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A CORRELATIONAL STUDY OF PERCEIVED STRESS AND ACADEMIC PERFORMANCE

Hairunisa Hamiz Hairi[1*], Liew Jan-Fui[2]

Department of Tourism & Hospitality, Politeknik METrO Betong Sarawak, Malaysia[1,2]

hairunisahamiz@pmbs.edu.my[1], ljf@pmbs.edu.my[2]

Corresponding Author*

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ABSTRACT

Stress among university students is a significant global concern that can adversely affect academic performance. This study aimed to examine the specific relationship between perceived stress and academic achievement among students at Politeknik METrO Betong Sarawak (PMBS). A quantitative, cross-sectional design was employed to collect data from 128 respondents. The study adapted the ten-item Perceived Stress Scale (PSS-10) to measure stress, and academic performance was measured by self-reported Cumulative Grade Point Average (CGPA). The findings suggest that for this high-achieving sample, perceived stress alone is not a direct predictor of academic outcomes. This highlights the complex nature of the stress-performance relationship and suggests that factors such as resilience and coping strategies may play a significant mediating role. The study concludes that while stress was not directly linked to grades, the moderate stress levels reported are a concern for well-being that warrants institutional attention.

Keywords: perceived stress, PSS-10, academic performance, CGPA, polytechnic

INTRODUCTION

Stress has been increasingly recognised as a mental health disorder and a major psychological concern among university students globally. Mental health disorders contribute to approximately 13% of the global disease burden among individuals between the ages of 10 and 19 years old (World Health Organisation, 2024). Depression, anxiety and stress are amongst the most predominant mental health disorders, according to Al-Garni et al. (2025). According to Birech (2023), stress is commonly understood as a condition in which negative and overwhelming events exceed an individual's ability to cope. In Australia, the government reported that 15% of its people between the ages of 18 and 24 had experienced severe psychological distress, with 14 out of every 100,000 individuals of the same age range dying by suicide between the years 2017 and 2019 (Australian Institute of Health and Welfare, 2021).

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Similarly, among students in universities in Malaysia, the occurrence rates of moderate to severe depression, anxiety, and stress among university students are 53.9%, 66.2%, and 44.6% respectively (Wong et al., 2023). These numbers highlighted the seriousness of the situation.

The aforementioned mental health disorders, such as stress, could unfavourably affect students' academic performance and their well-being as a whole (Zani et al., 2025). As such, tertiary education students came across an overabundance of complications that may contribute to the emergence of mental health problems (Aziz et al., 2023), such as stress. As proposed by the Global Burden of Disease (GBD) 2019 Mental Disorders Collaborators (2022), students who experience mental health disorders experience flaws in mental aptitude, concentration, and energy level, leading to obstruction of their performance in studying and an elevated risk of dropping out of school. Aziz et al. (2023) emphasised that the academic setting can be extremely challenging, characterised by rigorous performance standards, a challenging curriculum, and the importance of sustaining exceptional grades. Hence, it can be said that stress experienced by tertiary education students these days has become a budding concern as it heavily affects their mental health condition and academic performance.

The rationale behind selecting PMBS, hereinafter referred to as PMBS—according to the official website of PMBS—it is an institution that offers a curriculum that blends industry-based and theoretical aspects, where students are required to take continuous assessments and final examinations throughout a fourteen-week semester. Additionally, each semester, students must take a minimum of 12 credit hours, equivalent to at least four courses (PMBS, n.d.). and unlike conventional polytechnics, PMBS does not provide student accommodation. Abdul Rahman et al. (2025) stated that PMBS does not provide accommodation, causing students to rent shop lot hostels nearby PMBS, and subsequently, it leads to problems such as inconducive environment due to them being mixed with other members of the public and this mixture resulted in noises and disruption of students' peace to study.

Omar et al. (2020) stated that the Malaysia students' mindsets especially, may contribute to the ongoing pressures where the majority of students believe they need to secure a high CGPA in their study in order to secure a better job in the future; subsequently the mindset will trigger mental and emotional pressure, tension, or stress that transpires due to the demands of university life (Omar et al., 2020) and may potentially contribute to the stress levels among students of PMBS. Given the concern, this study was conducted;

i) To determine the level of perceived stress among students at PMBS.
ii) To determine the level of academic performance among students at PMBS.
iii) To determine the correlation between perceived stress and the academic performance of PMBS students.

Specifically, a study that applied PSS-10 conducted by Muin et al. (2025) in three Indonesians universities amongst pharmacy students found that higher stress levels significantly were associated with lower academic performances. Another study with a different setting of students attending online classes in an Indian college but applied the similar instrument of PSS-10 done by Ponselvakumar and Alaguraja (2022), had in contrary found that there is no positive correlation between perceived stress and students' academic performance was obtained. Based on the two existing literatures, the relationship between perceived stress and academic performance is found to be inconsistent, depending on the research context such as academic discipline and learning condition. Therefore, this study is crucial for

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understanding the specific dynamics at PMBS, a polytechnic institution, which represents a different population in tertiary education to help provide solutions for students whose stress levels may affect their academic performance.

LITERATURE REVIEW

Psychological stress can be defined as a particular relationship between the person and the environment that the person appraises as taxing or exceeding their resources and thereby endangering their well-being (Lazarus & Folkman, 1984). Abu Shosha and Al-Kaladaleh (2020) stated that psychological stress is measured according to the accompanying emotions. Feelings of anger, guilt, anxiety, shame, envy, jealousy, sadness, and disgust that appear from conflict are referred to as stress emotions (Lazarus, 1993). This cognitive appraisal determines the degree to which a specific transaction between an individual and their environment is perceived as stressful. The subjective appraisal of demands versus resources is a fundamental aspect of this model, which refers to perceived stress as the assessment of the degree to which a situation in one's life is perceived as stressful, and hence, it is related to the subjective assessment of life events. Adopting this model, stress is seen as an individual's subjective perception of an imbalance between life demands and their coping resources.

Pressures from university life can lead to stress, which in turn influences student performance (Omar et al., 2020). Aziz et al. (2023) found that 76.2% of their participants blamed academic stress for their mental illness, which can obstruct academic achievement. This further demonstrates that stress can be imposed by various sources, including environmental changes, academic pressures, and interpersonal relationships, all of which can lead to major psychological dysfunctions (Amhare et al., 2020). Gänzler (2022) further stated that stress related to academics was the main contributing factor to the growth of psychological pressure.

Omar et al. (2020) in their study on the students of Universiti Teknologi Malaysia found that students tend to worry about them failing their tests or receiving low scores than their peers and this has led to too much daunting and pressure and it inevitably causes them academic stress. Another study on working postgraduate students at University Utara Malaysia by Salehuddin et al. (2019) similarly established that stress is associated with lower academic performance. Eugenie and Tan (2019) conducted a study on 80 students from Universiti Malaysia Sarawak (UNIMAS), from the Faculty of Cognitive Science and Human Development (FCSHD) found that there is a significant relationship between stress and academic performance shown by the sample, demonstrating that students with higher stress level did not perform academically as good as students who had lower stress level. Additionally, Bano (2024) also postulated that stressed students are often unable to score well, resulting in lower GPAs. Given the foundation of the reviewed literature, the PSS-10 by Cohen and Williamson (1988) was selected as a validated scale to help this study achieve its objectives.

METHODOLOGY

This study employed a quantitative, cross-sectional correlational design to investigate the relationship between perceived stress and academic performance among students at PMBS.

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This design was selected as it allows for the efficient examination of variables and their associations at a single point in time. The sampling method is purposive sampling as the selected population is amongst 183 active diploma students from Semesters 2 to 5 at PMBS. First-semester students were excluded from the sampling frame as the students had not yet established a CGPA, a key variable for this study. Using Krejcie and Morgan's (1970) table to determine sample size, a minimum of 123 respondents was required. A total of 141 respondents participated in this study, exceeding the required sample size of 123. This higher response rate enhances the reliability and representativeness of the collected data. From the 141 surveys collected, 3 were removed due to incomplete answers on the PSS-10 items, leaving 138 valid responses. From these valid responses, 10 were randomly selected for a pilot test to establish instrument reliability. The remaining n=128 respondents comprised the final sample for the main data analysis.

Data were collected between late October and early November 2025 using a self-administered online questionnaire. The questionnaire consisted of three sections. The demographic section captured data on age, gender, semester of study, and course of study. Academic performance was operationalised as the student's self-reported CGPA. Respondents were asked to select their CGPA from the provided ranges as shown in Table 1. Perceived stress was measured using the 10-item PSS-10 by Cohen & Williamson (1988). As postulated by Maroufizadeh et al. (2018), the PSS-10 is a self-report instrument that comprises 10 items aimed at evaluating how unpredictable, uncontrollable, and overloaded respondents find their lives. This emphasis on subjective experience makes the Perceived Stress Scale (PSS) by Cohen et al. (1983) a suitable instrument for this study, as it is designed to quantify this exact appraisal.

Table 1. Classification of Academic Performance Categories Based on CGPA Scores

Category	CGPA Ranges
1	2.00 – 2.49
2	2.50 – 2.99
3	3.00 – 3.49
4	≥3.50

Derived from this model, the PSS initially consisted of a 14-item scale but was later reduced to a 10-item version PSS-10 by Cohen and Williamson (1988), which has been widely used since. The PSS-10 is a self-report measure assessing the degree to which situations in one's life are appraised as stressful (Cohen et al., 1983, p.387). It specifically measures the degree to which life events over the past month are perceived as unpredictable, uncontrollable, and overloaded. Lee (2012) review of its psychometric properties found the PSS-10 to be vigorous, with Cronbach's alpha values consistently exceeding the .70 threshold. As stated by Bastianon et al. (2020), consistent results were found, supporting a two-factor structure, which is contrasting with the original one-factor structure presented by Cohen et al. (1983). Chen et al. (2021) in their study on medical students in Hong Kong found that the PSS-10 is a valid measure for assessing self-reported stress among medical students as well as health sciences students. Tsegaye et al. (2022) also concluded that using the total PSS-10 score, rather than its two-factor structure, is a more effective approach to measuring perceived stress.

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The PSS-10 is a widely validated instrument that assesses the degree to which individuals appraise situations in their lives as stressful over the preceding month. Items are rated on a 5-point Likert scale ranging from 0 (never) to 4 (very often). The scale includes six negatively phrased items and four positively phrased items, which are reverse-scored. The total score is calculated by summing all responses, yielding a range from 0 to 40, with higher scores indicating higher levels of perceived stress, as shown in Table 2. Data were analysed using the Statistical Package for the Social Sciences (SPSS) version 29, employing descriptive statistics to report means, frequencies, percentages, and standard deviations. Pearson correlation coefficients were computed for inferential statistics.

Table 2. Level of Perceived Stress According to PSS-10 Score by Cohen et al. (1983)

Total PSS-10 Score Range	Level of Perceived Stress
0 – 13	Low Stress
14 – 26	Moderate Stress
27 – 40	High Stress

RESULTS

Reliability Test

A reliability pilot test was conducted on a separate sample of 10 respondents to establish the reliability of the PSS-10 instrument within the context of the study. The analysis demonstrated that the scale possessed good internal consistency, with a Cronbach's Alpha coefficient of $\alpha = 0.744$, which exceeds the accepted threshold of 0.70, thus confirming its suitability for use in the main study.

Table 3. Reliability Test

Variable	N of Items	Cronbach's Alpha
PSS-10	10	0.744

Demographic Data

The demographic characteristics of the 128 respondents are presented in Table 4. As detailed in Table 4, the sample was predominantly female (78.9%) and primarily consisted of students from the Diploma in Tourism Management (82%). The distribution across semesters 2, 3, 4, and 5 was relatively even.

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Table 4. Respondents Demographic Profile (N=128)

Characteristic	Category	Frequency (N)	Percentage (%)
Gender	Female	101	78.9
	Male	27	21.1
Semester	Semester 2	20	15.6
	Semester 3	42	32.8
	Semester 4	26	20.3
	Semester 5	40	31.3
Course of Study	Diploma in Tourism Management	105	82.0
	Diploma in Finance and Banking	23	17.0
Age	18	1	00.8
	19	46	35.9
	20	46	35.9
	21	18	14.1
	22 and above	17	13.3

Level of Perceived Stress among Students at PMBS

The level of perceived stress among the students at PMBS was presented in Table 5, which shows the distribution of respondents according to their stress levels.

Table 5. Level of Perceived Stress (N=128)

Stress Level	Score Range	Frequency (N)	Percentage (%)
Low	0 - 13	5	3.9
Moderate	14 – 26	109	85.2
High	27 – 40	14	10.9
	Total	128	100

Table 5 displays that the majority of respondents experienced moderate levels of stress. A small minority fell into the low (3.9%) and high (10.9%) stress levels.

Table 6. Descriptive Statistics for Perceived Stress

Variable	*N*	*M*	*SD*	Minimun	Maximun
Perceived Stress (PSS-10 Score)	128	22.13	4.61	0	33

Note. *N*=128; *M* = Mean; *SD* = Standard Deviation

PSS-10 scores can range from 0 to 40, with higher scores indicating greater perceived stress. As shown in Table 6, the mean PSS-10 score for the sample was 22.13 (SD = 4.61),

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indicating a moderate level of perceived stress among the students in PMBS. The following Table 7 presents the descriptive statistics for each of the 10 items in the PSS-10 scale.

Table 7. Descriptive Statistics for PSS-10 Items (N=128)

Item	Statement	Mean	Std. Deviation
PSS01	How often have you been upset because of something that happened unexpectedly?	2.84	.93
PSS02	How often have you been upset because of something that happened unexpectedly?	2.80	.95
PSS03	How often have you felt nervous and "stressed"?	2.82	.93
PSS04	How often have you felt confident about your ability to handle your personal problems?	1.25	.80
PSS05	How often have you felt that things were going your way?	1.48	.82
PSS06	How often have you found that you could not cope with all the things that you had to do?	2.56	.95
PSS07	How often have you been able to control irritations in your life?	1.48	.86
PSS08	How often have you felt that you were on top of things?	1.64	.91
PSS09	How often have you been angered because of things that happened that were outside of your control?	2.67	1.02
PSS10	How often have you felt difficulties were piling up so high that you could not overcome them?	2.59	.89
	Total	22.13	4.61

Note: Items 4, 5, 7, and 8 were reverse-scored prior to analysis. Higher means indicate higher stress contribution.

Level of Academic Performance among Students at PMBS

Table 8 presents the distribution of respondents' academic performance according to the CGPA category.

Table 8. Frequency of Academic Performance

Category	Frequency (n)	Percentage (%)
2.00 – 2.49	3	2.3
2.50 – 2.99	18	14.1
3.00 – 3.49	45	35.2
≥3.50	62	48.4
Total	128	100.0

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A key characteristic of the sample was its high academic achievement, with 48.4% of respondents reporting a CGPA of 3.50 or higher.

Table 9. Descriptive Statistics for Academic Performance

Variable	*N*	*M*	*SD*	Minimun	Maximun
Academic Performance (Numeric CGPA)	128	3.39	0.40	2.25	3.75

Note. *N*=128; *M* = Mean; *SD* = Standard Deviation

The analysis showed a mean CGPA of 3.39 (SD = 0.40), reflecting the sample's high academic performance.

Correlation Analysis

A Pearson correlation analysis was conducted to measure the linear relationship between Perceived Stress and Academic Performance.

Table 10. Correlation Analysis between Perceived Stress and Academic Performance

Correlations			
		PSS_TOTAL	CGPA
PSS_TOTAL	Pearson Correlation	1	.111
	Sig. (2-tailed)		.211
	N	128	128
CGPA	Pearson Correlation	.111	1
	Sig. (2-tailed)	.211	
	N	128	128

The results indicated a correlation coefficient (r) of 0.111. The associated p-value was 0.211, which is far above the standard alpha level of 0.05 (p>0.05). Therefore, the analysis conclusively found no statistically significant linear relationship between perceived stress and academic performance among the students in this sample, and the sample only experienced moderate level of perceived stress.

DISCUSSION

The primary objective of this study was to examine the relationship between perceived stress and academic performance among students at Politeknik METrO Betong, Sarawak. The key finding was that there is no statistically significant linear relationship between the level of perceived stress and CGPA in this student sample. This result contrasts with the existing literature, which suggests that stress has a negative impact on academic performance, as reflected in grades, as found in a study by Salehuddin et al. (2019). Notably, the mean stress score of 22.13 indicated that students are experiencing a moderate level of stress. However, this stress does not translate into a statistically significant impact, either positive or negative on their academic grades. The correlation coefficient r = 0.111, while not statistically significant, suggests a very weak positive trend. The authors find that moderate stress does not

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affect the academic performance among this high-achieving sample, characterised by a 48.4% CGPA of greater than 3.50. It is possible that these resilient students perceive academic challenges as motivators, which prevents the distress from showing a negative relationship with grades. Previous study has also found that the higher and severe the level of stress that students experienced, the better they performed academically (Siraj et al., 2014).

In addition, the sample consisted of high academic achievers, with 83.6% maintaining a CGPA of 3.00 or higher. These students likely possess effective coping strategies or a high degree of academic resilience, and for them, the experience of stress may not be debilitating but rather a manageable aspect of their academic journey. This is supported by a study by Asri et al. (2024) where students' concentration and performance can be improved by moderate stress levels. Students may employ adaptive strategies, such as sophisticated time management, seeking social support, and maintaining a problem-solving focus, which effectively insulate their academic performance from the negative effects of stress. Alkhawaldeh et al. (2023) posited that individuals with a more resilient coping mechanism or higher levels of optimism deal better with academic pressure. Furthermore, the nature of the stress measured by the PSS-10 in this sample must be considered. The moderate stress levels reported may be motivating effects of their academic performance, resulting in an insignificant relationship with their GPA.

CONCLUSION

This study concludes that, within the specific context of this research, perceived stress is not a direct determinant of academic performance for students at PMBS. The moderate level of perceived stress reported, combined with high academic achievement, indicate that the academic discipline, particularly within the Tourism Management department, may be effectively navigating academic performance without a consequent decline in grades. These conclusions must be tempered by an acknowledgement of the study's limitations. The cross-sectional design provides a snapshot in time and cannot establish causality or delineate the temporal dynamics between stress and performance. The use of self-reported CGPA data, categorised into ranges, introduces a degree of measurement error and reduces statistical precision compared to official academic records. Furthermore, the over-representation of female students from a single academic department significantly constrains the external validity of the findings.

For future research, it is imperative to move beyond a simple bivariate correlation model. Studies should incorporate validated scales to directly measure proposed mediators, such as coping strategies and academic resilience. A longitudinal or mixed-methods approach would provide deeper insights into how the relationship between stress and performance changes over time and how students subjectively experience and manage this stress. Expanding the research to include a more diverse and representative sample from all departments within the polytechnic is also essential. Ultimately, while the institution can note that perceived stress is moderate and not impacting students' academic performance, the reported stress levels are still a concern for well-being in their own right, demanding proactive mental health promotion and support services focused on building student resilience.

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