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Smartphone distraction and its behavioral outcomes: Phubbing and nomophobia among Malaysian youths

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ABSTRACT

Technological advancements have significantly increased the efficiency of daily tasks, with smartphones emerging as the most commonly used devices among Malaysian youths. However, this widespread usage has led to behavioral concerns such as phubbing and nomophobia. Phubbing refers to the tendency to ignore others in favor of smartphone use, while nomophobia describes the anxiety experienced when individuals are disconnected from their smartphones or mobile networks. Nomophobia manifests through various social, psychological, and physical symptoms, reflecting a growing dependence on mobile devices. Smartphones now serve multiple functions, including internet browsing, social media access, entertainment, online shopping, photography, and navigation, making their use a defining trait of modern youth. Despite this, research on phubbing and nomophobia in Malaysia remains limited. This study aims to examine the influence of social media addiction, smartphone addiction, nomophobia, internet addiction, and other digital-based behavioral addictions on phubbing behavior among Malaysian youths. Data were collected through a questionnaire-based survey and analyzed using SPSS. The findings reveal that social media addiction, smartphone use, and nomophobia are strong predictors of phubbing behavior, while internet addiction and other digital distractions show moderate associations. Additionally, a moderate positive relationship was found between smartphone distraction and nomophobia in relation to phubbing behavior.

1. Introduction

The number of smartphone users worldwide has increased tremendously. It was reported in 2019 that the number of smartphone users was 2,158.17 million. However, in 2024, the number had doubled to 4,247.94 million users. This number is forecast to grow exponentially by 2029, with 6,058.51 million users expected in that year. Similarly, the number of social media users has increased tremendously, especially among youths, whose age range is between 16 and 34. On the bright side, these data show that youngsters are early adopters of technology, as compared to the other age groups. However, excessive use of technology, especially social media, may have other detrimental effects, such as social media addiction and distraction, which can negatively affect youths' mental health by causing anxiety, depression, sleep disturbances, and even neglect of people in their surroundings, also known as 'phubbing'.

Phubbing can be understood as a person employing and paying attention to their smartphone while interacting with others. Phubbing has become a troublesome phenomenon since it has negative implications for the surrounding people, such as lower interpersonal communication quality, lower well-being of people (Kadylak, 2020), decreased relationship satisfaction, and a declining sense of

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personal well-being (Roberts and David, 2016). People who engage in phubbing—prioritizing their phones over in-person interactions—are known as phubbers. They often spend more time in the virtual world than in the real one, leading to a phenomenon known as social displacement. This displacement can hinder the social development of young people and diminish their psychological and social well-being. Developing social skills is essential for youths, as these abilities enable them to become active, contributing members of society. However, frequent phubbing limits opportunities to practice and refine these skills. As a result, youths may struggle with interpersonal communication, experience low self-confidence, and become more susceptible to social anxiety or phobias. Harrison et al. (2015) found that 80% to 90% of their respondents engaged in phubbing practices and used smartphones during social gatherings. This phenomenon has been described as impolite and frustrating since it devalues the other person's existence (Aagaard, 2019) and is socially incorrect (Vanden Abeele et al., 2016). Another study found that being phubbed was more undesirable than being ignored when reading a magazine, and it was linked to inferior social intelligence. Nonetheless, this expanding problem has been viewed as acceptable behavior or a standard part of modern communication (Garrido et al., 2021).

Smartphone use is necessary in everyone's life. It has been reported that 69% of Malaysians could not give up their smartphones. A saddening phenomenon is that Malaysia has been ranked third after China and Saudi Arabia in terms of smartphone addiction. Many Malaysians are addicted to smartphones because of the post-pandemic impact of online technology. Moreover, this technology has been designed to hook people, with features from emails to online news and social media platforms. This has resulted in Malaysian youths being involved in phubbing behavior as they are so engrossed with their smartphones that they neglect their people. Currently, the issue of phubbing behavior has yet to be considered as a nationwide phenomenon. The issue has only been studied among undergraduate students in a few universities in Malaysia (Bajwa et al., 2023), among married couples, and among parents (Mohammad Hussin et al., 2024) in Malaysia.

In Malaysia, the issue of phubbing behavior among people from different regions and socioeconomic backgrounds has yet to be addressed by researchers (Bajwa et al., 2023). Therefore, this study is crucial to address phubbing behavior among Malaysian youths from different regions and socioeconomic backgrounds. To address this issue, the researchers aimed to investigate the following objectives: i) to determine the social media addiction level, smartphone addiction and nomophobia level and internet addiction level; (ii) to examine the influence of socioeconomic differences among youths on their phubbing behavior; and (iii) to determine the relationship between smartphone addiction and nomophobia regarding phubbing behavior among youths.

2. Literature review

2.1. Social media addiction

Globally, around 210 million individuals are addicted to social media. Many individuals spend a large amount of time on social media platforms, which have 5.22 billion users, equivalent to 63.8% of the worldwide population. Most people spend approximately six hours and 58 minutes on the Internet daily, with two hours and 21 minutes spent on social media. This statistic has shown that social media usage has risen due to developments in information and communication technology, as well as worldwide smartphone penetration.

Social media addiction can also be referred to as problematic or obsessive social media use, terms that are used interchangeably as the phenomenon of maladaptive social media use is characterized by either addiction-like symptoms or reduced self-regulation (Sun et al., 2024). In other words, social media addiction is a psychological disorder in which people become hooked on social media and obsessed with using it, to the point that it affects their daily lives. Recently published studies have examined social media addiction and how different platforms affect addiction levels. Instagram and TikTok users exhibited greater levels of social media addiction than WhatsApp users (Marengo et al., 2022).

Excessive smartphone use and repeated checking of digital devices can disrupt communication and interpersonal relationships as individuals become more preoccupied with their virtual interactions than the physical presence of those around them (Hutabarat et al., 2024). This over-dependence on smartphones has been linked to various mental health issues, such as depression, anxiety, and low self-esteem, further exacerbating the negative impact of phubbing on individual well-being (Barbed-Castrejón et al., 2024). Previous research has shown that phubbing behavior has a negative correlation with life satisfaction and positive correlations with feelings of loneliness and low self-esteem (Barbed-Castrejón et al., 2024). Additionally, the abuse of smartphones has been associated with mental health issues, such as depression and anxiety, as well as a decline in the quality of face-to-face relationships and more limited social skills (Barbed-Castrejón et al., 2024; Hutabarat et al., 2024). The pervasiveness of phubbing behavior caused by social media addiction has become a growing concern as it can undermine the quality of social interactions and lead to a sense of disconnection and isolation.

2.2. Smartphone addiction and nomophobia

Other contributors to phubbing behavior are smartphone addiction and nomophobia. In general, smartphone addiction involves uncontrolled and

excessive use, which is also linked to “phubbing,” a new social phenomenon in which a smartphone user disregards face-to-face interaction in favor of their phone (Zwilling, 2022). Such behavior may appear typical and innocuous, but the latest studies show that it can lead to social disconnection and the loss of interpersonal relationships (Zwilling, 2022). From a health perspective, research suggests that excessive smartphone use typically leads to people experiencing anxiety and other psychological issues (Yildirim and Correia, 2015). Anxiety usually results from people’s fears of interacting with others or of being negatively judged during interactions with other people (Liu and Ma, 2020). The fear of this form of judgement, like low self-esteem or other bad emotions, may result from unfavorable social comparisons and self-underestimation in social contexts (Piko et al., 2024a; 2024b). Apart from smartphone addiction, a type of smartphone-related phobia is another worrying phenomenon, which is referred to as "nomophobia” (Oraison et al., 2024). Recently, nomophobia has come to mean people’s worry and fear that they cannot use a smartphone, are away from it, or do not have it, as well as a fear of losing smartphone access and communication (Oraison et al., 2024; Safaria et al., 2024; Zwilling, 2022). In the worst case, people may have an intense fear associated with the absence of a smartphone, and it is intricately linked to problematic internet use (Udayanga, 2022). Although nomophobia and smartphone addiction share certain symptoms, they are different (Buctot et al., 2020; Yildirim and Correia, 2015). Smartphone addiction differs from nomophobia in how people utilize their phones. Smartphone users with nomophobia express worry, agitation, aggravation, and panic over not having or using their smartphone (Oraison et al., 2024), as shown in Fig. 1. Smartphone addiction, on the other hand, occurs when a person overuses a smartphone despite the negative repercussions.

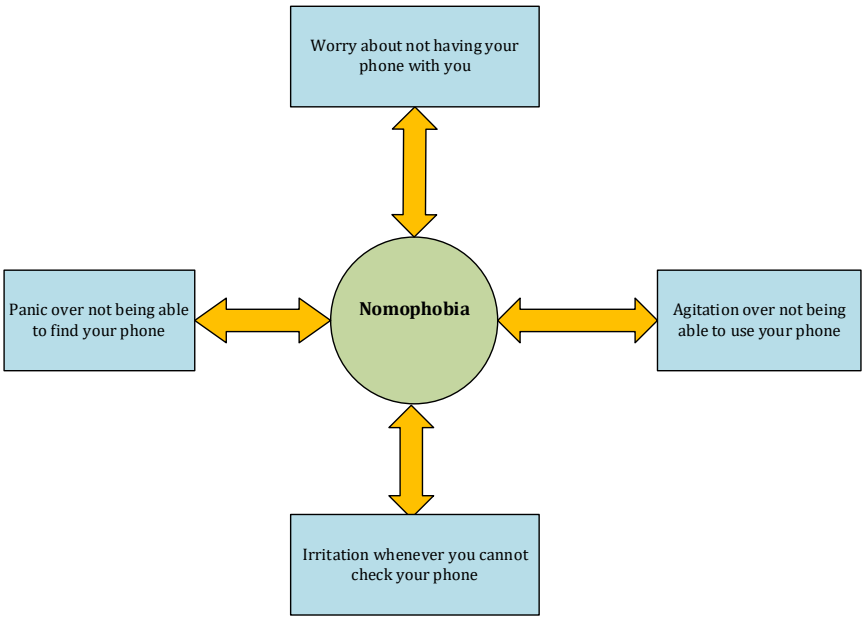

Fig. 1: Emotional responses and situational triggers related to nomophobia

Consequently, several studies have discovered that nomophobia has resulted in mental health issues, such as anxiety, sleep disturbance, and depression (Bekaroğlu and Yılmaz, 2020; Zwilling, 2022). A study on smartphone addiction and depression among 473 university students from 72 cities in Türkiye found that depression is significantly and positively correlated with social appearance anxiety and nomophobia (Yildirim and Correia, 2015).

2.3. Internet addiction and phubbing

Correspondingly, internet addiction is also a disruptive behavior among youths. It has become prevalent nowadays since people are engrossed in the use of digital technology applications. Internet addiction has led to negative psychological and physical health, especially among university students (Beukeboom and Pollmann, 2021; Lai et al., 2017), and other negative consequences have been attributed to it, such as low sleep quality, eating disorders, low sleep esteem, and academic performance (Kim et al., 2017; Kim, 2017). Moreover, individuals who are addicted to the Internet tend to focus more on activities on the Internet than on other things. This may lead them to ignore both the people around them in social interaction contexts and their surroundings, a behavior known as phubbing (Roberts et al., 2015).

This behavior can be disastrous to young people since it can affect their concentration and self-control levels, which greatly affect their health and personal well-being. This is a matter of concern among youths as Internet addiction may lead to phubbing behavior. In the Malaysian context, it has been reported that national internet usage increased dramatically from 66.6% in 2014 to 97.7% in 2023. The highest percentage of Internet users is individuals aged 20 to 39 years old, with a rate of

99.6%. Comparatively, an online internet survey reported that the youths are heavy internet users, spending more than 18 hours daily on the Internet. Since smartphone ownership and the internet penetration rate are high in Malaysia, this could explain the high internet addiction among Malaysian youths. This also explains why phubbing behavior occurs in Malaysia.

2.4. Gaming addiction and phubbing

Meanwhile, numerous applications are included in smartphones due to the rise in smartphone and Internet usage. People use smartphones for various reasons, such as texting, social media activity, web browsing, and business-related tasks (Çizmeci, 2017). Essentially, being addicted to smartphones, social media, the Internet, digital games, and applications can be considered phubbing-related concepts, as these components can cause phubbing (Karaman and Arslan, 2024). Various factors affect phubbing behavior, with game addiction being one of the factors. It has been reported that the prevalence rates of game addiction differ from one region to another. Students from Asia and America showed a greater propensity to become addicted to internet gaming (Tang et al., 2018). There have been reports of large populations of gamers in Asian countries, particularly in China and South Korea (Cui et al., 2018).

The detrimental impacts of digital games on youths have been studied for a long time and continue to be examined. Digital games are a popular kind of entertainment, particularly among youths. Digital game addiction is defined as excessive and obsessive usage of a computer or video game, regardless of whether it causes social or emotional issues (Genc et al., 2024). When a person becomes addicted to a game, they show several symptoms, such as an inability to control playing time, a loss of interest in other activities, continued play despite the negative consequences, and psychological deprivation when unable to play (Goker and Tekedere, 2022).

Digital game addiction causes a variety of difficulties, including a decrease in good social behaviors, the appearance of socio-behavioral disorders, social and psychological development problems, and violent behaviors (Kaya et al., 2024). Long-term gamers who play video or computer games exhibit increased aggression, diminished social skills, and a loss of interest in the people and things around them (Bülbül et al., 2018), which could lead to phubbing behavior. It has been reported that most Malaysian youths under 20 years old are avid gamers, with this group contributing 85% of all Malaysians who engage in gaming activities. Aside from that, the report described how 38% of this group spend more than 16 hours weekly on gaming activities (Harpen, 2024). Youths prefer to spend their time playing online games as it gratifies their need for escapism and stress release. However, excessive online gaming can lead to other consequences that they may or may not realize, such as social isolation, anti-social behavior towards non-gamers, or neglecting people who interact with them.

2.5. Digital behavioral addiction and distraction

Phubbing is a type of behavioral addiction. This addiction may impact individuals' interpersonal relationships. It has become increasingly common to observe families having meals together in restaurants. Yet each family member is preoccupied with their smartphone rather than communicating and conversing with each other. Odacı et al. (2024) examined the predictors of phubbing among 539 college students in Türkiye. The results showed that avoidance relationships, angry communication styles, dominant relationships, and condescending styles predict phubbing. Another interesting predictor of phubbing revealed in this study is a supportive and nurturing relationship. A possible explanation for this is that a supportive family environment may lead members to interact less with people outside the system, which leads to phubbing.

As revealed in a previous study (Enez et al., 2016), smartphone distraction may lead to many psychological well-being issues, such as social anxiety and loneliness. People experiencing these issues are more likely to display phubbing behaviors. It can be hypothesized that relationship deficiencies drive them to develop and find alternative relationships through a virtual environment. Smartphone distractions provide more opportunities for people to interact and find companions, which can compensate for the lack of interaction with humans in real life (Sun and Wong, 2024).

In the Malaysian context itself, according to a survey conducted by global insurer AIA Group Ltd in 2022 (www.aia.com), while internet usage in the country is lower than the rates in other nations in the region, 73% of respondents interviewed in Malaysia agreed that their online activities, particularly social networking, are becoming addictive. This places Malaysia top of the regional rankings. This phenomenon is not confined to adults; another study conducted on a random sample of Malaysian youths found that a large proportion (64%) of those investigated identified as internet addicts. This is a new threat to healthy lifestyles, and Malaysian internet users are at high risk of developing Internet addiction.

Unfortunately, addictive behavior like phubbing may have long-term impacts on relationships. A lonely youth may engage in phubbing, which later worsens his or her relationships with people. A normal person who participates in phubbing may later develop interpersonal relationship issues due to phubbing. Interactions between partners may be disturbed when one of them ignores the other in favor of phubbing (Frackowiak et al., 2024). In brief, smartphone distraction can result in interpersonal relationship issues, such as social rejection, which hinder effective and healthy communication. In

contrast, negative interaction may also lead to phubbing. As shown in Fig. 2, the proposed conceptual framework consists of the independent variables used in this study—social media addiction, smartphone addiction and nomophobia, internet addiction, gaming addiction, and digital-based behavioral addiction and distraction—that influence the dependent variable, phubbing behavior.

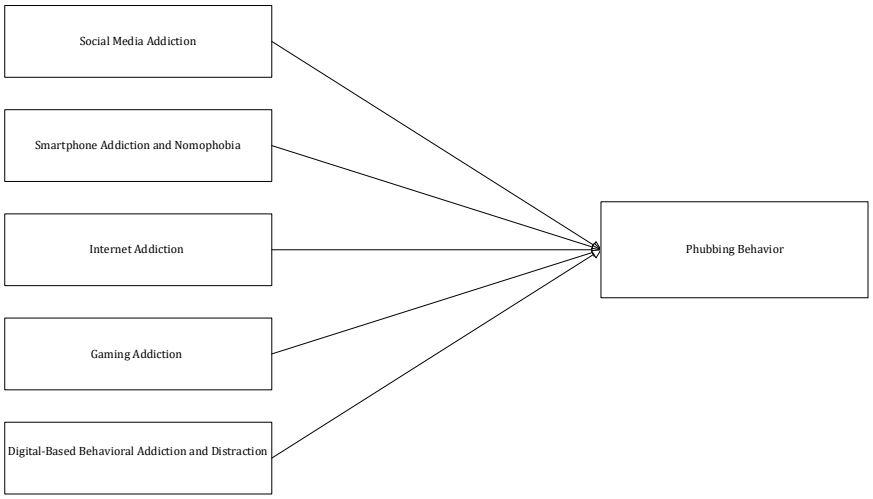

Fig. 2: Conceptual framework of phubbing behavior

3. Methodology

3.1. Population and sampling

The respondents for this study were sampled from five regions in Peninsular Malaysia, namely the Northern, Central, Southern, Western, and East Coast regions. The researchers randomly selected five states from the five regions: Kedah, representing the Northern region; the Klang Valley, representing the Central region; Johor, representing the Southern region; Melaka, representing the Western region; and Terengganu, representing the East Coast region. A total of 434 respondents participated in the study, which specifically focused on respondents aged between 18 and 40 years who had access to a smartphone. The study employed a two-stage cluster sampling method to investigate the determinants of phubbing behavior among Malaysian youths. In the first stage, universities across the five states were randomly selected as clusters. In the second stage, a random sample of youths was drawn from the selected five universities to participate in the survey. This was done to ensure the selection of a representative sample per cluster to enhance representativeness and reduce the risk of over-reliance on specific clusters.

3.2. Instrument

Self-administered questionnaires were distributed to a total of 434 respondents across Malaysia, allowing the respondents to complete them independently without the researchers' intervention. The questionnaire was divided into two main parts: Section A and Section B. Section A consists of eight (8) socio-demographic questions. Meanwhile, Section B consists of 29 questions pertaining to (i) social media addiction, (ii) smartphone addiction and nomophobia, (iii) internet addiction, (iv) gaming addiction, and (v) digital-based behavioral addiction and distraction. The survey employed a five-point Likert scale to measure the variables of phubbing behavior among the respondents. The questionnaire was designed to take approximately 30 minutes to complete. The researchers collected the questionnaires from the respondents once they had completed their copies. The questionnaire was adopted and adapted from notable scales, namely the Bergen Social Media Addiction Scale, Nomophobia Questionnaire (NMP-Q) Scale, Internet Addiction Scale, Game Addiction Scale, Interpersonal Communication Skills Scale, and Phubbing Scale, as presented in Table 1.

In addition, the researchers conducted a content validity test to ensure that the survey items were relevant and appropriate. Therefore, the questionnaire was sent to several expert panelists specializing in the field of communication and media for them to review and ensure the relevancy, clarity, and comprehensiveness of the questionnaire. Based on the experts' feedback, some necessary refinements were made to enhance the accuracy and suitability of the instrument for measuring the intended constructs. Following that, a Cronbach's Alpha analysis was conducted to evaluate the internal consistency and reliability. The reliability test results are presented in Table 1.

3.3. Data collection

In this study, all the respondents were briefed by the researchers regarding the titles and overview of the study content. The researchers utilized the survey as an instrument so that the respondents could answer all the questions. The respondents were given adequate time to answer the questionnaire. In addition, all the respondents gave informed consent, indicating their willingness to participate in the study.

Table 1: Instrument reliability test results

Scale	Construct scale	Reference	Reliability test (α)
Bergen's social media addiction	Social media addiction	Andreassen et al. (2017)	0.78
NMP-Q	Smartphone addiction and nomophobia	Yildirim and Correia (2015)	0.92
Internet addiction	Internet addiction	Young (2009)	0.91
Game addiction	Gaming addiction	Lemmens et al. (2009)	0.87
Interpersonal communication skills	Digital-based behavioral addiction	Rubin and Martin (1994)	0.91
Phubbing	Phubbing behavior	Karadağ et al. (2015)	0.90

3.4. Data analysis

The collected data were analyzed using a statistical tool to undertake descriptive analysis and inferential analysis. The descriptive analysis was conducted to understand the demographic characteristics of the respondents. The inferential analysis was conducted using T-testing, ANOVA, and Correlation to understand the mean difference and determine the relationship between smartphone addiction and nomophobia regarding phubbing behavior.

4. Results and discussion

4.1. Respondents' demographic profile

Table 2 presents the details of the demographic characteristics of the respondents in this study. Most were females (50.9%), with a slightly smaller proportion of males (49.1%). Most of the respondents in this study were young individuals aged between 26 and 33 years old (40.8%), while those from the age groups of 18 to 25 years old and 34 to 40 years old comprised 35.5% and 23.7%, respectively. Moreover, in terms of education level, the highest number of respondents taking part in this study were diploma graduates, representing 42.2%, followed by those with a bachelor's degree, a certificate, or a postgraduate degree, comprising 38.5%, 11.3%, and 8.0%, respectively. The respondents taking part in this study were of equal proportions in terms of race, with the Malay ethnic group and non-Malay ethnic group representing 50% each. Regarding status, most respondents were students (56.9%) or non-students (43.1%). Meanwhile, in terms of monthly household income, most respondents were from the M40 group, whose income range is between RM 4,851 and RM 10,970, consisting of 220 respondents representing 50.7% of the total. This was followed by the B40 group, whose income range is between RM 2,500 and RM 4,850, and the T20 group, which made up 30.9% and 18.4%, respectively. Most of the respondents, 61.3%, used smartphones to browse social media. This was followed by those using laptops (18.0%), tablets (16.6%), and iPads (4.1%). Almost a large portion of the respondents (45.4%) spent more than eight hours on social media daily. Likewise, the rest of the respondents (34.8%) spent five to eight hours a day on social media, followed by those spending one to four hours a day (19.8%).

Table 2: Frequency distribution of respondents' demographic characteristics

Factor	Category	Percentage (%)
Gender	Male	50.9
	Female	50.9
Age	18–25 years	35.5
	34–40 years	35.5
Education	Certificate	38.5
	Diploma	42.2
	Bachelor's degree	38.5
	Postgraduate	38.5
Race	Malay	56.9
	Non-Malay	56.9
Status	Student	56.9
	Non-student	43.1
Income	B40	30.9
	M40	50.7
	T20	30.9
Device	Smartphone	18.0
	Laptop	18.0
	Tablet	16.6
	iPad	4.1
Hours Online	1–4 hours	19.8
	5–8 hours	19.8
	More than 8 hours	34.8

The findings in Table 3 show that most respondents strongly agreed that they used social media accounts such as TikTok, Facebook, and Twitter when they had free time, with (M = 4.53, SD = 0.71). The respondents also preferred to use social media rather than watch television, with (M = 4.11, SD = 0.94), and they liked to check accounts that they knew and unfamiliar accounts on social media, with (M = 3.95, SD = 0.98). The respondents also affirmatively spend most of their time surfing social media compared to doing other things (M=3.50, SD = 1.02).

Table 3: Frequency distribution of social media addiction

Items	Mean	SD	Interpretation
I use my social media accounts (TikTok, Facebook, and Twitter) when I have free time.	4.53	0.71	Strongly Agree
I communicate with my friends through social media rather than face-to-face.	3.38	0.97	Uncertain
I check both familiar and unfamiliar accounts on social media.	3.95	0.98	Agree
I prefer to use social media rather than watch television.	4.11	0.94	Agree
I spend most of my time surfing social media rather than doing other things.	3.50	1.02	Agree
I am addicted to social media.	3.17	1.18	Uncertain
Total	3.77	0.64	High

Table 4 presents the respondents' frequency distribution in terms of smartphone addiction and nomophobia. Generally, the findings showed that the respondents considered themselves to be addicted to smartphones, with (M = 3.58, SD = 1.28), followed by those agreeing that they felt depressed if their

smartphone could not connect to the Internet, with (M = 3.50, SD = 1.13). Moreover, many respondents felt nervous when they could not receive texts or calls (M = 3.48, SD = 1.20), and many felt weird when their smartphone was not nearby (M = 3.43, SD = 1.17). This indicates that the respondents also rely on their smartphones and phobia of not having a mobile phone with them.

Table 4: Frequency distribution of smartphone addiction and nomophobia

Items	Mean	SD	Interpretation
I feel anxious if my mobile phone is not nearby.	3.41	1.16	Agree
I feel nervous when I cannot receive texts and calls	3.48	1.20	Agree
I feel weird because I do not know what to do when my smartphone is not nearby	3.43	1.17	Agree
I feel miserable if I cannot use my smartphone.	2.99	1.22	Uncertain
I feel depressed if my smartphone cannot connect to the Internet.	3.50	1.13	Agree
I consider myself to be addicted to my smartphone.	3.58	1.28	Agree
Total	3.69	0.91	High

The findings in Table 5 show that most respondents considered themselves to be addicted to the Internet (M = 3.48, SD = 1.24) and anxious when they had no access to the Internet (M = 3.46, SD = 1.16). Meanwhile, they liked to use the Internet as it could divert their attention from other people (M = 3.42, SD = 1.14). Similarly, most respondents agreed that they felt irritated when the Internet was unavailable (M = 3.41, SD = 1.29). In summary, the respondents showed moderate levels of internet addiction.

Table 5: Frequency distribution of internet addiction

Items	Mean	SD	Interpretation
I prefer to spend time on the Internet rather than going out with others.	2.71	1.19	Uncertain
I feel uneasy once I stop going online for a certain period.	2.74	1.16	Uncertain
I feel irritated when the Internet is unavailable.	3.41	1.29	Agree
I like using the Internet as it diverts my attention from people.	3.42	1.14	Agree
I feel anxious when I don't have access to the Internet.	3.46	1.16	Agree
I consider myself to be addicted to the Internet.	3.48	1.24	Agree
Total	3.04	0.93	Moderate

Based on Table 6, most respondents felt angry if any of their family members stopped them from playing games on the Internet (M = 3.50, SD = 1.13). They declared themselves addicted to playing games on the Internet (M = 3.42, SD = 1.17). In addition, the respondents agreed that they tended to delay meals to play games on the Internet (M = 3.24, SD = 1.16), while many always felt bad when they could not play games online. For this variable, most of the respondents showed agreement with gaming addiction and considered themselves to be gaming addicts.

Table 6: Frequency distribution of gaming addiction

Items	Mean	SD	Interpretation
I delayed my meals to play games on the Internet.	3.24	1.16	Uncertain
I delay sleep to play games on the Internet.	2.55	1.20	Disagree
I will not stop playing games on the Internet until I win.	2.95	1.17	Uncertain
I feel bad when I am unable to play a game on the Internet.	2.99	1.22	Uncertain
I feel angry if any of my family members stop me from playing games on the Internet.	3.50	1.13	Agree
I consider myself to be addicted to playing games on the Internet.	3.42	1.17	Agree
Total	2.34	1.07	Low

Table 7 presents data on digital-based behavioral addiction and distraction among Malaysian youths. The findings show that respondents were generally unsure whether it is easier to build relationships with physical friends than with virtual friends (M = 2.84, SD = 1.23). Some reported difficulty in making friends in person (M = 2.82, SD = 1.18). A number of them preferred using their phones over talking to their friends (M = 2.78, SD = 1.29). They also found it more challenging to start conversations and build relationships with physical friends compared to virtual ones (M = 2.82, SD = 1.23), and many preferred communicating with virtual friends rather than physical ones (M = 2.76, SD = 1.21). Overall, the results indicate a moderate level of digital-based behavioral addiction and distraction among the participants.

Table 7: Frequency distribution of digital behavioral addiction and distraction

Items	Mean	SD	Interpretation
I have difficulty making friends in person.	2.82	1.18	Uncertain
I concentrate on my smartphone rather than talking to my friends.	2.51	1.15	Disagree
It is hard for me to initiate a conversation with physical friends.	2.78	1.29	Uncertain
I prefer to communicate with virtual friends rather than with physical friends.	2.76	1.21	Uncertain
I find it harder to build relationships in person than online.	2.84	1.23	Uncertain
Total	2.84	1.05	Moderate

In this study, the researchers also conducted an independent samples t-test to examine whether gender and status were associated with differences in phubbing behavior. Gender differences are often considered in various behavioral studies, including those related to phubbing. Therefore, the researchers aimed to explore whether males and females differed in their phubbing behavior. As shown in Table 8, there was a significant difference between genders, with males (M = 3.11, SD = 1.21) showing higher levels of phubbing behavior compared to females (M = 2.82, SD = 1.22; t = 2.484, p = .013). Since the p-value is less than 0.05, this result indicates a statistically significant difference between males and females in phubbing behavior.

Similarly, a significant difference was also found based on participants' status. Students (M = 3.01, SD = 1.20) showed higher levels of phubbing behavior compared to non-students (M = 2.87, SD = 1.26; t = 1.134, p = .026). As the p-value is below 0.05, this suggests that students and non-students also differed significantly in their involvement in phubbing behavior.

Table 8: Independent sample t-test results for gender and status on phubbing behavior among Malaysian youths

Group	n	Mean	SD	F	P
Gender					
Male	213	3.11	1.21	2.484	.013
Female	221	2.82	1.22		
Status					
Student	289	3.01	1.20	1.134	.026
Non-student	145	2.87	1.26		

To achieve the other study objectives— to determine how age group, monthly household income, and hours spent online influenced phubbing behavior among Malaysian youths—the ANOVA test was performed. Based on the data from Table 9, there were no significant differences between the age groups in terms of phubbing behavior among Malaysian youths, with p = 0.099. In terms of income level, based on F = 1.713 and p = 0.181, monthly household income made no significant difference to phubbing behavior among Malaysian youths. Lastly, this study also aimed to determine how the time spent online each day affected phubbing behavior. For this category, it was concluded that F = 0.630 and p = 0.533, indicating that time spent online made no significant difference to involvement in phubbing behavior.

Table 9: ANOVA results for age, household income, and time online on phubbing behavior

Group	n	Mean	SD	F	P
Age group					
18–25 years old	154	3.01	1.21		
26–33 years old	177	3.06	1.19	2.32	.09
34–40 years old	103	2.74	1.25		
Monthly household income					
B40	138	3.15	1.02		
M40	215	2.94	1.01	1.71	.18
T20	81	3.05	1.12		
Hours spent online daily					
1–4 hours	86	3.15	1.02		
5–8 hours	151	2.94	1.21	.630	.53
More than 8 hours	197	3.22	1.31		

In Table 10, the researcher would like to determine the relationship between smartphone addiction and nomophobia towards phubbing behavior among Malaysian youth. Based on the correlation analysis performed in this study, it was revealed that the results have a significant and moderately strong correlation between smartphone addiction and nomophobia towards phubbing behavior among Malaysian youth, with an r (n = 434) and a p-value of 0.001 (p < 0.01). The coefficient of determination (R^2 = 0.300) suggests that 30% of the variance in phubbing behavior can be explained by smartphone addiction and nomophobia. These findings imply that individuals who experience higher levels of smartphone addiction and nomophobia are more likely to engage in phubbing behavior.

Table 10: Relationship between smartphone addiction and phubbing behavior among Malaysian youths

	R	R^2	Adjusted R^2	F	p	Standard error
Correlation between smartphone addiction, nomophobia, and phubbing behavior	.727	0.528	0.522	79.75	< 0.001	.70259

4.2. Discussion

Most of the respondents to this study were Malaysian youths from the M40 family income group, and they spent more than eight hours online daily using a smartphone. The respondents reported having a high level of social media addiction, a high level of smartphone addiction and nomophobia, a moderate level of internet addiction, a moderate level of digital-based behavioral addiction, and a low level of gaming addiction. Gender and status produced differences in phubbing behavior, which can be understood to mean that females, those aged 18 to 24 years old, and students are inclined to engage in phubbing behavior. However, the other demographic background, like monthly household income and time spent online) showed no significance in determining involvement in phubbing behavior. The study findings have important implications for understanding the causes of phubbing behavior in the Malaysian context.

In this study, several limitations arose, such as self-report bias. Most studies rely on self-reported surveys, such as questionnaires and smartphone use, which can lead to social desirability. Future studies could use objective measures such as screentime tracking and observational methods. In addition, many of these studies feature a cross-sectional design. To improve on this, researchers should employ longitudinal studies to track phubbing behavior among youths over time. Future studies should investigate and assess evidence-based intervention programs that increase digital well-being while also improving face-to-face social

interaction. One potential avenue of future research is the adoption of digital detox programs, which urge youths to fix an "off time" for their screens in specific social settings, such as family gatherings or workplace meetings. Empirical studies should explore whether structured interventions, such as "phone-free zones" or periodic digital breaks, help to reduce phubbing behavior while increasing interpersonal communication.

5. Conclusion

To conclude, this study investigated how various forms of digital addiction impact phubbing behavior among Malaysian youths. The conceptual framework identified five independent variables that could influence phubbing behavior: social media addiction, smartphone addiction and nomophobia, internet addiction, gaming addiction, and digital-based behavioral addiction and distraction. The findings show a substantial positive relationship between social media addiction and phubbing, implying that youths with a tendency for excessive social media use are more prone to indulge in phubbing behavior. This finding is consistent with prior research, which has shown that social media reinforces obsessive phone-checking behavior, leading to increased disengagement from society. Besides, a moderate relationship was shown between smartphone addiction and nomophobia, showing that individuals who feel fear or anxiety when removed from their smartphones are more likely to engage in phubbing. This lends credibility to the hypothesis that nomophobia contributes to problematic smartphone use, in which users choose digital connections over in-person social involvement. In addition, moderate levels of internet and digital-based behavioral addiction were identified. Lastly, gaming addiction has a minimally significant influence on phubbing behavior among Malaysian youths. The current study attempts to address these difficulties and provide insights into relevant methods for establishing and strengthening interpersonal interactions, especially among Malaysian youths in the future. With the appropriate methods in place, parents, carers, educators, and communities can help young people have a better connection with digital gadgets, promoting a well-rounded, balanced lifestyle while preventing and managing addiction and behavior issues. Through partnership and education, these methods will enable youths to become a better-educated generation who can make responsible digital judgements, while their overall well-being will improve. This study contributes to the literature on understanding which variables can influence phubbing behavior among Malaysian youths. Despite the use of a quantitative approach, this study provides insights into phubbing behavior in the Malaysian context. Future studies need to incorporate a qualitative approach so that the issue of phubbing behavior among Malaysian youths can be explored further.

List of abbreviations

ANOVA	Analysis of variance
B40	Bottom 40% (low-income group in Malaysia)
M40	Middle 40% (middle-income group in Malaysia)
MOHE	Malaysian Ministry of Higher Education
NMP-Q	Nomophobia Questionnaire
R^2	Coefficient of determination
RM	Malaysian Ringgit (currency)
SD	Standard deviation
SPSS	Statistical Package for the Social Sciences
T20	Top 20% (high-income group in Malaysia)
M	Mean
n	Sample size
P	Probability value
F	F-statistic (ANOVA)
t	t-statistic (t-test)
α	Cronbach's Alpha (reliability coefficient)

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Compliance with ethical standards

Ethical considerations

All the participants provided informed consent, and their responses were anonymized to ensure confidentiality. This research received ethical clearance from the Human Research Ethics Committee, Sultan Idris Education University (Reference number: 2024-0403-01).

Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

References

Aagaard J (2019). Multitasking as distraction: A conceptual analysis of media multitasking research. Theory and Psychology, 29(1): 87–99. https://doi.org/10.1177/0959354318815766

Andreassen CS, Pallesen S, and Griffiths MD (2017). The relationship between addictive use of social media, narcissism, and self-esteem: Findings from a large national survey. Addictive Behaviors, 64: 287-293. https://doi.org/10.1016/j.addbeh.2016.03.006 **PMid:27072491**

Bajwa SR, Abdullah H, Zaremohzzabieh Z, Wan Jaafar WM, and Abu Samah A (2023). Smartphone addiction and phubbing behavior among university students: A moderated mediation model by fear of missing out, social comparison, and loneliness. Frontiers in Psychology, 13: 1072551. https://doi.org/10.3389/fpsyg.2022.1072551 **PMid:36687837 PMCid:PMC9853171**

Barbed-Castrejón N, Navaridas-Nalda F, Mason O, and Ortuño-Sierra J (2024). Prevalence of phubbing behaviour in school

and university students in Spain. Frontiers in Psychology, 15: 1396863. https://doi.org/10.3389/fpsyg.2024.1396863 **PMid:38863670 PMCid:PMC11166009**

Bekaroğlu E and Yılmaz T (2020). Nomophobia: Differential diagnosis and treatment. Psikiyatride Guncel Yaklasimlar, 12(1): 131-142. https://doi.org/10.18863/pgy.528897

Beukeboom CJ and Pollmann M (2021). Partner phubbing: Why using your phone during interactions with your partner can be detrimental for your relationship. Computers in Human Behavior, 124: 106932. https://doi.org/10.1016/j.chb.2021.106932

Buctot DB, Kim N, and Kim SH (2020). The role of nomophobia and smartphone addiction in the lifestyle profiles of junior and senior high school students in the Philippines. Social Sciences and Humanities Open, 2(1): 100035. https://doi.org/10.1016/j.ssaho.2020.100035

Bülbül H, Tunç T, and Aydil F (2018). Game addiction in university students and its relationship with personality traits and academic performance. Academic Review of Economics and Administrative Sciences, 11(3): 97–111. https://doi.org/10.25287/ohuiibf.423745

Çizmeci E (2017). Disconnected, though satisfied: Phubbing behavior and relationship satisfaction. The Turkish Online Journal of Design, Art and Communication, 7(2): 364-375. https://doi.org/10.7456/10702100/018

Cui J, Lee C, and Bax T (2018). A comparison of 'psychosocially problematic gaming' among middle and high school students in China and South Korea. Computers in Human Behavior, 85: 86–94. https://doi.org/10.1016/j.chb.2018.03.040

Enez Darcin A, Kose S, Noyan CO, Nurmedov S, Yılmaz O, and Dilbaz N (2016). Smartphone addiction and its relationship with social anxiety and loneliness. Behaviour and Information Technology, 35(7): 520–525. https://doi.org/10.1080/0144929X.2016.1158319

Frackowiak M, Hilpert P, and Russell PS (2024). Impact of partner phubbing on negative emotions: A daily diary study of mitigating factors. Current Psychology, 43(2): 1835–1854. https://doi.org/10.1007/s12144-023-04401-x

Garrido EC, Issa T, Esteban PG, and Delgado SC (2021). A descriptive literature review of phubbing behaviors. Heliyon, 7(5): e07037. https://doi.org/10.1016/j.heliyon.2021.e07037 **PMid:34041393 PMCid:PMC8144009**

Genc E, Çakmak FN, Çiftçi H, and Hocaoğlu ZM (2024). "Fiction is the reality": A qualitative study on digital game addiction and reality perception in young adults. Children and Youth Services Review, 157: 107445. https://doi.org/10.1016/j.childyouth.2024.107445

Goker H and Tekedere H (2022). Phubbing, alienation, digital game addiction, independent self-construal, and interdependent self-construal among high school students: A path analysis. Behavioural Psychology–Psicologia Conductual, 30(1): 157–181. https://doi.org/10.51668/bp.8322108n

Harrison CJ, Könings KD, Schuwirth L, Wass V, and van der Vleuten C (2015). Barriers to the uptake and use of feedback in summative assessment. Advances in Health Sciences Education, 20(1): 229–245. https://doi.org/10.1007/s10459-014-9524-6 **PMid:24906462**

Hutabarat KAN and Kamila SI and Latipun (2024). The phubbing phenomenon in adolescents: Uncovering the impact of technology on social relationship quality. Social Science and Humanities Journal, 8(10): 5169-5177. https://doi.org/10.18535/sshj.v8i10.1369

Kadylak T and Cotten SR (2020). Older adults' willingness to use emerging technologies in the United States. Information, Communication and Society, 23(5): 736–750. https://doi.org/10.1080/1369118X.2020.1713848

Karadağ E, Tosuntaş ŞB, Erzen E, Duru P, Bostan N, Şahin BM, Çulha İ, and Babadağ B (2015). Determinants of phubbing, which is the sum of many virtual addictions: A structural equation model. Journal of Behavioral Addictions, 4(2): 60-74. https://doi.org/10.1556/2006.4.2015.005 **PMid:26014669 PMCid:PMC4500886**

Karaman HB and Arslan C (2024). The mediating role of social media addiction and phubbing in basic psychological needs in relationships and relationship satisfaction. Frontiers in Psychology, 15: 1291638. https://doi.org/10.3389/fpsyg.2024.1291638 **PMid:38586290 PMCid:PMC10995373**

Kaya A, Türk N, Batmaz H, and Griffiths MD (2024). Online gaming addiction and basic psychological needs among adolescents: The mediating roles of meaning in life and responsibility. International Journal of Mental Health and Addiction, 22(4): 2413-2437. https://doi.org/10.1007/s11469-022-00994-9 **PMid:36643385 PMCid:PMC9831379**

Kim TK (2017). Understanding one-way ANOVA using conceptual figures. Korean Journal of Anesthesiology, 70(1): 22-26. https://doi.org/10.4097/kjae.2017.70.1.22 **PMid:28184262 PMCid:PMC5296382**

Kim YJ, Kim DJ, and Choi JS (2017). The cognitive dysregulation of Internet addiction and its neurobiological correlates. Frontiers in Bioscience, 9: 307–320. https://doi.org/10.2741/e804 **PMid:28410153**

Lai C, Altavilla D, Mazza M, Scappaticci S, Tambelli R, Aceto P, and Tonioni F (2017). Neural correlates of Internet use in patients undergoing psychological treatment for Internet addiction. Journal of Mental Health, 26(3): 276–282. https://doi.org/10.1080/09638237.2017.1294745 **PMid:28602145**

Lemmens JS, Valkenburg PM, and Peter J (2009). Development and validation of a game addiction scale for adolescents. Media Psychology, 12(1): 77-95. https://doi.org/10.1080/15213260802669458

Liu C and Ma J (2020). Social media addiction and burnout: The mediating roles of envy and social media use anxiety. Current Psychology, 39: 1883–1891. https://doi.org/10.1007/s12144-018-9998-0

Marengo D, Fabris A, Longobardi C, and Settanni M (2022). Smartphone and social media use contributed to individual tendencies towards social media addiction in Italian adolescents during the COVID-19 pandemic. Addictive Behaviors, 126: 107204. https://doi.org/10.1016/j.addbeh.2021.107204 **PMid:34875508**

Mohammad Hussin MB, Che Tak KB, and Motevalli S (2024). The mediating role of mother-child relationship and the relationship between mother phubbing and children's mobile phone addiction in Kuala Lumpur. International Journal of Education and Cognitive Sciences, 5(4): 109-120. https://doi.org/10.61838/kman.ijecs.5.4.12

Odacı H, Erzen E, and Yeniçeri İ (2024). Predictors of phubbing: Interpersonal relationships and family relationships. Trends in Psychology. https://doi.org/10.1007/s43076-024-00361-8

Oraison HM, Nash-Dolby O, Wilson B, and Malhotra R (2020). Smartphone distraction-addiction: Examining the relationship between psychosocial variables and patterns of use. Australian Journal of Psychology, 72(2): 158–169. https://doi.org/10.1111/ajpy.12281

Pellegrino A, Stasi A, and Bhatiasevi V (2022). Research trends in social media addiction and problematic social media use: A bibliometric analysis. Frontiers in Psychiatry, 13: 1017506. https://doi.org/10.3389/fpsyt.2022.1017506 **PMid:36458122 PMCid:PMC9707397**

Piko BF, Kiss H, Hartmann A, Hamvai C, and Fitzpatrick KM (2024b). The role of social comparison and online social support in social media addiction mediated by self-esteem

and loneliness. European Journal of Mental Health, 19: e0019. https://doi.org/10.5708/EJMH.19.2024.0019

Piko BF, Krajczár SK, and Kiss H (2024a). Social media addiction, personality factors and fear of negative evaluation in a sample of young adults. Youth, 4(1): 357-368. https://doi.org/10.3390/youth4010025

Roberts JA and David ME (2016). My life has become a major distraction from my cell phone: Partner phubbing and relationship satisfaction among romantic partners. Computers in Human Behavior, 54: 134–141. https://doi.org/10.1016/j.chb.2015.07.058

Roberts JA, Pullig C, and Manolis C (2015). I need my smartphone: A hierarchical model of personality and cell phone addiction. Personality and Individual Differences, 79: 13–19. https://doi.org/10.1016/j.paid.2015.01.049

Rubin RB and Martin MM (1994). Development of a measure of interpersonal communication competence. Communication Research Reports, 11(1): 33-44. https://doi.org/10.1080/08824099409359938

Safaria T, Arini DP, Saputra NE, and Suyono H (2025). Pathways from parent–child relationships to adolescent sleep problems: Examining problematic smartphone use and nomophobia as mediators. Journal of Technology in Behavioral Science. https://doi.org/10.1007/s41347-025-00510-5

Sun J and Wong N (2024). "I can't believe I phubbed up our friendship!": Examining relationships between loneliness, problematic smartphone use, friend phubbing, and life satisfaction. Human Behavior and Emerging Technologies, 2024: 5558587. https://doi.org/10.1155/2024/5558587

Sun S, Wong YD, Wang X, and Rau A (2024). Understanding behavioural motivations for travel-based multitasking: A case study in Singapore. Travel Behaviour and Society, 35: 100714. https://doi.org/10.1016/j.tbs.2023.100714

Tang CS, Wu AM, Yan EC, Ko JH, Kwon JH, Yogo M, Gan YQ, and Koh YY (2018). Relative risks of Internet-related addictions and mood disturbances among college students: A 7-country/region comparison. Public Health, 165: 16–25. https://doi.org/10.1016/j.puhe.2018.09.010 **PMid:30347314**

Udayanga S (2022). Problematic internet use, nomophobia, and social media addiction. In: Hameed SN and Sangal PK (Eds.), The Palgrave handbook of global social problems: 1–24. Springer International Publishing, Cham, Switzerland. https://doi.org/10.1007/978-3-030-68127-2_6-1

Vanden Abeele MMP, Antheunis ML, and Schouten AP (2016). The effect of mobile messaging during a conversation on impression formation and interaction quality. Computers in Human Behavior, 57: 562–569. https://doi.org/10.1016/j.chb.2016.04.005

Yildirim C and Correia AP (2015). Exploring the dimensions of nomophobia: Development and validation of a self-reported questionnaire. Computers in Human Behavior, 49: 130-137. https://doi.org/10.1016/j.chb.2015.02.059

Young KS (2009). Internet addiction test. Available online at: http://www.netaddiction.com/index.php

Zwilling M (2022). The impact of nomophobia, stress, and loneliness on smartphone addiction among young adults during and after the COVID-19 pandemic: An Israeli case analysis. Sustainability, 14(6): 3229. https://doi.org/10.3390/su14063229