval letter was granted on March 19th, 2024. Participants were informed that their participation was voluntary, with the right to withdraw at any time. Participants were provided with access to mental health resources to support their well-being throughout the study. They were also assured of confidentiality, with data used only in anonymized form for research purposes. In addition, the data was securely stored, accessible only to the researcher and project team. Participants were also enlightened that if the study were published, only de-identified data would be included.

Results

The purpose of this study was to examine the associations between depression, anxiety, stress, and academic performance among university students. The analysis began by assessing the normality of the data to ensure that the statistical methods applied were appropriate.

Demographic characteristics

The sample consisted of 85 students, with the majority identifying as female (n=66, 77.6%), followed by male (n=16, 18.8%), and a smaller group identifying as non-binary or choosing not to disclose (n=3, 3.5%). Most participants were aged 18-23 years (n=80, 94.1%), with fewer in the 24-29 (n=2, 2.4%) and 30-35 (n=3, 3.5%) age groups. The sample was largely composed of students from the humanities and social sciences (n=63, 74.1%), with representation from natural sciences (n=11, 12.9%), medical sciences (n=7, 8.2%), arts (n=3, 3.5%), and engineering and technology (n=1, 1.2%). In terms of academic level, most participants were at Level 4 (n=47, 55.3%) and Level 5 (n=28, 32.9%), with smaller proportions at Level 6 (n=8, 9.4%) and Level 8 (n=2, 2.4%). The demographic characteristics reflect a diverse student body across gender, age, discipline, and academic level, providing relevant context for interpreting the study's findings and its generalizability potential (Table 1).

Table 1. Demographic characteristics of the respondents.

Category	Sub-category	n	%
Gender	Female	66	77.6%
	Male	16	18.8%

	Preferred-not to say	3	3.5%
Age-group	18-23	80	94.1%
	Others (24-37)	5	5.9%
Field of the study	Humanities and social sciences	63	74.1%
	Others (Natural sciences; Medical sciences; Arts; Engineering and technology)	22	25.9%
Academic level	Level 4	47	55.3%
	Level 5	28	32.9%
	Others (Level 6-8)	10	11.8%

Instruments psychometric properties and reliability

Table 2 below, summarizes the psychometric properties and Cronbach's alpha values for the scales used in this study. The mean scores for depression, anxiety, and stress were 17.34 (SD=11.41), 18.42 (SD=10.56), and 18.66 (SD=9.63), respectively. The mean score for academic performance was 26.68 (SD=5.11). The reliability coefficients for the depression, anxiety, and stress scales were 0.91, 0.86, and

0.86, respectively, indicating high internal consistency. The academic performance scale also demonstrated medium-level reliability, with a Cronbach's alpha of 0.79. These reliability levels were determined following the guidelines for Cronbach's alpha sample size as discussed by Karakaya and Alparslan. Indicating that the sample size in this study was sufficient to ensure a reliable estimation of these coefficients, confirming that the scales used were appropriate for assessing the intended psychological constructs.

Table 2. Psychometric properties and alpha values of the study scales.

Variables	M	SD	Range	Cronbach's α
Depression	8.88	5.57	20	0.91
Anxiety	9.86	5.34	21	0.87
Stress	9.78	4.76	20	0.86
Academic Performance	26.7	5.86	32	0.85

Correlational analysis

The Pearson correlation matrix for the study variables, presented in Table 3, provides robust support for the hypothesis that there is a negative correlation between the psychological states of university students (stress, anxiety, and depression) and their academic performance. Depression was significantly and negatively correlated with academic performance ($r=-0.50$, $p<0.01$), suggesting that that, students experiencing higher levels of depression may struggle more with their coursework, potentially leading to lower grades or academic achievement, an agreement that is also supported. Similarly, anxiety ($r=-0.47$, $p<0.01$) and stress ($r=-0.47$, $p<0.01$) also showed significant negative correlations with

academic performance, reinforcing the hypothesis that increased levels of these psychological factors are linked to poorer academic results, a notion that was practically validated in Zhang, Penn, and Chen. Additionally, strong positive correlations were found between depression and anxiety ($r=0.74$, $p<0.01$) and between anxiety and stress ($r=0.84$, $p<0.01$), indicating that these conditions often co-occur among the study participants. Practically, the co-occurrence of these psychological factors may have a compounded effect on academic performance, suggesting that interventions targeting one area (e.g., stress reduction) could potentially alleviate related issues (e.g., anxiety and depression), thereby improving academic performance.

Table 3. Pearson correlation matrix of the study variables.

Variables	AP	D	A	S
AP	-	-0.5***	-0.47**	-0.47**
D	-0.50**	-	0.74**	0.64**
A	-0.47**	0.74**	-	0.84**
S	-0.47**	0.64**	0.84**	-
Note: ** (Correlational Significance: $p<.01$), AP; Academic Performance; D: Depression; A: Anxiety; S: Stress				

Quadrant plots analysis

Quadrant (Q) plots were utilized to visually examine the relationships between the psychological variables

(depression, anxiety, and stress) and academic performance. These plots allow for a detailed exploration of how variations in psychological states correspond to academic outcomes. Below is a consolidated list of the figures and their

interpretations, which together illustrate the relationships between depression, anxiety, stress, and academic performance through both scatter plots and Quadrant (Q) plots.

Figure 1 shows a negative correlation between depression scores and academic performance, indicating that higher depression levels are associated with lower academic performance.

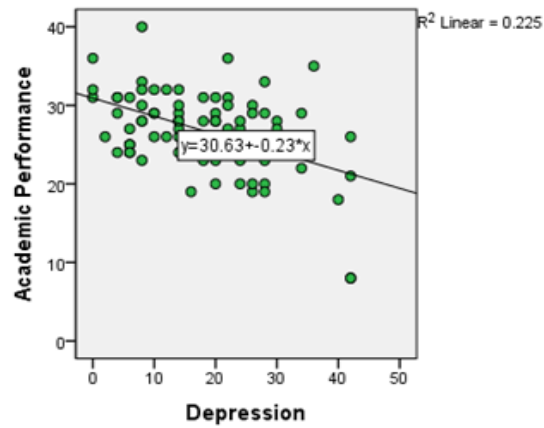


Figure 1. Scatter plot of depression scores and academic performance.

Figure 2 illustrates a negative relationship between anxiety scores and academic performance, where increased anxiety is linked to decreased academic performance.

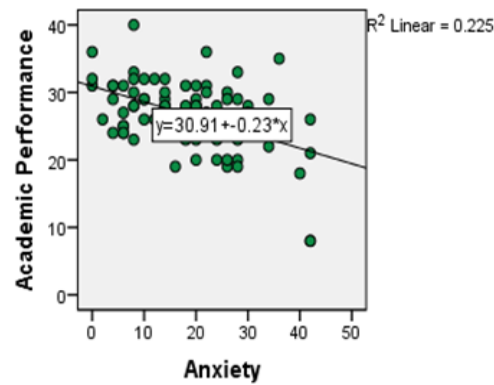


Figure 2. Scatter plot of anxiety scores and academic performance.

Figure 3 demonstrates a negative correlation between stress scores and academic performance, suggesting that higher stress levels correspond with lower academic performance.

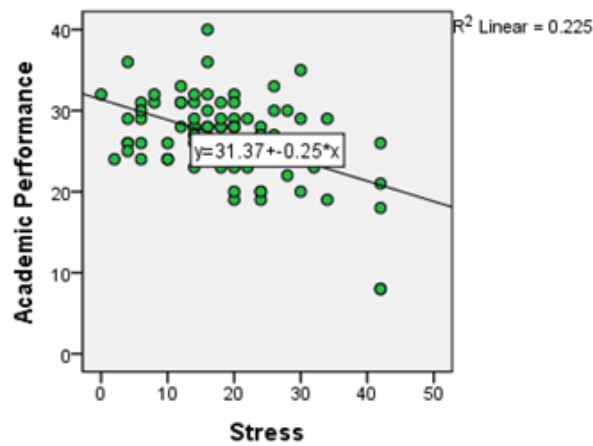


Figure 3. Scatter plot of stress scores and academic performance.

Figure 4 shows a strong positive correlation between depression and anxiety, as well as between anxiety and stress, indicating that higher depression leads to increased anxiety,

and higher anxiety corresponds with more stress. These co-occurring conditions may compound their impact on academic performance.

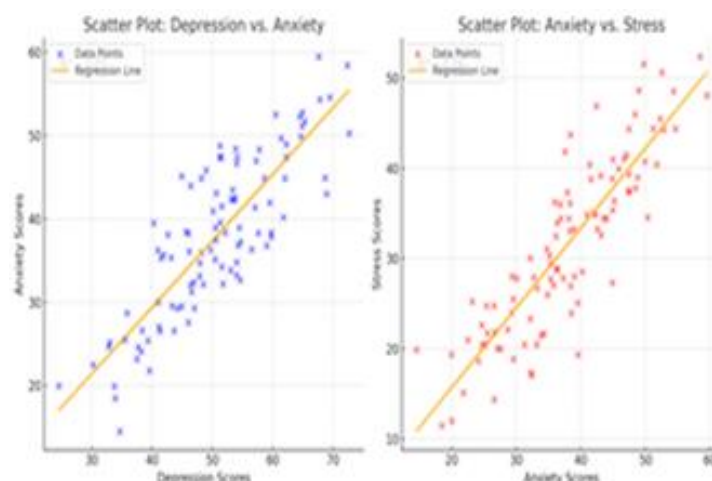


Figure 4. Scatter plot of depression vs. anxiety and anxiety vs. stress.

Discussion

Summary of key findings

This study investigated the relationships between depression, anxiety, stress, and academic performance among university students. The results revealed moderate negative correlations (ranging from -0.47 to -0.50), indicating that higher levels of psychological distress are associated with poorer academic performance. These findings align with prior research and suggest that mental health plays a significant though not exclusive role in academic performance.

Depression and academic performance

The negative association between depression and academic performance supports existing evidence that depression impairs cognitive functions such as concentration, memory, and motivation. Depressive symptoms, including persistent hopelessness and fatigue, may lead to reduced academic engagement and lower achievement. However, some studies suggest that mild depression might, in rare cases, drive compensatory academic effort, highlighting the need for further nuanced research.

Anxiety and academic performance

Anxiety was also negatively correlated with academic performance, consistent with prior studies demonstrating that excessive anxiety disrupts focus, exam performance, and learning efficiency. However, Adeoye-Agboola and Evans propose that moderate anxiety may sometimes enhance performance by increasing alertness and motivation a phenomenon known as "facilitative anxiety." This duality suggests that interventions should differentiate between debilitating and performance-enhancing anxiety levels.

Stress and academic performance

The findings on stress corroborate previous research showing that chronic academic stress depletes cognitive resources, disrupts sleep, and diminishes motivation. Stressors such as heavy workloads, financial pressures, and social adjustments exacerbate these effects, underscoring the need for institutional strategies to mitigate academic stress. However, some studies suggest that moderate stress can enhance performance by boosting focus and drive. This aligns with the Yerkes-Dodson Law since 1908, which proposes that performance improves with arousal up to an optimal point, after which excessive stress becomes detrimental. Moreover, Singh et al. noted that performance depend on coping strategies and support, indicating that stress effects are not universally negative.

Co-occurrence of depression, anxiety, and stress

The strong inter-correlations ($r=0.74-0.84$) between depression, anxiety, and stress reinforce their frequent co-occurrence. This suggests that students experiencing one form of distress are likely to experience others, compounding their impact on academic performance. A holistic approach to mental health support rather than isolated interventions is therefore essential.

Practical implications

Institutional mental health support: Universities should embed structured psychological support within their academic systems to address the impact of psychological distress on students' academic functioning. Accessible services including psychological counseling, academic advising integrated with mental health awareness, and peer-

led emotional support groups can help reduce distress and promote engagement. In addition, flexible academic policies such as assignment extensions, modified course loads, and alternative assessment options may buffer the negative effects of psychological symptoms on performance.

Preventive and coping strategies

The implementation of preventive mental health programs that incorporate evidence-based interventions such as mindfulness training, deep breathing exercises, and cognitive-behavioral self-regulation strategies can assist students in managing academic-related emotional strain. Promoting consistent health routines, including adequate sleep, regular physical activity, and balanced nutrition, may enhance students' psychological resilience and academic persistence.

Policy and global alignment

Institutional mental health efforts should align with global standards such as the United Nations Sustainable Development Goals (particularly SDG 3: Good health and well-being) and the European Union Strategy for the Rights of Persons with Disabilities. This alignment ensures that psychological support systems within academic institutions are equitable, inclusive, and designed to meet international benchmarks for student mental health care.

Limitations and future directions

Cross-sectional design: The cross-sectional design of this study limits the ability to establish causal relationships between psychological distress and academic performance. Longitudinal designs are recommended in future studies to examine how psychological symptoms influence academic outcomes over time and whether academic changes, in turn, affect mental health.

Sample composition: The sample primarily comprised female students (77.6%) and individuals aged 18–23 years (94.1%), which may limit the representativeness of the findings across broader university populations. Future research should consider more diverse demographic samples, including variation in gender, age, academic disciplines, and institution types, to enhance generalizability.

Self-report methodology: Reliance on self-report measures introduces potential biases such as social desirability and subjective misreporting. Future research should incorporate objective academic indicators such as Cumulative Grade Point Average (CGPA), course attendance records, or faculty assessments to support self-reported data. A mixed-methods approach combining quantitative scales with qualitative interviews could also provide more comprehensive insights into the lived experience of psychological distress in academic settings.

Cultural and socioeconomic contexts: The current study did not account for cultural background or socioeconomic status, both of which can influence the expression of

psychological distress and access to academic support. Future studies should explore these contextual variables and consider cross-cultural comparisons to enhance the interpretability and applicability of findings across diverse educational environments.

Conclusion

The present study shows depression, anxiety, and stress negatively affect university students' academic performance. The findings highlight mental health as a critical factor in educational success that institutions must address.

Universities need concrete support systems. Mental health screenings, accessible counseling services, and academic accommodations for distressed students should become standard practice. Training faculty to recognize and respond to student distress must accompany these measures.

Three research priorities emerge: assessing university mental health programs, examining digital learning's psychological effects, and identifying teaching methods that reduce stress. Such studies will guide the creation of more supportive learning environments.

These results demand universities make mental health support fundamental to their mission. Combining academic rigor with psychological support will produce graduates better equipped for life's challenges while building healthier campus communities.

Conflicts of Interest

There are no conflicts of interest in this study to be declared.

Acknowledgments

This research was conducted in partial fulfillment of the requirements for the Bachelor of Science (Honors) in Psychology degree at De Montfort University. I would like to express my sincere gratitude to Professor Dr. Stephanie Cook (FHEA) for her invaluable guidance and continues support.

The author acknowledges the use of AI-powered tools for preliminary drafting and ideation. However, all content was rigorously reviewed, interpreted, and refined by the author to ensure scholarly input, originality, and compliance with ethical standards.

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Received: 01 July 2025, Manuscript No. AJOPY-25-167525; **Editor assigned:** 04 July 2025, PreQC No. AJOPY-25-167525 (PQ); **Reviewed:** 18 July 2025, QC No. AJOPY-25-167525; **Revised:** 18 February, 2026, Manuscript No. AJOPY-25-167525 (R); **Published:** 25 February, 2026, DOI: 10.54615/2231-7805.47402.