

Stress on the Menu: Exploring Eating Behaviors in Stressed University Students

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Abstract

This study investigates the relationship between academic stress and eating behaviours among university students, with particular attention to differences between conventional (face-to-face) and online learners at UNITAR International University. Employing a quantitative research design, data were collected through a structured survey administered to 120 students across both learning modalities. The analysis revealed a moderate positive correlation between academic stress and binge eating, suggesting that elevated stress levels may significantly increase the likelihood of engaging in binge eating behaviours. In contrast, a weak positive correlation was found between academic stress and general unhealthy eating habits; however, concerns regarding the reliability of the measurement scale for unhealthy eating limit the interpretability of this finding. The study underscores the importance of developing more robust assessment tools to better capture the complexity of stress-related eating behaviours. Implications for student mental health, as well as recommendations for future research and targeted interventions to foster healthier lifestyle practices in university populations, are discussed.

Keyword: Academic Stress, Eating Behaviors, Binge Eating, University Students

Introduction

The demands of higher education often subject university students to substantial academic stress, which can negatively influence various aspects of their health and well-being, including their dietary behaviours. In recent years, the interplay between academic stress and eating habits has gained increasing attention in the scholarly community, particularly as lifestyle changes among students have become more pronounced in both conventional and digital learning environments.

University students frequently encounter intense academic pressures, including stringent deadlines, competitive grading systems, and high expectations for performance. These stressors can disrupt regular routines, leading to maladaptive coping mechanisms such as binge eating, emotional eating, and erratic meal patterns. As highlighted by Cheng and Mohd Kamil (2020) in their study *Stress and Food Intake Among University Students – Is There a Relationship?* stress has been found to influence students' food choices significantly, often resulting in unhealthy dietary habits.

This relationship is also supported by foundational psychological theory. According to Maslow's Hierarchy of Needs (1943), food is a basic physiological requirement essential for survival and daily functioning. Without meeting this foundational need, individuals may struggle to achieve higher-order psychological goals such as safety, belongingness, and self-actualization. Therefore, disruptions in dietary behaviours due to academic stress may not only impair physical health but also hinder students' ability to engage effectively with their academic and social environments.

Furthermore, the shift toward online education in recent years has added new dimensions to the student experience. While online learning provides increased flexibility and accessibility, it also introduces unique challenges such as reduced peer interaction, difficulty managing time, and the blurring of boundaries between academic and personal life (Kennedy & Date, 2022). These factors may exacerbate stress levels and contribute to distinct patterns of eating behaviour when compared to students enrolled in traditional face-to-face programs.

Considering these developments, this study aims to examine the relationship between academic stress and eating behaviours among students at UNITAR International University, with a specific focus on comparing those in conventional and online learning modalities. By investigating differences in stress levels and dietary responses across these two groups, the study seeks to contribute to a deeper understanding of how learning environments influence student well-being.

This research has practical implications for student support services, health promotion, and institutional policy. Understanding the mechanisms through which academic stress affects eating habits can inform the development of targeted interventions aimed at fostering healthier lifestyles among university students. Moreover, identifying the unique stressors associated with different learning modes can support the design of tailored wellness programs that address the specific needs of both conventional and online learners (Monserrat-Hernández et al., 2023).

To achieve these objectives, the study employs a quantitative research design, utilizing a structured survey distributed to 120 students enrolled in both face-to-face and online programs at UNITAR International University. The survey incorporates validated instruments measuring academic stress and eating behaviours, enabling a statistical analysis of the relationships between these variables. Through this approach, the study aims to generate evidence-based insights that contribute to the broader discourse on student mental health, academic performance, and lifestyle management in higher education.

Research Questions

1. To what extent is perceived academic stress associated with unhealthy eating habits among university students?
2. Does binge eat function as a coping mechanism in response to elevated levels of academic stress among students?

Research Objectives

1. To examine the extent to which perceived academic stress influences unhealthy eating habits among university students.
2. To assess the prevalence and role of binge eating as a coping mechanism in students experiencing elevated levels of academic stress

Literature Review

Academic Stress

Stress is broadly defined as a psychological and physiological response to challenging or threatening circumstances, often characterized by feelings of worry or strain. It functions as a natural mechanism that motivates individuals to confront and manage daily challenges essential for survival and well-being. Among various sources of stress, academic stress—stress related to educational demand has emerged as a critical concern for university students worldwide due to its substantial impact on both mental health and academic performance.

Rodríguez (2020) identifies academic stress as a pervasive psychological health issue, particularly prevalent among students facing heavy academic workloads and related pressures. The detrimental effects of academic stress include impaired concentration and diminished academic outcomes, underscoring the urgency of mitigating its impact. Empirical evidence consistently reveals elevated stress levels among university students. For instance, Ulhaq et al. (2022) reported significantly higher stress among final-year students compared to those in earlier years. Similarly, Smith, Johnson, and William (2020) documented widespread moderate to high academic stress among university students attributable to academic demands. Notably, Rodríguez (2020) observed an increase in academic stress following the transition to remote learning during the COVID-19 pandemic, highlighting how changes in instructional delivery can exacerbate student stress.

While moderate academic stress can serve as a motivational factor, excessive or chronic stress may provoke adverse psychological and physical consequences. Research indicates that unmanaged academic stress often leads to feelings of helplessness and anxiety, which negatively affect students' well-being and academic achievement. Literature underscores the dual role of academic stress as both a potential driver of academic effort and a source of significant distress with long-term health implications.

Unhealthy Eating Habits

Unhealthy eating habits refer to dietary patterns characterized by inadequate nutrition and increased health risks, including excessive consumption of high-calorie foods rich in sugar, salt, and unhealthy fats, alongside insufficient intake of essential nutrients such as vitamins, minerals, and fiber. Among university students, unhealthy dietary behaviors are particularly concerning due to their potential implications for physical health and overall well-being.

Smith et al. (2020) conducted a cross-sectional study examining the prevalence and determinants of unhealthy eating among university students, revealing a high incidence of fast-food consumption, sugary drinks, and irregular meal patterns. Choi (2020) further posits that university students' eating behaviors are distinct from the general population, driven largely by convenience and accessibility rather than nutritional value. Convenience, alongside taste preferences, often directs students toward fast food, contributing to the widespread adoption of unhealthy eating practices within this demographic. The multifaceted nature of these behaviors reflects a complex interplay of individual, social, environmental, and cultural factors, necessitating comprehensive, multi-level public health interventions to promote healthier dietary habits and improve long-term health outcomes among university populations.

Binge Eating

Binge eating disorder (BED) is characterized by recurrent episodes of consuming unusually large amounts of food within a short period, accompanied by a sense of loss of control and subsequent distress due to excessive fullness. Unlike occasional overeating, BED represents a chronic condition that profoundly impacts mental, emotional, and physical health. The prevalence of BED is notably increasing among university students, attributed in part to the heightened stress and transitional challenges inherent in university life.

Recent studies have illuminated the prevalence and contributing factors of binge eating among students. For example, Jones et al. (2022) utilized qualitative methods, including interviews and focus groups, to explore the cultural and psychological dimensions influencing binge eating behaviors in university contexts. Their findings underscore the significant role of psychological stressors and environmental factors. Smith et al. (2023) reported gender differences in binge eating prevalence, with females exhibiting higher frequency and intensity of episodes than males. Moreover, Wong et al. (2022) highlighted ethnic disparities in the occurrence and severity of binge eating, suggesting that cultural factors may influence vulnerability to disordered eating.

Given the increasing incidence of binge eating in university settings, this issue demands urgent attention from researchers, healthcare providers, and educational institutions to develop effective prevention and intervention strategies.

The Impact of Academic Stress on Eating Habits

The influence of academic stress on eating behaviors has garnered considerable scholarly interest in recent years. Numerous studies have demonstrated a positive association between elevated stress levels and increased consumption of unhealthy foods, particularly energy-dense snacks and fast food. Caso et al. (2020) emphasized that academic stress contributes to adverse health behaviors, including poor dietary choices among university students. Smith et al. (2020) similarly found that higher academic stress correlates with altered eating patterns characterized by increased intake of high-calorie comfort foods and irregular meal timing.

Further, Garcia et al. (2020) examined dietary changes during examination periods, documenting a tendency among students to increase consumption of energy-dense foods while decreasing intake of fruits and vegetables, alongside disrupted meal schedules. These

findings align with Smith et al. (2020), who linked academic stress to weight fluctuations mediated by unhealthy eating. AlJaber et al. (2019) also identified a strong correlation between stress levels and preference for convenience foods such as fast food, contributing to poor dietary quality.

Despite the growing body of research, there remains a significant need for further investigation into the specific dynamics of academic stress and eating habits within the Malaysian university context. Moreover, the development of reliable measurement tools and comprehensive frameworks is essential to deepen understanding and inform culturally appropriate interventions targeting this vulnerable population.

Research Frameworks

A research framework constitutes an organized system of principles, concepts, and guidelines that systematically direct and inform each phase of the research process. It provides a coherent structure that underpins the design, implementation, and analysis of a study, ensuring methodological rigor and consistency. Fundamentally, the research framework acts as a conceptual reference point that enables researchers to maintain clarity and focus on the specific objectives and scope of their investigation (Zandesh et al., 2019).

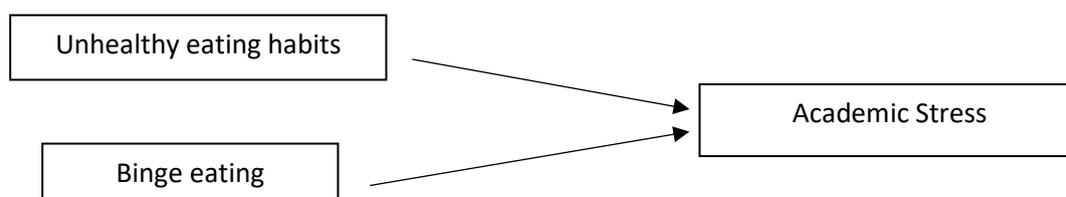


Figure 1: Research framework

The study framework presented here serves as a conceptual model designed to guide the investigation and achieve the research objectives articulated in this paper. It illustrates the hypothesized relationships between independent and dependent variables. Specifically, the framework examines the influence of the independent variable, academic stress, on the dependent variables—unhealthy eating habits and binge eating—among both conventional and online students at UNITAR International University. This structure facilitates a systematic analysis of how variations in academic stress levels may differentially impact students’ eating behaviors across distinct learning modalities.

Statement of Hypothesis

1. There is a positive association between increased academic stress and the prevalence of unhealthy eating habits among university students.
2. Elevated academic stress levels are positively correlated with the incidence of binge eating as a coping mechanism among university students.

Methodology

This study utilized a quantitative research design to systematically investigate the association between academic stress and eating habits among students at UNITAR International University. A structured self-administered questionnaire was developed to collect empirical data, with items measured predominantly on a five-point Likert scale. This scaling allowed

participants to express varying degrees of agreement or frequency regarding their experiences of academic stress, unhealthy eating behaviors, and binge eating tendencies, thereby facilitating the quantification of complex psychological and behavioral constructs.

The target population comprised both conventional (face-to-face) and online students enrolled at UNITAR International University, enabling a comparative understanding of these groups within the academic context. Inclusion of both student cohorts was critical to account for the potentially differing stressors and lifestyle factors inherent to each mode of learning. A non-probability convenience sampling technique was employed to recruit participants, given practical constraints and accessibility considerations. Questionnaire distribution leveraged multiple digital platforms to ensure broad outreach and enhance response rates. The survey link was disseminated via official university email channels, Microsoft Teams—widely used as a digital workspace within the university—and popular social media and communication applications such as WhatsApp and Course Networking. These platforms were strategically chosen to engage students across different communication preferences and academic schedules.

Prior to data collection, participants were provided with an informed consent statement outlining the study's objectives, voluntary nature of participation, and assurances regarding confidentiality and anonymity. All responses were anonymized to protect participant privacy, and data were collected exclusively for academic research purposes in compliance with ethical research standards. The survey remained open for a duration of one week, during which 120 complete responses were received and deemed valid for analysis. This sample size aligns with conventional guidelines for quantitative research in behavioral sciences and provides adequate statistical power to detect meaningful relationships between variables. The collected data were subsequently subjected to quantitative analysis using appropriate statistical techniques to evaluate the hypothesized relationships between academic stress and eating behaviors.

In summary, this methodological approach ensures a rigorous, ethical, and comprehensive examination of the impact of academic stress on eating habits among UNITAR students, with due consideration given to the diverse experiences of both conventional and online learners.

Findings

Demographical Analysis

		Statistics						
		Gender	Age	Education_Level	Employment_Status	Height_cm	Weight_kg	BMI
N	Valid	120	120	120	120	120	120	120
	Missing	0	0	0	0	0	0	0
Mean		1.1833	2.3833	3.1417	2.4417	2.8333	2.9000	4.5583
Median		1.0000	2.0000	3.0000	2.0000	3.0000	3.0000	4.0000
Mode		1.00	2.00	4.00	1.00	3.00	2.00	4.00
Std. Deviation		.38856	.71224	.96402	1.44243	.77061	.91118	1.24884
Variance		.151	.507	.929	2.081	.594	.830	1.560
Minimum		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Maximum		2.00	5.00	5.00	5.00	5.00	5.00	8.00

Figure 2: Demographic Characteristics of Participants (N = 120)

The study sample comprised 120 participants, with a predominance of female respondents, representing 81.7% of the sample, while males accounted for 18.3%. The age distribution indicated that the majority of participants (70.8%) were young adults aged between 18 and 30 years, reflecting the typical university student demographic. Nonetheless, the sample also included individuals from older age groups, underscoring the age diversity within the study population.

Regarding educational attainment, the participants exhibited a range of qualifications. Notably, 36.7% of respondents held a bachelor's degree, while 33.3% possessed Diploma or Certificate-level qualifications. This distribution highlights a well-educated sample with varied academic backgrounds.

Employment status varied among participants, with the largest groups being full-time employed individuals (45.0%) and full-time students (33.3%). This variation reflects the dual roles many university students may hold as both learners and working professionals.

Anthropometric characteristics were also examined. Height distribution revealed that nearly half of the participants (45.8%) fell within the 160–169 cm range, with smaller proportions in both shorter and taller height categories. Similarly, weight distribution showed that 38.3% of participants weighed between 40 and 59 kg, with fewer respondents in other weight brackets.

Body Mass Index (BMI) analysis indicated that nearly half of the participants (47.5%) were classified within the Normal BMI category. Other BMI categories were represented by smaller proportions of participants, with the Severe Thinness category comprising the smallest group at 1.7%. These anthropometric findings provide useful context for interpreting the relationship between academic stress and eating behaviors in this population.

Normality Analysis

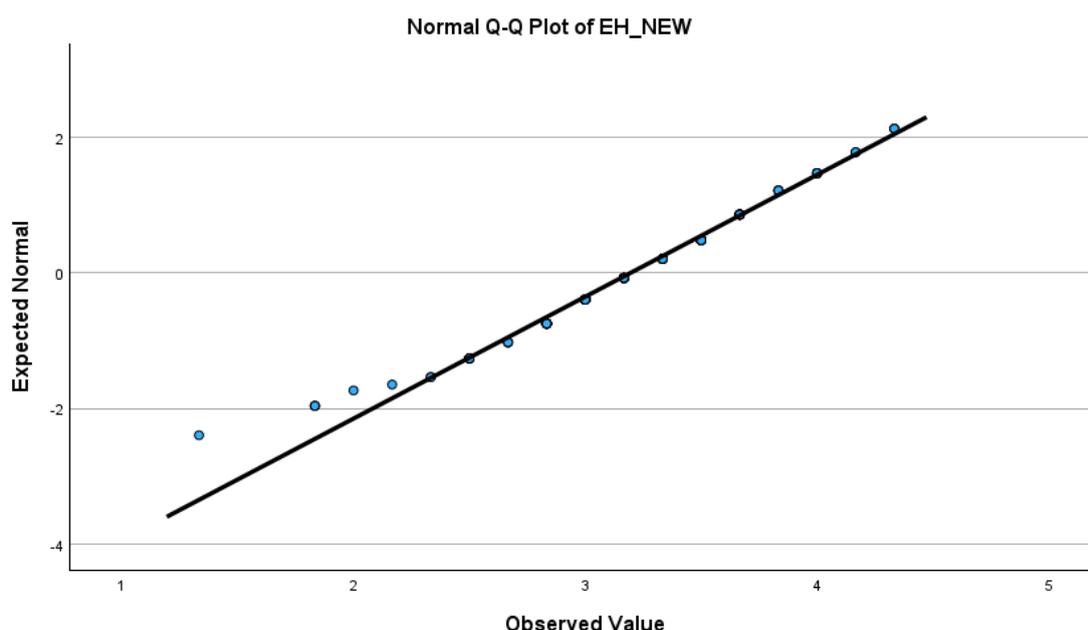


Figure 3: Normality Analysis for EH

The Q–Q (quantile–quantile) plot was used to assess the normality of the data for unhealthy eating habits (EH). This plot compares the quantiles of the observed EH data against the expected quantiles of a theoretical normal distribution. A linear pattern in the plot would suggest that the data are approximately normally distributed, whereas significant deviations from the reference line would indicate departures from normality.

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
EH_NEW	.091	120	.016	.974	120	.019

a. Lilliefors Significance Correction

The Kolmogorov-Smirnov (K-S) test evaluates whether a given dataset significantly deviates from a normal distribution. A low value of the test statistic indicates that the distribution closely approximates normality. However, without the associated significance level (p-value), it is difficult to determine whether the observed deviation is statistically meaningful. If the p-value exceeds .05, it suggests that there is no significant departure from normality.

The Shapiro-Wilk test provides an additional assessment of normality. Similar to the K-S test, it evaluates whether the distribution of the data differs significantly from a normal distribution. A low-test statistic again indicates a distribution that is approximately normal. In this case, the reported significance level for the Shapiro-Wilk test is .019, which falls below the conventional threshold of .05. This result leads to the rejection of the null hypothesis that the data are normally distributed, suggesting a statistically significant deviation from normality.

Assessing normality is essential because many parametric statistical tests—such as t-tests and ANOVA—rely on the assumption of normally distributed data. Given the evidence of significant non-normality, it may be necessary to consider alternative non-parametric methods or data transformation techniques to ensure the validity of subsequent analyses. Therefore, evaluating the distributional characteristics of the data is a critical step in drawing accurate conclusions regarding the relationship between academic stress and unhealthy eating behaviors among students in traditional and online learning environments.

Histogram for EH

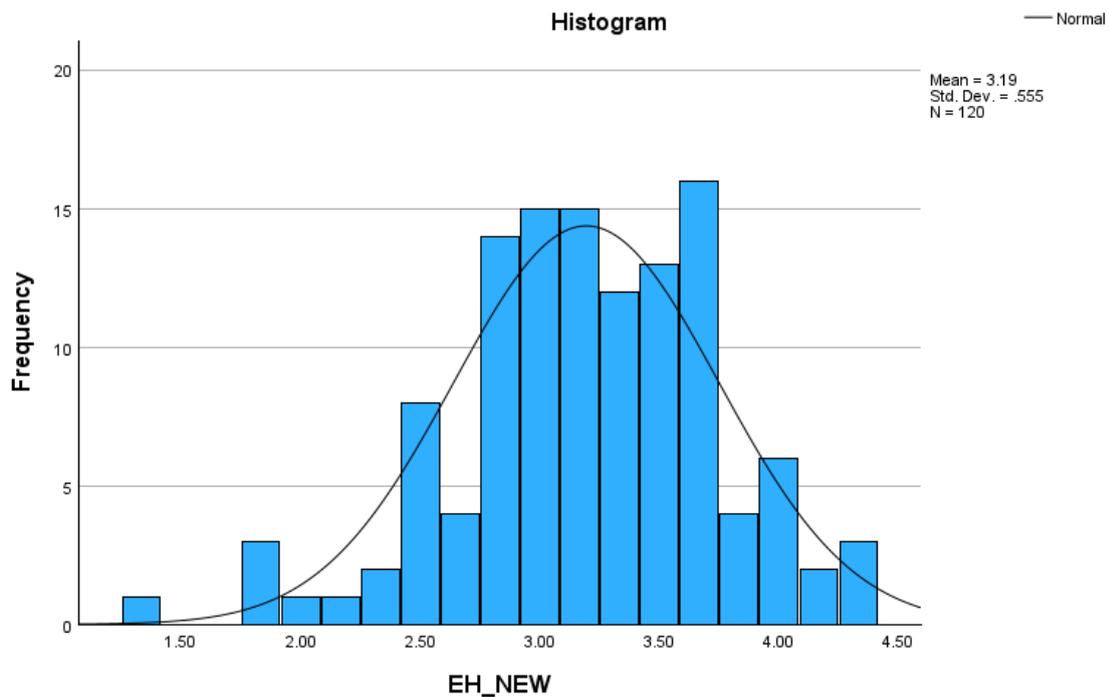


Figure 4: Histogram output of unhealthy eating habits (EH) variable from IBM SPSS normality analysis.

An examination of the distribution of the variable *binge eating* was conducted to assess its conformity to a normal distribution. The Kolmogorov-Smirnov and Shapiro-Wilk tests both indicated significant deviations from normality, yielding p-values of .006 and .018, respectively. These results lead to the rejection of the null hypothesis at the .05 significance level, suggesting that the data do not follow a normal distribution.

In addition to the statistical tests, visual inspection of the histogram for the *binge eating* variable revealed a pronounced curvature in the distribution. This visual pattern indicates skewness and a lack of symmetry, characteristics that further confirm the data's deviation from normality. Together, the statistical and graphical evidence support the conclusion that the *binge eating* variable does not exhibit a normal distribution.

Q-Q Plot of BE

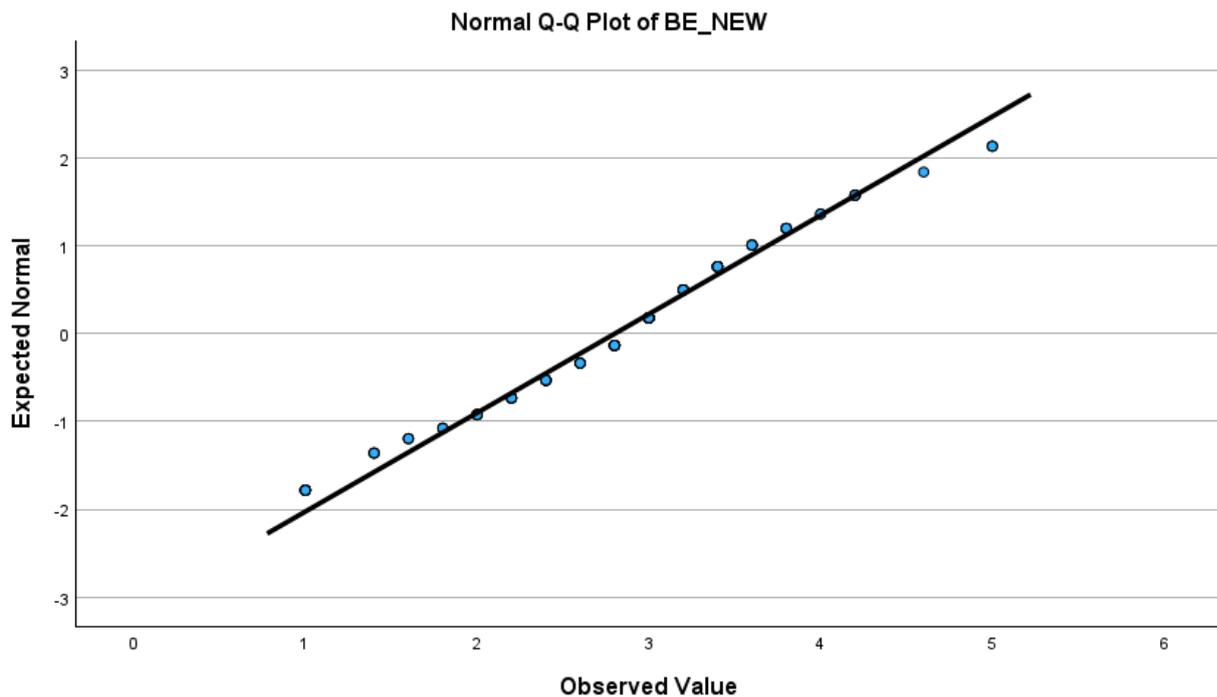


Figure 5: The Q-Q plot compares the quantiles of observed data for binge eating (BE) with those of a theoretical normal distribution.

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
BE_NEW	.099	120	.006	.973	120	.018

a. Lilliefors Significance Correction

To ensure the validity of subsequent statistical analyses, tests were conducted to evaluate the normality of the *binge eating* variable, which reflects the binge eating behaviors of conventional and online students within the context of academic stress. The Kolmogorov-Smirnov test produced a statistic of .099 with 120 degrees of freedom and a significance level (p-value) of .006, indicating a significant deviation from the assumption of normality. As the p-value is below the .05 threshold, the null hypothesis—that the data follows a normal distribution—is rejected. Similarly, the Shapiro-Wilk test yielded a statistic of .954 with the same degrees of freedom and a p-value of .018, further corroborating the conclusion that the distribution significantly departs from normality.

This deviation from normality has important implications for the choice of statistical methods. Since many parametric tests assume normally distributed data, their application in this context may not be appropriate. To maintain the validity of the statistical inferences, it may be necessary to apply non-parametric alternatives or perform data transformations that address the non-normal distribution.

Histogram of BE

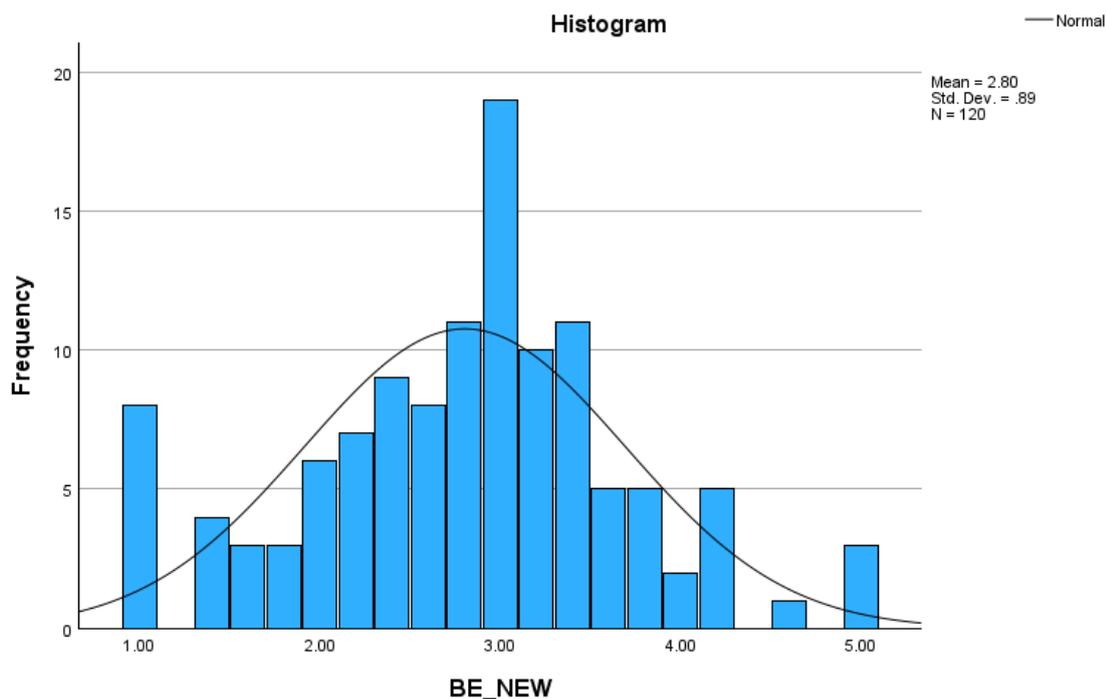


Figure 6: Histogram output of binge eating (BE) variable from IBM SPSS normality analysis

Reliability Analysis

Table 1

The reliability coefficients (Cronbach’s alpha) for the constructs assessed in the survey.

Construct	No. of Item	Alpha
AS	9	0.809
EH	6	0.271
BE	5	0.685

Reliability refers to the internal consistency of a construct, indicating the extent to which the items within a scale consistently measure the same underlying concept. According to Hair et al. (2009), a Cronbach’s alpha (α) value exceeding .70 is generally considered acceptable for indicating dependable internal consistency. In this study, reliability analysis was performed to evaluate the internal consistency of the measurement scales for each construct.

The Academic Stress (AS) scale demonstrated good internal consistency, with Cronbach’s alpha of .809, suggesting that the items reliably capture the underlying construct of academic stress among the participants. In contrast, the Unhealthy Eating Habits (EH) scale yielded Cronbach’s alpha of .271, indicating poor internal consistency. This low value suggests that the items may not be cohesively measuring the intended construction, possibly due to heterogeneity or lack of conceptual alignment among the items.

The Binge Eating (BE) scale exhibited moderate internal consistency, with a Cronbach’s alpha of .685. While slightly below the conventional threshold of .70, this value may still be

considered acceptable in exploratory research, indicating a reasonable degree of consistency among items assessing binge eating behaviors.

Correlation Analysis

Table 2

Summary of the correlation coefficients between academic stress (AS), unhealthy eating habits (EH), and binge eating (BE) among UNITAR International University students.

	AS	EH	BE
AS	1	0.183*	0.591**
EH	0.183*	1	0.262**
BE	0.591**	0.262**	1

Correlations

		AS_NEW	EH_NEW	BE_NEW
AS_NEW	Pearson Correlation	1	.183*	.591**
	Sig. (2-tailed)		.045	<.001
	N	120	120	120
EH_NEW	Pearson Correlation	.183*	1	.262**
	Sig. (2-tailed)	.045		.004
	N	120	120	120
BE_NEW	Pearson Correlation	.591**	.262**	1
	Sig. (2-tailed)	<.001	.004	
	N	120	120	120

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

**. Correlation is significant at the 0.01 level (2-tailed).

The correlation analysis identified several significant associations among the study variables. Firstly, a weak positive correlation was found between academic stress and unhealthy eating habits ($r = .183, p < .05$), suggesting a modest relationship wherein higher levels of academic stress are associated with a slight increase in the prevalence of unhealthy eating behaviors among students.

A stronger relationship was observed between academic stress and binge eating, with a moderate positive correlation ($r = .591, p < .01$). This indicates a significant association, implying that increased academic stress is substantially related to a greater tendency toward binge eating behaviors. This finding highlights the potential influence of academic stress on maladaptive eating patterns, particularly binge eating.

Additionally, a moderate positive correlation was observed between unhealthy eating habits and binge eating ($r = .262, p < .01$), suggesting that students who engage in unhealthy eating practices are also more likely to exhibit binge eating behaviors. Collectively, these results underscore the interconnectedness of academic stress and maladaptive eating behaviors in the student population.

Discussion

This study investigated the relationship between academic stress and its potential influence on unhealthy eating habits and binge eating behaviours among both conventional and online university students. Through the analysis of data from a diverse student population, the study sought to deepen our understanding of how academic pressures may shape students' dietary behaviours. The findings indicate a weak positive correlation between academic stress and unhealthy eating habits. However, the reliability analysis revealed that the scale used to measure unhealthy eating habits lacked internal consistency, thereby limiting the validity of the results. This limitation highlights the need for improved measurement tools that accurately capture the complexity of unhealthy eating behaviors. Future research should prioritize the development and use of psychometrically sound instruments, ensuring that items are both conceptually coherent and clearly worded. Additionally, attention should be given to minimizing social desirability bias, which may lead to the underreporting of unhealthy dietary practices (Caso et al., 2020). More notably, the results demonstrate a moderate positive correlation between academic stress and binge eating behavior, suggesting that elevated stress levels may significantly contribute to disordered eating patterns in university students. This finding aligns with previous research pointing to psychological, environmental, and socio-cultural influences on binge eating (e.g., Jones et al., 2022; Smith et al., 2023; Wong et al., 2022). These insights underscore the necessity for higher education institutions to adopt a more holistic approach to student well-being—one that includes proactive stress management strategies and the promotion of healthy lifestyle behaviors.

In summary, while the association between academic stress and unhealthy eating habits remains inconclusive due to measurement limitations, the observed relationship between academic stress and binge eating underscores the broader impact of academic pressures on student health. Further research employing robust and reliable methodologies is essential to deepen our understanding of these dynamics and to inform effective interventions that support students' mental and physical well-being.

This research makes a meaningful theoretical and contextual contribution to the growing body of literature examining the intersection between academic stress and eating behaviors among university students. Theoretically, it reinforces the stress-eating paradigm by confirming a moderate positive relationship between academic stress and binge eating behavior, highlighting how psychological stressors within the academic environment can manifest in maladaptive coping strategies such as disordered eating. This finding adds nuance to existing models of stress and health behavior by situating binge eating within the specific pressures experienced by both conventional and online learners. Contextually, the study draws attention to the unique challenges faced by a diverse student population in a changing educational landscape, particularly in light of increased reliance on digital learning environments. By identifying the limitations of current measurement tools used to assess unhealthy eating habits, the research also calls for methodological advancements that more accurately reflect students' dietary behaviors, especially in culturally and socially sensitive contexts. Overall, the study's significance lies in its capacity to inform institutional policies and intervention strategies that promote student well-being, advocating for a more comprehensive approach to mental health and lifestyle support in higher education settings.

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