

Social Media Addiction and Stress as Predictors of Eating Behaviour Among Undergraduate Students: A Cross-Sectional Study

Hannah Sorfina Azmi¹, Muhamad Ariff Ibrahim^{1,*}, Mohd Nazir Mohd Nazori², Nurulwahida Saad³ & Siti Adibah Waisulqarnai³

¹Department of Nutrition Sciences, Kulliyah of Allied Health Sciences, International Islamic University Malaysia, Pahang, Malaysia

²Department of Physical Rehabilitation Sciences, Kulliyah of Allied Health Sciences, International Islamic University Malaysia, Pahang, Malaysia

³Department of Biomedical Sciences, Kulliyah of Allied Health Sciences, International Islamic University Malaysia, Pahang, Malaysia

ABSTRACT

Introduction: The increasing influence of social media and stress on young adults has raised concerns regarding their impact on eating behaviour. University students, in particular, are vulnerable to poor coping strategies that may lead to disordered eating patterns, especially when exposed to high stress and excessive social media use. This study aimed to determine the levels of social media addiction, stress, and eating behaviour among undergraduate students at a Malaysian public university, and to examine their associations and predictive relationships. **Methods:** A quantitative cross-sectional study was conducted among 383 undergraduate students from all campuses using validated instruments: the Social Media Addiction Scale – Student Form (SMAS-SF), the Perceived Stress Scale (PSS), and the Dutch Eating Behaviour Questionnaire (DEBQ). **Results:** Correlation analysis showed that stress and social media dimensions such as virtual tolerance, virtual problem, and virtual information were significantly related to at least one type of eating behaviour dimension. Multiple regression analysis showed that stress ($\beta = 0.103$, $p = 0.048$) was a significant predictor of restrained eating. Virtual problem ($\beta = 0.132$, $p = 0.034$) was a significant predictor of emotional eating behaviour. Additionally, virtual tolerance ($\beta = 0.141$, $p = 0.020$), virtual information ($\beta = 0.114$, $p = 0.042$), and stress ($\beta = -0.156$, $p = 0.002$) were significant predictors of external eating behaviour. **Conclusion:** The study concludes that both social media addiction and stress play a role in shaping students' eating behaviours, with different components influencing restrained, emotional, and external eating in varying directions. These findings suggest the need for varied approaches when addressing unhealthy eating patterns among university students.

Keywords:

social media additions, stress, eating behaviour, & university students.

INTRODUCTION

Eating behaviours play an important role in maintaining physical health and improving the quality of life, as well as in preventing chronic diseases. A healthy diet is essential to protect against malnutrition in all its forms and noncommunicable diseases (World Health Organization, 2020).

Young adults, particularly university students, often struggle to maintain a healthy diet as they find themselves in new social settings and making their own food choices for the first time. Among these, stress conditions and social media exposure have emerged as influential factors affecting food choices and eating patterns. University life presents unique stressors, including academic demands, social adjustments, and personal changes, which can significantly impact students' mental health and coping behaviour. Studies have shown that high stress levels are associated with disordered eating, such as emotional overeating or undereating, as

* Corresponding author.

E-mail address: ariffib@iium.edu.my

individuals turn to food for comfort or control (Dakanalis et al., 2023; Choi, 2020). At the same time, the widespread use of social media among university students exposes them to idealized body images, viral diet trends, and comparison culture, which can further drive unhealthy eating behaviours and body dissatisfaction (Aparicio-Martinez et al., 2019; Jiotsa et al., 2021).

The combination of stress and social media pressure creates a complex environment where students may engage in restrictive dieting, binge eating, or meal skipping, which are often reinforced by peer influence and the desire for social acceptance (Ragelienė & Grønhøj, 2020). These behaviours not only affect students' physical health but also increase their risk for mental health issues and long-term disordered eating patterns. In Malaysia, rising rates of adolescent mental health concerns and obesity emphasise the urgency of addressing these interrelated challenges (Institute for Public Health, 2017; Shah et al., 2023). In light of these concerns, the present study aims to determine the levels of social media addiction, stress, and eating behaviour among students, and to examine how these factors are associated and influence one another.

MATERIAL AND METHODS

Study Participants

This research employed a quantitative, cross-sectional study to examine the relationships between social media addiction, stress, and eating behaviours among undergraduate students at a public Malaysian university. Data collection was carried out through both online and paper-based surveys, targeting students from three main campuses: Gombak (14,994 students), Kuantan (3,664 students), and Pagoh (1,662 students), with a total student population of 20,320 at the time of the study.

The Kuantan Campus has six faculties: Kulliyyah of Allied Health Sciences, Dentistry, Medicine, Nursing, Pharmacy, and Science. The Gombak campus includes seven faculties: Kulliyyah of Islamic Revealed Knowledge and Human Sciences, Law, Architecture and Environmental Design, Economics and Management Sciences, Education, Engineering, and Information and Communication Technology. Meanwhile, the Pagoh campus hosts a single faculty, the Kulliyyah of Sustainable Tourism and Contemporary Languages. Based on Krejcie & Morgan's (1970) sample size calculation, 379 participants were required for a population of this

size. Ultimately, 383 students from all campuses participated in the study, selected through convenience sampling.

Questionnaire

A comprehensive questionnaire was developed using the adopt-and-adapt method, drawing on validated instruments by Ursoniu et al. (2022), Cohen et al. (1994), and Van Strien et al. (1986). The survey was administered online via Google Forms and distributed through email, WhatsApp, Telegram, and Instagram. To maximize reach, paper-based copies were also provided on campus for students who preferred or had better access to hard-copy questionnaires. The survey consisted of four sections: sociodemographic information, social media addiction, stress levels, and eating behaviour.

The survey included six sociodemographic items, namely gender, age, race, year of study, student origin, and Kulliyyah. The Social Media Addiction Scale - Student Form (SMAS-SF), developed by Ursoniu et al. (2022), was used to assess social media addiction among university students. The scale consisted of 29 items across four dimensions (virtual tolerance refers to increasing time spent on social media to achieve satisfaction, similar to the tolerance seen in other addictions. Virtual communication is involves using social media to manage emotions and is often tied to limited self-presentation skills. Virtual problem encompasses issues arising from excessive use, such as reduced productivity, academic struggles, and health effects. Lastly, virtual information reflects continuous searching for updates, leading to information overload and potentially stimulating addiction pathways.) using a 5-point Likert scale. Total scores range from 29 to 145, with higher scores indicating a greater level of social media addiction. The Perceived Stress Scale (PSS), developed by Cohen et al. (1983), was used to measure perceived stress levels. The 10-item version assesses the degree to which situations in life are perceived as stressful. Scores range from 0 to 40, categorized as low (0-13), moderate (14-26), and high (27-40) stress. The Dutch Eating Behaviour Questionnaire (DEBQ), by Van Strien et al. (1986), was used to measure three types of eating behaviour: emotional is triggered by emotional responses; external is a response to environmental cues; and restrained eating is referred to as controlled or limited food intake. The 5-point Likert scale ranges from

“Never” to “Very Often,” with higher average scores indicating stronger tendencies in each category.

Statistical Analysis

The Statistical Package for the Social Sciences (SPSS) version 29.0 was used to analyse the data. Descriptive statistics were applied to summarize sociodemographic variables (percentage, mean, SD), social media addiction levels (SMAF-SF), and stress levels (PSS). Additionally, the relationship between eating behaviours, social media addiction, and stress was examined using Pearson Correlation and multiple regression

RESULTS

Demographic

According to Table 4.1, the majority of respondents were female students, accounting for 80.2% (n=307), while male students comprised 19.8% (n=76). Most respondents were aged between 20 and 30 years, representing 90.9% (n=348), followed by those aged 23 to 25 years at 9.1% (n=35). In terms of race, the majority were Malay (98.2%, n=376), with smaller proportions of Chinese (1.0%, n=4), Indian (0.5%, n=2), and an international student categorized under 'Other' (0.3%, n=1).

In terms of the year of study, the majority of respondents were from Year 1, comprising 30.0% (n=115), followed by Year 3 students at 27.7% (n=106). Respondents from Year 2 accounted for 23.2% (n=89), while those from Year 4 made up 19.1% (n=73). Regarding students' origin, as previously mentioned, most were local students (98.4%, n=377), with a small proportion of international students (1.6%, n=6). The majority of respondents were from the Kuantan campus (76.4%), primarily from the Kulliyah of Allied Health Sciences (KAHS), which accounted for 51.2% (n=196). Meanwhile, 21.8% of respondents were from the Gombak campus, with the highest representation from the Kulliyah of Architecture and Environmental Design (KAED) at 8.6% (n=33). A smaller portion, 1.8% (n=7), were from the Pagoh campus, which consisted of students from the Kulliyah of Sustainable Tourism and Contemporary Languages (KSTCL).

Table 1: Sociodemographic Factors of Respondents

Characteristics	Categories	n	%
Gender	Male	76	19.8
	Female	307	80.2
Age	19 - 22	348	90.9
	23 - 25	35	9.1
Race	Malay	376	98.2
	Chinese	4	1.0
	Indian	2	0.5
	Others	1	0.3
Year of study	Year 1	115	30.0
	Year 2	89	23.2
	Year 3	106	27.7
	Year 4	73	19.1
Student origin	Local	377	98.4
	International	6	1.6
Kulliyah	KAHS	196	51.2
	KOD	12	3.1
	KOP	21	5.5
	KOM	33	8.6
	KOS	20	5.2
	KON	10	2.6
	KICT	12	3.1
	KOED	10	2.6
	KOE	15	3.9
	KIRKHS	7	1.8
	KSTCL	7	1.8
	KENMS	7	1.8
KAED	33	8.6	

Level of Social Media Addiction and Stress

As shown in Table 2, social media addiction levels were categorized into two groups: 'Low' (scores 29-86) and 'High' (scores 87-145). The majority of students (n = 258; 67.4%) fell into the low addiction category, whereas 125 students (32.6%) were classified as having a high level of social media addiction. Meanwhile, the stress scores were grouped into three distinct categories: 'Low' (score range: 0 to 13), 'Moderate' (14 to 26), and 'Perceived High' (27 to 40). These classifications were based on established scoring criteria to better understand the mental well-being of the students. The results indicated that most respondents experienced a moderate level of stress, with 277 students (72.3%) falling into this category. In

comparison, 57 students (14.9%) reported high perceived stress, while 49 students (12.8%) reported low stress levels.

Table 2: Level of Social Media Addiction and Stress

Variables	Level	n	%
Social Media Addiction	Low	258	67.4
	High	125	32.6
Stress	Low	49	12.8
	Moderate	277	72.3
	High	57	14.9

Correlation

Table 3 presents the correlation analysis results examining the relationships between four dimensions of social media addiction (Virtual Tolerance, Virtual Communication, Virtual Problem, and Virtual Information) and stress with three types of eating behaviours (Restrained, Emotional, and External eating) among undergraduate students. The findings indicate that Virtual Tolerance is significantly

associated with all three eating behaviours: Restrained ($r = 0.119, p < 0.05$), Emotional ($r = 0.131, p < 0.05$), and External eating ($r = 0.132, p < 0.05$). In contrast, Virtual Communication shows no significant correlation with any of the eating behaviour types, as all p-values exceed 0.05, indicating no meaningful relationship. For Virtual Problem, significant correlations were found with Emotional Eating ($r = 0.161, p < 0.05$) and External Eating ($r = 0.201, p < 0.05$), while no significant relationship was observed with Restrained Eating ($r = 0.069, p > 0.01$). Regarding Virtual Information, significant relationships were identified with Restrained Eating ($r = 0.132, p < 0.05$), Emotional Eating ($r = 0.121, p < 0.05$), and External Eating ($r = 0.184, p < 0.05$). Lastly, for the Stress variable, significant associations were observed with Restrained Eating ($r = 0.106, p < 0.05$) and External Eating ($r = 0.131, p < 0.05$). No significant relationship was found between stress and Emotional Eating ($r = -0.054, p > 0.05$). In summary, the statistically significant relationships observed were accompanied by low r-values, implying weak correlations and the potential influence of other factors on eating behaviours.

Table 3: Correlation analysis between social media addiction, stress and eating behaviour

Variables	1	2	3	4	5	6	7
1. Virtual Tolerance	-						
2. Virtual Communication	.585**	-					
3. Virtual Problem	.529**	.642**	-				
4. Virtual Information	.418**	.331**	.400**	-			
5. Stress	.079	.189**	.190**	.052	-		
6. Restrained Eating	.119*	.066	.069	.132**	.106*	-	
7. Emotional Eating	.131*	.033	.161**	.121*	-.054	-.005	-
8. External Eating	.201*	.019	.136**	.184**	-.131*	-.163**	.381**

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

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

Multiple Regression Analysis

Table 4 summarizes the multiple regression findings on the impact of social media addiction and stress on restrained eating. The overall model was statistically significant, $F(4, 378) = 2.546$, $p = 0.028$, indicating a meaningful relationship between the predictors and the outcome. The model explained 3.3% of the variance in restrained eating ($R = 0.181$, $R^2 = 0.033$), with an adjusted R^2 of 0.020. Moreover, Table 5 shows that stress was the only significant predictor of restrained eating ($B = 0.150$, $p = 0.048$), suggesting that higher stress levels were associated with increased restrained eating. Other variables—**virtual tolerance** ($p = 0.695$), **virtual problem** ($p = 0.710$), and **virtual information** ($p = 0.066$)—were not statistically significant.

Table 4: Regression analysis between social media addiction and stress towards restrained eating behaviour

Model	B	SE	Beta	t	Sig.
Virtual Tolerance	.210	.144	.097	1.453	.147
Virtual Communication	-	.112	-	-.392	.695
Virtual Problem	.044		.028		
Virtual Information	-	.115	-	-.373	.710
Stress	.043		.026		
	.231	.125	.106	1.844	.066
	.150	.075	.103	1.986	.048
Model Summary	$R = .181$				
	$R^2 = .033$				
	$Adj. R^2 = .020$				
	$SE = 9.896$				
	$F(4,378) = 2.546$				

Table 5 presents the multiple regression analysis examining the effect of social media addiction and stress on emotional eating behaviour. The model was statistically significant, $F(4, 378) = 3.762$, $p = 0.005$, indicating that the predictors had a meaningful impact. The model explained 3.8% of the variance in emotional eating ($R = 0.196$, $R^2 = 0.038$), with an adjusted R^2 of 0.028.

Among the predictors, only virtual problem showed a significant positive effect ($B = 0.254$, $p =$

0.034), suggesting that other issues related to problematic social media use may be linked to higher emotional eating. Other variables, which are virtual tolerance ($p = 0.457$), virtual information ($p = 0.353$), and stress ($p = 0.099$), were not statistically significant.

Table 5: Regression analysis between social media addiction and stress towards emotional eating behaviour

Model	B	SE	Beta	t	Sig.
Virtual Tolerance	.117	.157	.046	.744	.457
Virtual Problem	.254	.120	.132	2.126	.034
Virtual Information	.137	.147	.053	.930	.353
Stress	-	.088	-	-	.099
	.146		.085	1.653	
Model Summary	$R = .196$				
	$R^2 = .038$				
	$Adj. R^2 = .028$				
	$SE = 10.430$				
	$F(4,378) = 3.762$				

Table 6 presents the multiple regression analysis on the effect of social media addiction and stress on external eating behaviour. The model was statistically significant, $F(4, 378) = 7.771$, $p < 0.001$, indicating a meaningful relationship between the predictors and external eating. The model explained 7.6% of the variance ($R = 0.276$, $R^2 = 0.076$), with an adjusted R^2 of 0.066.

Three predictors were statistically significant: virtual tolerance ($B = 0.182$, $p = 0.020$) and virtual information ($B = 0.149$, $p = 0.042$) were positively associated with external eating, while stress showed a significant negative relationship ($B = -0.136$, $p = 0.002$). Virtual problem ($p = 0.451$) was not a significant predictor.

Table 6: Regression analysis between social media addiction and stress towards external eating behaviour

Model	B	SE	Beta	t	Sig.
Virtual Tolerance	0.182	0.078	0.141	2.329	0.020
Virtual Problem	0.045	0.060	0.046	0.755	0.451
Virtual Information	0.149	0.073	0.114	2.043	0.042
Stress	-	0.044	-	-	0.002

0.136 0.156 3.104

Model	<i>R</i> = .276
Summary	<i>R</i> ² = .076
	<i>Adj. R</i> ² = .066
	<i>SE</i> = 5.191
	<i>F</i> (4,378) = 7.771

DISCUSSION

The present study revealed that most students demonstrated low levels of social media addiction, consistent with the findings of Lokman et al. (2023) and Zaiamri & Abidin (2023), who reported that Malaysian students primarily use social media for functional purposes, such as academic and professional activities. Nevertheless, a notable proportion of students demonstrated high levels of addiction, which may adversely affect mental well-being and daily routines, as highlighted by Akakandelwa and Walubita (2017) and Pellegrino et al. (2022).

Most students also reported moderate stress levels, consistent with the findings of Selamat et al. (2024), Wong et al. (2023), and Asif et al. (2020), highlighting that psychological distress is a persistent issue in university settings. Stress remains a critical factor influencing both health and behavioural outcomes, including dietary habits. As a result, several researchers have suggested that food intake following stressful events should align with the body's natural physiological needs (Schultchen et al., 2019; Radzi et al., 2022).

Regarding eating behaviours, restrained eating was significantly associated with higher stress levels, suggesting that stress may lead to restrictive eating patterns as a form of self-control and coping mechanism in response to psychological strain or body image concerns, consistent with the findings of Yong et al. (2021) and Smith et al. (2022). Emotional eating was significantly predicted by virtual problems, a dimension of social media addiction, indicating that difficulty in disengaging from online platforms could contribute to maladaptive coping through food, supporting Rossi (2025) and Paulus et al. (2021). However, stress was not significantly related to emotional eating, which may reflect diverse coping mechanisms such as spiritual or social support often used by the students.

External eating was most strongly linked to both virtual tolerance and virtual information. This suggests that exposure to food content on social media may trigger eating responses based on visual

cues rather than hunger, aligning with Morales & Berridge (2020) and Spence et al. (2016). Interestingly, stress had a negative association with external eating, potentially due to attentional narrowing or appetite suppression during academic demands, as supported by Nakamura et al. (2020) and Chu et al. (2019).

Overall, the findings emphasize that social media addiction and stress influence eating behaviours in different ways, highlighting the importance of targeted interventions focusing on digital literacy and stress management among university students.

CONCLUSION

This study explored the relationship between social media addiction, stress, and eating behaviours among undergraduate students. Results showed that while most students experienced moderate stress, many reported low social media addiction. Emotional eating was mainly linked to virtual problems, restrained eating was influenced by stress, and external eating was associated with both virtual tolerance, virtual information, and negatively with stress. These findings suggest that social media and stress affect eating patterns in different ways. Addressing both digital habits and psychological stress is essential in developing targeted interventions to promote healthier eating behaviours among university students.

RECOMMENDATIONS

Based on the findings, it is recommended that universities implement targeted health programs focusing on stress management, digital well-being, and healthy eating behaviours. Increasing awareness among students about the negative impacts of excessive social media use on both mental and physical health is also important. This can be achieved through workshops and social media literacy modules to help reduce harmful influences. Additionally, mental health services within the university should be strengthened, with particular attention given to addressing stress-related eating behaviours. For future research, studies should explore the long-term effects of social media and stress on eating behaviours, consider qualitative or mixed-method approaches, and assess additional moderating factors such as self-esteem, resilience, and social support. It is also encouraged that future studies apply relevant theoretical frameworks to improve the accuracy and comprehensiveness of research related to eating behaviours.

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