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Social media addiction and depression among adolescents in two Malaysian states

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ABSTRACT

Addiction to social media addiction is considered a leading risk factor for depression among adolescents, but the relationship needs to be supported empirically. This study investigates the social media addiction level and its association with depression among Malaysian adolescents. A cross-sectional study was conducted by distributing a structured questionnaire to potential respondents aged 13 to 21 years old from Johor and Sarawak. Data were analysed in SPSS using descriptive statistics, correlation, and Chi-square tests. Overall, 72.0% and 33.0% of the 384 respondents recorded high levels of social media addiction and depression, respectively. A significant and low positive relationship was detected between social media addiction and depression among adolescents. The levels of social media addiction and depression differed across age groups, gender, race, and the time spent on social media platforms. These findings reflect the need to address excessive social media usage among adolescents.

Introduction

Almost every adult now has a social media account – a practice that has become so popular given the borderless internet connection and ever-growing technological development (Statista, 2022). As a result, social media has become an easily accessible need for today's people. These digital tools offered by social media allow users to create content or share anything with the public. This new trend is now a norm among the community of adolescents for better communication and as an interaction tool. Moreover, modernization has become a driving force for several people to rely on social media for knowledge accessibility. The number of users of social media networking platforms is growing in accordance with the increasing internet usage (Çam & Isbulan, 2012). Social media plays an important role in adolescents of this era as they are much more tech-savvy compared to adults. Adolescents accounted for more than 80.0% of registered users on Facebook, YouTube, Instagram, and Tumblr (Statcounter, 2020).

Adolescents' use of social media can increase their socialization and communication by allowing them to stay connected with friends and families, make new friends, and share pictures (Hong et al., 2014). Social media usage among adolescents may also enhance learning opportunities by creating

connections through group projects and exchanging ideas, which are the critical mediums of learning in the post-pandemic era (Alimoradi et al., 2022; Ruckwongpatr et al., 2022). These social media affordances have made it favourable among adolescents. On the flip side, the tendency for adolescents to spend a long time on social media platforms is worrisome as extensive exposure leads to addiction (Hong et al., 2014; Pornsakulvanich, 2018).

Prior studies have highlighted several outcomes of social media addiction that are linked to mental health issues, such as depression, anxiety, stress, loneliness, self-esteem, insomnia, and many more (Demir & Kutlu, 2016; Savci & Aysan, 2017). Among the diverse groups of social media users, adolescents are the most vulnerable age group (Doan et al., 2022). Not only because they constitute the youngest group of users, but adolescents spend the most time online, thereby increasing their risk of being exposed to the negative aspects of social media (Doan et al., 2022; Primi et al., 2021). The common consequences of social media overuse on adolescents include reduced attention span, sleep disruption, cyberbullying and negative self-perception, which may culminate in depression (Cecilia et al., 2021; Primi et al., 2021). This is evident in several studies reporting a positive correlation between social media addiction and depression (Haand & Shuwang, 2020; Hou et al., 2019; Kelly et al., 2018; Seabrook et al., 2016; Waqas et al., 2018). Young individuals with mental health issues are more likely to experience the negative impacts of improper social media usage (Glazzard & Stones, 2019; Seabrook et al., 2016).

According to World Health Organisation (World Health Organization, 2020), 264 million people worldwide are affected by depression. Besides, the COVID-19 pandemic has also heightened the dependency on social media networks to obtain support, health-related information, and emotional-focused coping to address psychological issues faced, especially during the lockdown and move-ment restrictions (Zhao & Zhou, 2021). Accumulated evidence from studies conducted during and after the pandemic revealed that countries that implemented lockdowns and movement restrictions experienced a spike in the prevalence of depression (Zhao & Zhou, 2021).

In Malaysia, reports from local newspapers reflect that 36.6% of depression cases in 2017 occurred among adolescents (Bernama, 2020). Metro (2018) also highlighted an increasing trend of social media usage (89.3%) in 2017 among the population, with adolescents accounting for 15.5% of the usage. A Malaysian NGO, Sneham Malaysia Welfare Association, established a hotline to help curb depression by providing moral support and counselling, especially among adolescents (Harian, 2019). Recent data from the National Institute of Health Malaysia depicts 424,000 adolescents between 14 to 20 years old have depression issues, whereas Kementerian Kesihatan Malaysia (KKM) documented that depression was responsible for 465 cases of suicide attempts (Harian, 2020). An earlier report revealed that residents of Sarawak, especially adolescents, accounted for the fourth highest rate (35.0%) of population with mental health issues in Malaysia (Borneo, 2017). Nazir et al. (2020) also highlighted a high prevalence of depressive symptoms (26.2%) among adolescents in Kuching, Sarawak. Notably, there was a strong positive correlation between depres-sive symptoms and suicidal ideation. Events such as lack of discipline, widespread access to the internet, economic market conditions, and influential peers are well-documented as factors influen-cing social media addiction among Malaysian youths (Nazir et al., 2020). However, it remains unclear if a relationship exists between social media usage and depression among adolescents in Malaysia. The current status of social media addiction among this high-risk population has not been explored. Thus, this study aims to investigate the level of depression among adolescents and its association with social media addiction and sociodemographic profile.

Literature review

Social media usage and addiction

Social media refers to the various internet-based networks that enable users to interact with others, verbally and visually (Yang et al., 2022). Approximately half of the world's population (49%;

3.8 billion) are active social media users (Kemp, 2020). The purpose of social media usage varies from maintaining relationships to accessing information and entertainment (Uhls et al., 2017). Social media provides meanings in capturing behavioural attributes that are relevant to individual thinking, mood, communication, activity, and socialization (Acar et al., 2022). These benefits and positive outcomes are facilitated by social networking sites (Livingstone and Helsper, 2010; Uhls et al., 2017).

Despite the benefits offered by social media content, excessive usage has raised concerns on a global level (Baccarella et al., 2018). Individuals are driven by strong forces leading them to use social media networks excessively and compulsively, thereby resulting in negative outcomes (Acar et al., 2022; Caner et al., 2022; Obeid et al., 2019). Thus, research in the last decade has shifted from exploring the opportunities provided by internet-social media to the adverse effects of its excessive usage – a phenomenon known as social media addiction (Moreno et al., 2022; Mohsenpour et al., 2023). This paradigm shift is attributed to the surge in negative outcomes, especially relating to mental health issues and most commonly depression (Acar et al., 2022; Baccarella et al., 2018).

Hilliard and Parisi (2020) defined social media addiction as a behavioural addiction that is characterized by being overly concerned about social media, driven by an uncontrollable urge to log on to or use social media, and devoting so much time and effort to social media that impair other important life areas. Addiction to the internet is considered a critical issue in adolescents, which denotes the inability to control the use of the internet irrespective of the negative consequences (Obeid et al., 2019; Moreno et al., 2022).

Individuals' mental health is amongst the most recognized consequences of social media addiction. Stress is elicited when social media usage reaches addiction levels, which may affect mental health rather than being a healthy coping technique. Individuals experience depression following the onset of social media fatigue after excessive social media use (Haand & Shuwang, 2020). Social media users utilize social media as a source of diversion to manage stress (Gizem et al., 2022, Orsolinni et al., 2022; Xiao et al., 2022). Nevertheless, social media addicts accord little importance to daily routines, hobbies, and intimate relationships (Xiao et al., 2022). These events culminate into problems with executing tasks, daily functioning, and maintaining relationships. As a result, such individuals are at a higher risk of experiencing negative psychological health, particularly depression (Gizem et al., 2022; Vidal et al., 2020). Furthermore, Keles et al. (2020) reviewed relevant studies and found that depression levels were significantly increased among social media addicts.

Depression and social media addiction among adolescents

Depression is a form of syndrome that includes symptoms of delay and fuzziness in speech and movement; worthlessness, pettiness, weakness, and reluctance; pessimistic emotions, thoughts, and psychological states (Torres, 2020). According to the World Health Organisation (2022), 10–20% of children and adolescents experience mental health problems. Depression is a generalized mental disorder that is common among young individuals (Mental Health Foundation, 2018), and it is associated with multifaceted consequences such as lower educational attainment, school dropout, impaired social relationships, increased risk of substance abuse, mental health problems and eventually suicide (Gizem et al., 2022; Hetrick et al., 2016).

Recent studies show that the addictive use of social media pulls the younger generation into the realm of depression (Bettmann et al., 2021; Xiao et al., 2022). For instance, a cross-sectional study by Wang et al. (2018) demonstrated a positive association between depression and social media addiction among adolescents aged 14 to 18 in China. Teenagers and young adults are among the groups that spend most of their time in the online world of social media consequently portraying a substantially higher rate of depression than those spending less time online on social media platforms (Twenge et al., 2018; Bettman et al., 2021). Thus, those in this group need to be exposed to proper social media content for optimum growth.

Compulsive social media usage among adolescents, specifically the Facebook platform, was associated with several problems such as mental illness; namely stress, anxiety, and depression

affecting the long-term well-being of individuals (Gizem et al., 2022; Vidal et al., 2020). The reasons behind these psychological impairments among the young generation are not conclusive. However, excessive social media usage has been a leading factor in the development of depressive symptoms in this vulnerable population (Marino et al., 2018; McCrae et al., 2017). An increased time spent online is often related to a decline in communication between families leading to depression (Vidal et al., 2020; Huang et al., 2021). Furthermore, the pandemic has resulted in an extensive use of e-learning for education acquisition (Sujarwoto & Yumarni, 2023). Despite the advantages of e-learning, some researchers highlighted a significant correlation between internet usage and depression symptoms among adolescents (Benjamin et al., 2015; Vidal et al., 2020). Consequently, dependence on internet platforms grows into an addiction.

Adolescent social media usage in Malaysia

A recent report by the Malaysian Communications and Multimedia Commission (MCMC, 2021) revealed that approximately 46% of Malaysian internet users are in their 20s. Notably, internet usage and consequently social media usage has garnered widespread exposure among young Malaysians due to its rapid growth and multiple utilization (MCMC, 2021). According to Global Digital Insights (2022), there are a total of 30.25 million social media users in Malaysia, with Facebook being the most used platform, followed by Instagram, Tik Tok, Twitter, and Snapchat. Malaysia is among the top five countries for mobile social media penetration rate globally and the first in Southeast Asia (Global Digital Insights, 2022). This growing trend of social media comes with positive and negative effects on adolescents and the general population.

A survey by the MCMC in 2017 reflected that 89% of participants suffered from internet addiction and one-third of them experienced severe depression. In another study, addiction to social networks was found to interfere with individual's daily life and challenge their psychological and physical health (Blasco et al., 2020). Additionally, social media addiction was reported among school-age children, and the manifestation of withdrawal symptoms similar to substance use addictions, such as prolonged time on social media platforms than intended, unsuccessful attempts to reduce, spending substantial time to recover from effects and relapse, thereby leading to poor academic performance (Rosenberg, 2019). Thus, local researchers posit that social media may be a driver of the increasing incidence of mental health disorders among adolescents and young adults (Vyalkov, 2020). Only a few local studies have investigated social media addiction and its impact on psychological health among adolescents. Previous established high levels of social networking and social media addiction among university and nursing students (Jamaluddin et al., 2012; Fauzi et al., 2021). Meanwhile, a recent cross-sectional study among 208 undergraduates in Kuantan found a positive relationship between social media addiction and mental health but only nursing students were recruited (Azenal & Cho Zaw, 2021). The present study aims to elucidate the relationship between social media addiction and depression among adolescents in Malaysia. This study aims to recruit samples from Johor and Sarawak states while focusing on depression given its high prevalence in this vulnerable population in the country. The findings could assist the relevant agencies in addressing the issue of social media addiction and its negative consequences in the Malaysian young population.

Methodology

Study design

This study entailed a cross-sectional and descriptive design to assess the relationship between depression in adolescents and social media addiction. The target population is Malaysian adolescents between 13 and 21 years old from the states of Johor and Sarawak that are using social media platforms. Both states were selected for recording the highest rates of mental disorder cases. Borneo (2017) documented that the residents of Sarawak recorded the fourth-highest rate

of mental health issues at 35.8%, particularly among adolescents. Meanwhile, the high rate of depression can be gleaned from the high number of calls for the treatment of depressed adolescents in the state.

According to the WHO (2014), adolescents refer to young people aged 10 to 19 years old. Malaysia has a population of 5.47 million adolescents, accounting for 19.2% of the nation's population (National Health and Morbidity Survey, 2018). Local surveys revealed that 13% of internet users were adolescents and they constituted the group with the highest internet adoption rate at 86.6% (McCrae et al., 2017). Based on this information, this study attempts to recruit adolescents between the age of 13–21 years old. Although this age group differs from the WHO's definition of adolescents, we decided to include young adults aged 20 and 21 as a significant population of this age group are either in lower or upper form 6 in Malaysian secondary schools (Ooi et al., 2020).

Sample size and sampling procedure

The required sample size was estimated based on the recommendations from articles on quantitative research design and according to Krejcie and Morgan's (1970) table for calculating sample size. Hair et al. (2017) suggested that a sample size ranging from 300 to 400 is acceptable when researchers intend to administer surveys or questionnaires to a given population. Considering the sample size estimated in Krejcie and Morgan's table and the current population of adolescents in Sarawak and Johor, a total of 350 respondents was found to be suitable for this study. Upon adjusting for a non-response rate of 20% into account, the required sample was increased to 400 respondents. We also estimated the required sample size by using the formula for computing simple proportion or apparent prevalence based on a precision error of 5%, 95% confidence interval, expected prevalence of social media addiction of 56.0% (result from a previous study by Ooi et al., 2020). This calculation led to a required sample size of 379, which was then increased to 400 upon considering dropout rate of 5%.

In order to reach the target sample size and limited resources to perform random sampling in the communities of Johor and Sarawak, this study utilized a convenience sampling procedure – a type of non-probability sampling method. The researcher considered the school environment as the most feasible location to recruit a sufficient number of adolescents into the study. Thus, community secondary schools in the various districts of the two states were selected as the study area. Each community school selected for the study represented the cluster from which adolescents will be selected. A total of eight clusters were selected in each state, while students willing to participate were allowed to respond to the survey upon providing oral and signed consent.

Research instruments

A structured questionnaire was used in this study. The questionnaire comprises two main research instruments: the social media addiction scale and DASS for the assessment of social media addiction and depression among adolescents, respectively. The Social Media Addiction Scale was developed by Arslan and Kırık (2013) and it comprises 25 questions designed to assess time spent on social media, the priority placed on social media platforms, and how the usage affects their interaction with people. For the DASS, the instrument contains 42 items for assessing depression, anxiety, and stress levels. The present study extracted and utilized nine items from the DASS that focuses on depression. The instrument and all the items were designed in English language. This section presents the measurement of social media addiction and depression.

Measures, structure, and reliability of the instrument

The instrument used for this study has four sections. The first section focused on the respondents' demographic profile, specifically gender, age, ethnicity, and classification of secondary

educational level. This section was presented using close-ended questions and respondents were instructed to choose a single option applicable to them. The measurement scale used for this section was nominal.

The second section was designed to gather information on the social media usage pattern relating to the types of social media users, the amount of time spent on social media platforms, the type of platform used, and the type of data subscription. All the questions were presented using a five-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree. Next, the third section focused on social media addiction among adolescents. The items were also presented as ordinal variables in the form of a five-point Likert Scale as described above. The reliability (Cronbach's alpha) of the instrument was found to be 0.94, which is considered acceptable and robust for assessing social media addiction (Kircaburun, 2016). The fourth section assessed adolescent depression, comprising 9 items from the original version of the DASS, which were extracted to align with the target population in this study. This section also employed an ordinal form of measurement and a five-point Likert scale.

The face validity of the instrument was performed by the lecturers of the xxxxxx. Results from the reliability test revealed acceptable Cronbach's alpha values ranging from 0.929 to 0.971, thus highlighting the suitability of the instrument for data collection.

Administration of questionnaire

The questionnaire was self-administered by the researcher to respondents from various community secondary schools. First, the school's administrative head was briefed about the purpose and procedures of the survey. Upon approving the study at the school level, instructors assisted in briefing the students about the study. Those willing to participate were given the questionnaire to complete and return to the instructor. They were also informed to call the attention of the instructor or researcher if any clarification is needed. No compensation was given to the participants. The survey took 10 minutes to be completed. The questionnaire was administered from October 2022 to December 2022.

Ethical considerations

This study was approved by Ethical Committee for Research Involving Humans, Universiti Pendidikan Sultan Idris, and all the recommendations by the Institutional ethical body were followed. This study also received approval from various administrative departments of the community secondary schools. All respondents provided both oral and written consent before completing the questionnaire. Prior to that, the students were informed of voluntary participation and no identity-revealing information would be recorded. No incentive was given for participating in this survey.

Data analysis

Data were analysed quantitatively in SPSS Version 28. All the retrieved questionnaires were first assessed for eligibility, and those that completed the depression and social media addiction sections were selected for further analyses. Descriptive statistics were performed to summarize the dataset and check for normality using the skewness and kurtosis levels. The association between depression and social media addiction was determined using the Pearson correlation coefficient and simple linear regression. Independent sample -test and one-way Analysis of Variance (ANOVA) were performed to investigate the association between respondents' social media addiction and sociodemographic profile and pattern of social media use. Similar analyses were conducted with depression as the outcome of interest. A p-value of 0.05 was considered significant and estimates were presented at 95% confidence intervals.

Results

Descriptive statistics

Respondents' demographic profile
Table 1 presents the demographic characteristics of the respondents. Most of the respondents were females (67.0%) relative to males (33.0%). The majority were between 19 to 21 years old (47.0%) while 23.0% and 30.0% were in the age groups of 13–15 and 16–18, respectively. A higher proportion of the respondents were Malays (48.0%), followed by Indians (23.0%) and Chinese (20.0%). Students from form 5–6 accounted for one-third of the respondents (64.0%), followed by those from form 3–4 (23.0%) and 1–2 (15.0%)

Social media usage pattern
Almost all the respondents from both states (96.4%) are using WhatsApp and Instagram (95%) compared to 73% and 54% with Facebook and Twitter accounts, respectively (Table 2). Slightly more than half of the students (55%) spindly roughly more than 7 hours daily on social media. Likewise, 46% of these adolescents always check their social media accounts daily, with 28% doing so 11 to 20 times a day. Additionally, two-two-thirds%) of the adolescents pay around RM0 to RM50 for their monthly internet subscription while 26% spend about RM 51 to RM100. As expected, almost all the respondents access their social media accounts via a smartphone (99.7%).

Social media addiction and depression

A higher proportion (more than 70%) of the respondents communicated and search for their friends using social media (Table 3). More than one-third of the adolescents enjoyed visiting social media and affirmed doing that early in the morning (66.7%). The majority of them also agreed that life will be boring without social media (76.4%) and feel disconnected when they have not logged into the platform (70.1%). Overall, most of the respondents agreed with all the items relating to social media addiction, thus indicating a high prevalence of this problem among adolescents from both states.

Table 4 presents the responses to statements assessing adolescents'' depression. Approximately 41.0% agreed that they had lost interest in virtually everything while 29.0% either disagreed or were indifferent to the statement. Meanwhile, the statement that received the highest affirmation (48.0%) was 'I found it difficult to work up the initiative to do things'. In contrast, 36.0% disagreed with the statement 'I could see nothing in the future to be hopeful about'. Detailed responses can be gleaned from Table 4.

Table 1. Respondents' demographic profile.

Social media use pattern	Frequency	%
Gender		
Male	126	33.0
Female	258	67.0
Age		
13–15	88	23.0
16–18	115	30.0
19–21	181	47.0
Race		
Malays	184	48.0
Chinese	77	20.0
Indian	88	23.0
Others	35	9.0
Class		
Form 1–2	58	15.0
Form 3–4	88	23.0
Form 5–6	238	64.0

Table 2. Social media use pattern among 384 adolescents from Johor and Sarawak.

Social media use pattern	Frequency	%
Social media accounts		
WhatsApp	370	96.4
Instagram	365	95.0
Facebook	280	73.0
Twitter	207	54.0
Others	58	15.0
Time spent on social media		
1–3 hrs	48	12.4
4–6 hrs	120	31.4
More than 7 hours	212	55.2
None	4	1.0
Frequency of checking social media accounts daily		
3–5 times	35	9.0
6–10 times	58	15.0
11–20 times	108	28.0
Always	178	46.7
Not at all	5	1.3
Types of Internet subscription		
Postpaid	145	38.0
Prepaid	171	45.0
Both	68	18.0
Amount spent on internet subscription monthly (Measured in Ringgit Malaysia; RM)		
0–50 RM	258	67.0
21–100 RM	100	26.0
101–150 RM	19	5.0
151–200 RM	5	1.3
Above 200 RM	2	0.5
Sources of access to social media		
Laptop	245	64.0
Smartphone	380	99.7
Personal computer	92	24.0
Tablet	107	38.0

Note: 1 United States Dollars = 4.68 Ringgit Malaysia (RM).

Table 3. Responses to items assessing adolescents' addiction to social media (n = 384).

Items	SD	D	N	A	SA
I communicate with my friends using social media	5 (1.3)	1 (0.3)	42 (10.9)	123 (32.0)	213 (55.5)
I search my friends' profiles on social media	7 (1.8)	19 (4.9)	53 (13.8)	146 (38.0)	159 (41.4)
I enjoy visiting social media	5 (1.3)	9 (2.3)	40 (10.4)	139 (36.2)	159 (41.4)
I would like to visit social media early in the morning	17 (4.4)	37 (9.6)	74 (19.3)	131 (34.1)	125 (32.6)
I wonder whether my friends will read my posts on social media	11 (2.9)	36 (9.4)	67 (17.4)	134 (34.9)	136 (35.4)
Social media helps me to strengthen relationships with my friends	6 (1.6)	16 (4.2)	54 (14.1)	160 (41.7)	148 (38.5)
I feel disconnected from friends when I have not logged into social media	25 (6.5)	33 (8.6)	57 (14.8)	122 (31.8)	147 (38.3)
I prefer social media more to television	22 (5.7)	35 (9.1)	56 (14.6)	131 (34.6)	157 (40.9)
I feel disconnected from my friends wherever I cannot log to social media	8 (2.1)	14 (3.6)	61 (15.9)	163 (42.4)	138 (35.9)
Life without social media is boring	16 (4.2)	23 (6.0)	52 (13.5)	125 (32.6)	168 (43.8)
I build new relationships via social media	13 (3.4)	21 (5.5)	72 (18.8)	144 (37.5)	134 (34.9)
I believe social media has changed people	4 (1.0)	10 (2.6)	44 (11.5)	157 (40.9)	169 (44.0)
I respond to content that other people share on social media	11 (2.9)	35 (9.1)	87 (22.7)	137 (35.7)	114 (29.7)

Note: SA = strongly agree, A = agree, N = neutral, D = disagree, SD = strongly disagree.

Table 4. Responses to items assessing adolescents' depression (n = 384).

Items	SD	D	N	A	SA
I felt that I had lost interest in just about everything	40 (10.4)	72 (18.8)	114 (29.7)	110 (28.6)	48 (12.5)
I felt I was not worth much as a person	51 (13.3)	70 (18.2)	85 (22.1)	122 (31.8)	56 (14.6)
I could not seem to get any enjoyment out of the things I did	47 (12.2)	76 (19.8)	100 (26.0)	113 (29.4)	48 (12.5)
I felt down-hearted and discouraged	42 (10.9)	83 (21.6)	82 (21.4)	122 (31.8)	55 (14.3)
I was unable to become enthusiastic about anything	46 (12.0)	73 (19.0)	98 (25.5)	123 (32.0)	44 (11.5)
I could see nothing in the future to be hopeful about	59 (15.4)	85 (22.1)	89 (23.2)	104 (27.1)	47 (12.2)
I felt life was meaningless	66 (17.2)	73 (19.0)	96 (25.0)	110 (28.6)	39 (10.2)
I felt sad and depressed	48 (12.5)	69 (18.0)	104 (27.1)	123 (32.0)	40 (10.4)
I found it difficult to work up the initiative to do things	42 (10.9)	68 (17.7)	89 (23.2)	127 (33.1)	58 (15.1)

Note: SA = strongly agree, A = agree, N = neutral, D = disagree, SD = strongly disagree.

Level of social media addiction and depression

Table 5 depicts the level of social media addiction in the studied population. Alarmingly, 72.7% of adolescents experienced a high level of social media addiction. On the other hand, 38.8% and 33.6% of the respondents recorded high (2.112 ± 0.808) and moderate depression levels, respectively.

Relationship between social media addiction and depression

The Pearson Correlation Analysis depicts a low positive correlation ($r = 0.206$; $p < 0.001$) between social media addiction and depression among adolescents of Johor and Sarawak in Malaysia (Table 6).

Correlation between social media addiction and depression based on adolescents' demographic profile

Further analyses were performed to determine the relationship of adolescents' demographic characteristics (i.e. gender, age, class, monthly expenses on internet subscription, and sources of access to social media) with social media addiction and depression (Table 7). For social media addiction, the significant factors were gender, race, time spent on social media, and number of social media platforms used by the respondents. A positive and significant correlation was observed between social media addiction and number of platforms used

Table 5. Level of social media addiction and depression (N = 384).

Variables	Frequency	Percent	Mean	SD
Social Media Addiction			2.703	0.506
Low (1–2.33)	9	2.3		
Moderate (2.34–3.66)	96	25.0		
High (3.67–5)	279	72.7		
Depression			2.112	0.808
Low (1–2.33)	106	27.6		
Moderate (2.34–3.66)	129	33.6		
High (3.67–5)	149	38.8		

Table 6. Pearson correlation between social media addiction and depression.

		Depression	Social Media Addiction
Depression	Pearson Correlation	1	0.206**
	P-value		<0.001
Social Media Addiction	Pearson Correlation	0.206**	1
	P-value	<0.001	

Table 7. Relationship between adolescents' demographic profile and social media addiction and depression.

	Social media addiction		Depression	
Variables	Mean ± SD	P-value	Mean ± SD	P-value
Gender				
Male	3.92 ± 0.81[a]	0.03	3.08 ± 1.03	0.81
Female	4.09 ± 0.67[b]		3.11 ± 1.13	
Age (years)				
13–15	4.04 ± 0.97	0.39	2.79 ± 1.06[a]	0.005
16–18	3.96 ± 0.61		3.11 ± 1.03[b]	
19–21	4.08 ± 0.64		3.26 ± 1.13[b]	
Race				
Malay	3.97 ± 0.66[a]	0.001	3.17 ± 1.09[ab]	0.07
Chinese	4.41 ± 0.48[b]		3.34 ± 0.99[abc]	
India	3.76 ± 0.93[a]		2.78 ± 1.18[ab]	
Others	4.26 ± 0.49[b]		3.07 ± 1.07[a]	
Class				
Form 1–2	4.04 ± 0.96	0.13	2.78 ± 1.05[b]	0.04
Form 3–4	3.92± 0.63		3.16 ± 1.01[a]	
Form 5–6	4.10 ± 0.63		3.24 ± 1.10[a]	
Time spent on social media				
1–3 hours	3.23 ± 0.97[a]	0.0001	2.36 ± 0.96[b]	0.001
4–6 hours	3.91 ± 0.57[b]		3.01 ± 1.05[a]	
More than 6 hours	4.30 ± 0.55[c]		3.34 ± 1.08[a]	
Amount spent on internet subscription monthly				
0–50 RM	4.01 ± 0.76	0.220	3.09 ± 1.09	0.83
51–100 RM	4.14 ± 0.60		3.16 ± 1.12	
101–10 RM	3.89 ± 0.73		3.15 ± 1.02	
	Correlation coefficient	P-value	Correlation coefficient	P-value
Number of platforms	0.294	0.001	0.144	0.005

Note: values are presented as mean ± standard deviation and values with different superscript letters are statistically significant at a p-value of 0.05.

for social media ($r = 0.224$, $p = 0.001$). Females and Chinese respondents, as well as those who spend more than 5 hours daily on social media platforms recorded a significantly higher social media addiction compared to males, Malay and Indian race, and less than 5 hours on social media. Meanwhile, respondents in the 16–18 and 19–21 age groups, Chinese, currently in form 4 and above, and spending more than five hours on social media daily recorded significantly higher depression scores. A positive and significant correlation was also observed between depression and number of platforms used for social media ($r = 0.114$, $p = 0.04$).

Discussion

This study is among the few attempts to elucidate the social media use pattern and the relationship between social media addiction and depression among adolescents in Malaysia. There is a thin line between appropriate social media use and addiction, and the latter has been linked to depression, especially at the adolescent age (Aydin et al., 2021). Descriptively, most of the respondents in this study were females (67%), Malays (48%) and aged 19 to 21 years old (47%). These findings align with the demographic characteristics of adolescents in the two selected states (Department of Statistics, 2020). Meanwhile, almost all the respondents used smartphones to access social media accounts, which is expected since such devices have been upgraded for easy navigation and usage of social media platforms. This result is consistent with the report by Lenhart (2015) for the Pew Research Centre that highlights three-quarters of young individuals aged between 15 to 17 use a smartphone.

The prevalence of social media addiction was high in this study, as 72.0% and 25.0% of the adolescents demonstrated moderate and high addiction levels, respectively. These findings indicate that the respondents in the present study are battling extensive and uncontrolled social media usage, which align with the excessive internet-related instruments usage reported among Malaysian

university students in recent studies (Liu et al., 2022; Tung et al., 2022). Several studies have also highlighted similar outcomes wherein youth groups were affiliated with a high addiction level to social media platforms (Aydin et al., 2021; Jafarkarimi et al., 2016). As found in this study, more than 90% of adolescents use WhatsApp and Instagram while 75% have a Facebook account, which is similar to a previous report where 71% of adolescents were strongly addicted to Facebook (Lenhart, 2015; Zickuhr, 2010).

The underlying reasons for social media addiction have not been widely studied. In the present study, responses to the statement used in assessing this issue provide insight into possible contributing factors. For instance, the indication of addiction based on social media usage patterns revealed that more than half (55.0%) spent roughly more than 7 hours daily on social media while 46.8% checked their accounts daily. Moreover, respondents were highly concerned regarding friends' feedback on their posts on social media and relied on the platforms in building relationships, and felt disconnected when they are not active online. Prior studies have also demonstrated that adolescents are seen to be much more active in presenting themselves on online platforms compared to in person (Dhir, 2016; Leung, 2014). In addition, adolescents make use of internet platforms available to ensure a condition of them being socially accepted and attracted to new methods of communication and explore a need to be acknowledged among their peers (Obeid et al., 2019 Orsolini et al., 2022; Huang et al., 2023). Specifically, most of the respondents 'strongly agreed' with the statement 'I feel disconnected from my friends whenever I can't connect to any of my social media accounts'. This result thus highlights the constant need for adolescents to be hooked on their social media platforms to ensure they are not left out and are connected with their friends. Such thoughts eventually lead to social media addiction.

Despite not being as high as social media addiction, the prevalence of high and moderate depression levels in the respondents was 38.8% and 33.0%, respectively. Hence, depression is considered a significant issue among these adolescents from Johor and Sarawak. Depression has been described as a generalized mental disorder among younger individuals (Mental Health Foundation, 2018; Stansfeld et al., 2016). The current study extracted 9 items from the well-established DASS tool to assess depression, thus further analyses of the individual items were conducted to elucidate the findings.

Most respondents agreed with the statement "I felt down-hearted and discouraged. Depressed adolescents tend to avoid exhibiting interest and tend to give up on their lives. This is supported by De Choudhury et al. (2013) who opined that depressed adolescents often withdraw themselves from social situations and several activities. It is also worrisome that most respondents were indifferent to the statement 'I felt that I had lost interest in just about everything'. The response portrays the young ones feeling confused about their intention and life as they are presently depressed. Consequently, mitigation efforts need to be taken to address this issue to shape the younger generation for future benefits.

There was a low positive correlation and significant relationship between social media addiction and depression. These findings corroborate the reports from previous studies in which a low to high positive correlation was found between social media addiction and symptoms of depression among adolescents (Sidani et al., 2016; Woods & Scott, 2016). The result also reflects that the longer the time is spent on social media platforms, the higher the depressive symptoms experienced by adolescents, as highlighted in other studies (Li et al., 2017; Wang et al; 2018). Excessive or problematic social media usage drives a person towards developing mental illness and especially depression (Berryman et al., 2018; Elhai et al., 2019). The abnormal expectation that adolescents are exposed to via their social media platforms drives them to feel sad and disheartened especially when they are unable to achieve them. Meanwhile, the low relationship strength between social media addiction and depression may be due to other factors affecting these adolescents. For instance, sleep-related factors (Li et al., 2017; Vernon et al., 2017), perceived social support (Frison & Eggermont, 2016,) and rumination (Wang et al., 2018) were among the factors described as mediators of the relationship between social media usage and depression.

Female adolescents in this study recorded significantly higher levels of social media addiction compared to males, which is consistent with previous conducted in China (Zhao & Zhou, 2021) and Italy (Monacis et al., 2020). Females pay more attention to social activities for enhancing communication and interaction with peers on social media platforms, as well as sharing more selfies on social networking sites (Dhir, 2016). While the positive relationship between social media addiction and being a Chinese is not fully understood, spending more hours (>5) daily on social media platforms and having several social media applications was associated with higher addiction levels. Accordingly, adolescents who spend more hours on social media platforms are more likely to be exposed to information and events that will encourage continuous visits to sites of their interest. These group of adolescents also have a wider coverage of peers to interact with, thereby raising their addiction to social media (Zhao & Zhou, 2021).

On the other hand, there was no relationship between respondents' age and social media addiction. Prior research among adolescents of relatively wider age group reported a significant association between age and social media addiction (Abasi et al., 2019), whereas those involved relatively young and narrow age gap found a contradicting result (Zhao & Zhou, 2021). Therefore, the latter reason might explain the lack of association between both variables as observed in the present study.

Adolescent depression was significantly associated with higher age groups (16–18 and 19–21 years old), being in Form 5 and above, and having a higher number of social media platforms. Specifically, in Malaysia, the higher age groups of adolescents in this study are more exposed to social media since they are more likely to have smartphones and other sources of assessing the internet compared to those less than 16 years old (Abdullah et al., 2022). Hence, greater familiarity with internet use leads to more activities, as well as relying on online platforms for entertainment and educational contents (Doan et al., 2022). Duration of mobile device, specifically for social media interaction, has been linked with psychosocial effects among adolescents (Zhao & Zhou, 2021). Excessive social media usage limits the physical interaction between adolescents and their peers and family members, leading to behavioural and emotional disturbances (Abbasi et al., 2019).

Despite the significant findings obtained in this study, some limitations in terms of study design need to be acknowledged. A representative sample of the two states was not obtained within the time frame allocated due to the COVID-19 pandemic. Besides, only a few studies have investigated depression and social media addiction among adolescents in Malaysia, hence limited comparative data were available in discussing the findings. A mixed methodology comprising quantitative and qualitative methods might assist in understanding the main determinants of social media addiction and depression among this vulnerable group. Other Malaysian states may be considered in future studies for wider coverage and better representation.

Conclusion and recommendation

This study highlights a high level of social media addiction among adolescents from the Johor and Sarawak states of Malaysia. Likewise, a moderate level of depression was observed. A low positive correlation was found between social media addiction and depression in the studied population. Thus, this study provides empirical evidence that adolescents are more likely to experience depression as their usage of social media platforms increases. In addition, the prevalence of social media addiction was influenced by gender, race, time spent on social media, and number of social media platforms used by the respondents. Meanwhile, adolescents aged 16–18 and 19–21 years, being in form 4 and above, and spending more than five hours on social media daily were associated with higher prevalence of depression. These results reflect the need to address the inappropriate use of social media, which may concurrently assist in tackling depression in this vulnerable population. Intervention efforts are also required before depression cases arising from social media addiction reach irreversible conditions. Future studies are recommended to explore several communication tools that may lead to addiction and mental health issues among adolescents to ensure a better generation in the future.

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