Eating Behaviour and Social Media Addiction among Secondary School Students in Kuantan, Malaysia

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ABSTRACT

Background: Social media has become integral to adolescents' lives, shaping their eating behaviours through exposure to unregulated content. Visually appealing but energy-dense, a lack of nutrient foods is frequently promoted, influencing adolescents at a formative stage of behaviour development. In Malaysia, the double burden of malnutrition persists alongside unhealthy eating habits. This study aimed to assess eating behaviours and social media addiction among secondary school students in Kuantan, Pahang. **Methods:** A cross-sectional study was conducted among 140 students aged 13 to 15 years at SMK Air Putih, Kuantan, Pahang, using convenience sampling. Data were collected through sociodemographic questions, anthropometric measurements, the Dutch Eating Behaviour Questionnaire (DEBQ), and the Social Media Addiction Scale-Student Form (SMAS-SF). **Results:** Mean scores for eating behaviours were 20.86 ± 8.17 (restrained eating), 22.18 ± 8.56 (emotional eating), and 25.35 ± 7.35 (external eating), with external eating being the most prevalent. Social media addiction levels were classified as non-addicted (15.0 %), low addicted (37.1 %), moderately addicted (45.0 %), and highly addicted (2.9 %). **Conclusion:** External eating was the most common behaviour, followed by emotional and restrained eating. Most students were moderately addicted to social media, while only a small proportion were non-addicted. These findings underscore the need for greater awareness of healthy lifestyles and targeted interventions to mitigate social media addiction while promoting healthy eating habits.

INTRODUCTION

Social media has become deeply embedded in adolescents' lives, particularly after the COVID-19 pandemic, when it served as a primary platform for education and social interaction (Bozzola et al., 2022). Its use is now nearly universal, with platforms such as TikTok, Instagram, and YouTube dominating adolescents' daily engagement (UNICEF, 2020; Bozzola et al., 2022).

Although these platforms offer opportunities for learning and peer connection, it also expose users to unregulated food and lifestyle-related content that may promote both healthy and unhealthy dietary practices (Filippone et al., 2022). Excessive use may lead to addictive behaviours (Andreassen & Pallesen, 2014) and adolescents, being highly impressionable, are especially vulnerable to such influences (UNICEF, 2020).

Adolescence is a critical period for establishing eating habits, which often persist into adulthood and shape long-term health outcomes (Rachmi et al., 2021). Previous studies have shown that social media use is associated with problematic eating behaviours, particularly

emotional and external eating (Ayyıldız & Şahin, 2022; Saat et al., 2023) and linked to outcomes such as poor dietary quality, elevated body mass index (BMI), and lower life satisfaction (Seabrook et al., 2016). In Malaysia, the National Health and Morbidity Survey (NHMS, 2024) highlights concerning dietary trends, with only 13% of adolescents consuming sufficient fruits daily, 5% meeting adequate vegetable intake daily, 63% consuming more than one serving of sugar-sweetened beverages daily, and 75% exceeding recommended fat intake. Such unhealthy eating behaviours during adolescence can contribute to both malnutrition and overnutrition, which remain prevalent in Malaysia (NHMS, 2022). The latest survey (NHMS, 2024) reported that 1 in 3 adolescents is overweight or obese, while increasing rates of thinness, overweight, and obesity further highlight the urgent need to address poor dietary practices.

Although existing studies have explored the impact of social media on eating behaviours, most were conducted among university students or focused on broader populations (Aslam et al., 2021; Ayyıldız & Şahin, 2022). In Malaysia, Saat et al. (2023) investigated university students in Klang Valley, but findings may not be

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generalizable to other regions, while little is known about secondary school students in Kuantan, the capital city of Pahang, where an evolving food culture, such as the growing popularity of aesthetic cafés promoted on social media. This may further influence adolescents' dietary behaviours, yet remain unstudied.

Therefore, this study aims to assess the eating behaviours and social media addiction among secondary school students in Kuantan. Findings from this study are expected to provide insights for parents, educators and policymakers in designing interventions to promote digital wellness and healthier eating habits.

MATERIALS AND METHODS

Study Design

This study employed a quantitative cross-sectional design to assess eating behaviours and social media addiction among secondary school students. This study design was selected for its suitability in school-based research, being cost-effective and practical to implement (Wang & Cheng, 2020).

Sampling Method
Study area

The study was conducted at a public secondary school in Kuantan, Pahang. The target population was secondary school students aged 13 to 15 years. The school was randomly selected from eight eligible schools in Kuantan, identified based on the highest student enrolment.

Sample size and sampling

The sample size was calculated using the single proportion formula, using the prevalence of eating disorders among students with potential internet addiction, based on a study conducted by Aslam et al. (2021). The calculated sample size, including a 10% non-response rate, was 152. Convenience sampling was applied to recruit participants who met the inclusion criteria of students aged 13 to 17 years and social media users. Exclusion criteria included hostel students and those diagnosed with eating disorders. Prior to participation, written informed consent was obtained from the parents or guardians of all participants.

Ethical Approval

Ethical approval was obtained from the Kulliyyah Postgraduate and Research Committee (KPGRC) and IIUM Research Ethics Committee (IREC 2025-KAHS/DNS9). Permissions were granted by the Ministry of Education, the Pahang State Education Department and the school principal.

Data Collection

Data collection was conducted during school hours. A questionnaire consisting of four sections was administered to participants by the researcher. The first section collected sociodemographic information, the second assessed participants' eating habits using the Dutch Eating Behavior Questionnaire (DEBQ), the third focused on social media usage and addiction using the Social Media Addiction Scale-Student Form (SMAS-SF) and the fourth comprised anthropometric assessments, which were conducted by the researchers.

Sociodemographic data

The questionnaire includes age, gender, ethnicity, grade level, daily social media use, and preferred platform.

Anthropometric data

The height was measured with the SECA 213 portable stadiometer, the weight was measured with the Omron BIA digital scale, and BMI was classified using WHO BMI-for-age growth charts (5-19 years) (WHO, 2007).

Dutch Eating Behaviour Questionnaire (DEBQ)

A Malay version of a 33-item questionnaire assessing restrained (10 items), emotional (13 items), and external eating (10 items) behaviours on a 5-point Likert scale (van Strien et al., 1986). Higher scores indicate stronger eating behaviour tendencies. Reliability analysis showed Cronbach's alpha values of 0.897, indicating acceptable internal consistency (Tavakol & Dennick, 2011).

Social media addiction scale-student form (SMAS-SF)

The Malay version questionnaire consists of 29 items assessing four domains (virtual tolerance, communication, problems, and information) on a 5-point Likert scale (Sahin, 2018). Total scores classify respondents as non-addicted (29 to 51), low addicted (52 to 74), moderate (75 to 97), or highly addicted (98 to 120). Reliability analysis showed Cronbach's alpha values of 0.805, indicating acceptable internal consistency (Tavakol & Dennick, 2011).

Statistical Analysis

Data was analysed using SPSS Version 20. Descriptive statistics (frequencies, percentages, means, standard deviations) were used to summarise sociodemographic,

anthropometric, eating behaviour, and social media addiction data. Fisher's exact test was used to assess associations between categorical variables. An independent t-test compared mean DEBQ scores between genders. Statistical significance was set at $p < 0.05$.

RESULTS

Sociodemographic Characteristics of Respondents

Table 1 presents an overview of the sociodemographic characteristics of the respondents, including gender, age, ethnicity, and daily social media usage. Data are presented in frequency (n) and percentage (%), analysed using descriptive analysis to provide a clear understanding of the distribution within the sample population. Among 140 respondents, 36.4% (n = 51) were male, and 63.6% (n = 89) were female, indicating a higher proportion of female participants. Most respondents were 14 years old (39.3%, n = 55), followed by 13 years old (36.4%, n = 51), with the smallest group being 15 years old (24.3%, n = 34).

In terms of ethnicity, the majority of respondents were Chinese (81.4%, n = 114), followed by Malay (11.4%, n = 16), Indian (5%, n = 7), and others (2.1%, n = 3), including Iban. Regarding daily social media usage, 42.9% (n = 60) of respondents spent ≤2 hours per day on social media, whereas 57.1% (n = 80) spent >2 hours per day, indicating that a majority engage in more than two hours of social media use daily.

Table 1: Demographic characteristics of the respondents (n = 140)

Characteristics	Frequency (n)	Percentage (%)
Gender		
Male	51	36.4
Female	89	63.6
Age		
13	51	36.4
14	55	39.3
15	34	24.3
Ethnic		
Chinese	114	81.4
Indian	7	5.0
Malay	16	11.4
Others	3	2.1
Time spent on social media each day		
≤ 2 hours	60	42.9
> 2 hours	80	57.1

Anthropometric Findings

Table 2 shows anthropometric measurements, including height, weight, BMI values and BMI classifications for 140 respondents. The mean height was 156.58 cm (SD = 7.5 cm), the mean weight was 48.47 kg (SD = 11.8 kg) and the mean BMI was 19.78 kg/m^2 (SD = 4.1 kg/m^2).

Regarding BMI classification, most respondents (75%, n = 105) had normal BMI. Overweight respondents accounted for 10% (n = 14), while 7.1% (n = 10) were classified as obese. Thinness was observed in 4.3% (n = 6), while severe thinness was 3.6% (n = 5). This indicates that although the majority of students had a normal BMI, a notable proportion were either underweight or overweight.

Table 2: Anthropometric data of the respondents (n = 140)

Variable	Mean (SD)	n (%)
Height (cm)	156.58 (7.5)	
Weight (kg)	48.47 (11.8)	
BMI (kg/m^2)	19.78 (4.1)	
BMI classification		
Severe thinness		5 (3.6)
Thinness		6 (4.3)
Normal		105 (75.0)
Overweight		14 (10.0)
Obese		10 (7.1)

Table 3 presents BMI classification by gender, analysed using Fisher's exact test. Among males, severe thinness was 2.0% (n = 1), thinness 3.9% (n = 2), normal 78.4% (n = 40), overweight 7.8% (n = 4), and obese 7.8% (n = 4). Among females, severe thinness was 4.5% (n = 4), thinness 4.5% (n = 4), normal 73.0% (n = 65), overweight 11.2% (n = 10), and obese 6.7% (n = 6). No significant association between gender and BMI classification was observed ($p = 0.932$).

Table 3: BMI classification according to gender (Fisher's exact test, n = 140)

Variables	Male (n = 51)		Female (n = 89)		Total (n = 140)		p-value
	n	%	n	%	n	%	
BMI classification							
Severe thinness	1	2.0	4	4.5	5	3.6	
Thinness	2	3.9	4	4.5	6	4.3	
Normal	40	78.4	65	73.0	105	75.0	0.932
Overweight	4	7.8	10	11.2	14	10.0	
Obese	4	7.8	6	6.7	10	7.1	

Eating Behaviour

Table 4 shows descriptive statistics and gender comparison of eating behaviour scores measured using the DEBQ. The mean score for restrained eating was 20.86 (SD = 8.17), indicating a lower tendency to intentionally restrict food intake for weight control, while emotional eating scored 22.18 (SD = 8.56), suggesting a tendency to eat in response to emotions such as stress. External eating had the highest mean score at 25.35 (SD = 7.35), showing that respondents were most influenced by environmental food cues such as smell.

Independent t-test analysis revealed no significant differences in restrained, emotional, or external eating behaviours between male and female respondents. Although females reported slightly higher in restrained eating and males demonstrated higher emotional and external eating, these differences were not statistically significant.

Table 4: Eating Behaviour scores across DEBQ domain according to gender (Independent t-test, n = 140)

Variable	Total		Male (n = 51)		Female (n = 89)		Mean differences (95% CI)	p-value
	Mean	SD	Mean	SD	Mean	SD		
Restrained eating	20.86	8.17	20.43	7.93	21.10	8.34	-0.67 (-3.52, 2.18)	0.64
Emotional eating	22.18	8.56	23.71	9.99	21.30	7.54	2.40 (-0.80, 5.61)	0.14
External eating	25.35	7.35	26.92	7.03	24.45	7.42	2.47 (-0.06, 5.00)	0.06

Social Media Addiction

Figure 1 presents social media addiction levels based on SMAS-SF scores. Among respondents, 15% (n = 21) were non-addicted, 37.1% (n = 52) low addicted, 45% (n = 63) moderately addicted, and 2.9% (n = 4) highly addicted.
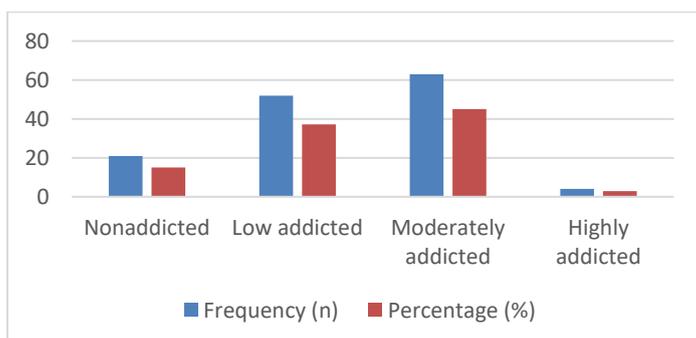
Table 5 shows the distribution of social media addiction categories according to ethnicity, BMI classification, and gender using Fisher's exact test. Ethnicity showed a significant association with addiction levels ($p = 0.02$), with Chinese respondents representing the majority in most categories. Normal BMI was the most common across all addiction categories, with no significant association observed ($p = 0.40$). Females were the majority across all addiction levels, while males had smaller proportions, and there were no significant associations with gender ($p = 0.25$).

Figure 1: Distribution of Social Media Addiction Category (n=140)

Table 5: Social Media Addiction according to ethnicity, BMI, and gender (n = 140)

Variables	Non addicted (n = 21)		Low addicted (n = 52)		Moderately addicted (n = 63)		Highly addicted (n = 4)		p-value
	n	%	n	%	n	%	n	%	
Ethnic									
Chinese	18	85.7	42	42.3	52	82.5	2	50.0	
Indian	2	9.5	4	1.9	1	1.6	0	0.0	0.02*
Malay	1	4.8	5	53.8	10	15.9	0	0.0	
Others	0	0.0	1	1.9	0	0.0	2	50.0	
BMI classification									
Severe thinness	2	9.5	2	1.9	1	1.6	0	0.0	
Thinness									0.40
Normal	1	4.8	1	1.9	4	6.3	0	0.0	
Overweight	17	81.0	40	76.9	46	73.0	2	50.0	
Obese	0	0.0	6	11.5	7	11.1	1	25.0	
	1	4.8	3	5.8	5	7.9	1	25.0	
Gender									
Male	5	23.8	20	38.5	26	41.3	0	0.0	0.25
Female	16	76.2	32	61.5	37	58.7	4	100.0	

* $p < 0.05$, Fisher's exact test

DISCUSSION

Eating Behaviour

The sociodemographic profile showed that 75% of participants had normal BMI, 10% were overweight, 7.1% obese, 4.3% thin, and 3.6% severely thin, reflecting Malaysia's double burden of malnutrition (NHMS, 2022). The high prevalence of social media use, with 57.1% spending more than 2 hours daily, suggests that digital platforms are exposing adolescents to food-related content, such as influencer posts or fast-food marketing (Filippone et al., 2022), may increase external and emotional eating tendencies. The female-dominated sample may further influence emotional eating, as prior studies highlight female adolescents' vulnerability to emotional and external triggers (Saat et al., 2023).

Although the study initially posited that emotional and external eating would be more dominant than restrained eating, the observed pattern ultimately reflected a stronger influence of external cues on eating behaviour. This aligns with Ayyıldız & Şahin (2022), who found that individuals with social media addiction are more prone to external eating. External eating is linked to obesity, as overweight and obese individuals are sensitive to environmental cues that encourage overeating, such as variety and easy access to food (Benbaibeche et al., 2023).

The elevated mean for external eating suggests that students are highly responsive to environmental food cues, such as smell, appearance, and accessibility (Stroebele & De Castro, 2004). Emotional eating showed moderate prevalence, indicating eating in response to emotional states like stress, sadness, or boredom, which is consistent with adolescent psychological development, where emotional regulation is still maturing (Best & Ban, 2021). This pattern is also in line with Ayyıldız & Şahin (2022), who noted that emotional eating tends to increase among those with higher social media engagement.

Restrained eating was the least prevalent, which suggests that conscious food restriction for weight control is less frequent, possibly because adolescents prioritise immediate gratification over long-term dietary control (Linardon, 2018). Social media exposure, which frequently features appetising food content, may weaken self-control and promote impulsive eating.

Regarding gender, contrary to Saat et al. (2023), males reported higher emotional and external eating scores, while females scored higher on restrained eating. This aligns with Dane & Bhatia (2023), who suggested that females engage more in dieting due to thin body ideals, social comparison, and appearance-focused social media, whereas males often pursue muscular ideals and may engage in emotional and external eating in response to

conflicting body expectations. These gender differences highlight how social media affects males and females differently, highlighting the importance of addressing gender-specific media influences and promoting social media literacy to prevent unhealthy eating habits.

Social Media Addiction

The overall pattern indicates that moderate social media addiction is more prevalent than high addiction among adolescents, suggesting that the initial hypothesis of high addiction was not fully supported. This observation is consistent with global trends showing that adolescents are active social media users and typically maintain at least one active account (UNICEF, 2020).

The predominance of moderate addiction reflects the immersive design of platforms such as TikTok, Instagram, and YouTube, which use algorithms and influencer content to sustain and drive engagement (Yusoff et al., 2023). The small proportion of highly addicted students suggests severe addiction is uncommon, possibly due to school regulations, parental monitoring, and cultural attitudes towards technology, particularly among Chinese students who dominated the sample. RedNote and Douyin were the most used platforms among this population. The predominantly female sample may also influence addiction patterns, as gender-specific social pressures shape engagement (Saat et al., 2023).

No significant differences were found in addiction categories when compared by gender or BMI classification, with normal BMI predominating across all groups. This contrasts with Saat et al. (2023) who reported female adolescents as more susceptible to excessive screen time and increased emotional and external eating behaviours. Also with Ayyıldız & Şahin (2022) who linked social media addiction to poor nutritional status. In this study, adolescents' growth phase, higher physical activity levels due to school routines and extracurricular activities, or naturally greater energy expenditure, may have helped maintain normal BMI despite varying levels of social media use (Silva et al., 2022). However, barriers such as lack of time, low motivation, and limited access to facilities suggest that adolescents remain at risk of reduced activity over time, underscoring the importance of early intervention.

In contrast, ethnicity showed a significant association with social media addiction categories, with Chinese students dominating all levels, while Malay students were more prevalent in the moderately addicted group. These findings are consistent with Cummings (2014) who emphasised the influence of cultural factors on social media engagement.

CONCLUSION

The findings of this study indicate that external eating is the most prevalent eating behaviour among secondary school students, followed by emotional eating, with restrained eating being the least common. This suggests that adolescents are highly sensitive to external food cues, which may be influenced by exposure to food-related content on social media platforms. Regarding social media addiction, the majority of students were moderately addicted, reflecting global trends of high engagement among adolescents with digital platforms. These findings provide valuable insights for educators, parents, and policymakers in supporting adolescent well-being. Strategies may include school-based nutrition programs, digital literacy campaigns, and health promotion initiatives, while collaboration between the Ministries of Health and Education could help regulate food-related content on social media to encourage healthier lifestyles.

This study had several limitations, including a predominantly Chinese sample that limits generalizability, only students aged 13 to 15 were included, which reduces the representativeness, and potential misunderstandings from the Malay-language questionnaire, although clarifications were provided in English. Despite these challenges, the strengths of this study include direct anthropometric measurement by the researcher, which minimised self-report bias and ensured accurate BMI classification. The majority Chinese sample also offers valuable insight into eating behaviour patterns which are often underrepresented in local studies. For future research, involving more diverse samples, provide bilingual surveys, and consider other factors such as physical activity, sleep, stress, and socioeconomic status. Multi-school studies with larger participation would further improve generalizability and provide deeper insights.

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