

Research Article:

Use of Social Media and Depression in First-Year Undergraduate Students During COVID-19 Lockdown

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ABSTRACT

Due to the COVID-19 pandemic, most educational institutions switched to online learning as a standard education delivery model. The use of social media has since become an essential and integral component of students' lives, both as a tool to facilitate learning as well as for social connections. The current study examines the use of social media and its association with depression among newly enrolled first-year university students during the national lockdown. Three hundred and eighty-six ($N = 386$) participants aged between 19–21 years from one faculty of a public university were recruited online for the study. Self-reports on daily time spent and emotional investment (frequency of visits) on social media were obtained. Depression was assessed using the Patient-Reported Outcomes Measurement Information System (PROMIS) Depression Scale. Results from binary logistic regression showed that high levels of investment in a variety of social media activities were associated with symptoms of depression. Compared to the users at the lowest level, students in the higher usage groups had significantly increased odds of depression (AOR = 2.94, 95% CI = 1.22–7.08; AOR = 2.49, 95% CI = 1.04–5.94, respectively), even after controlling for all covariates. Total time spent, however, was not found to associate with depression. Additionally, indigenous students from East Malaysia who mostly reside in rural areas recorded a significantly higher odds of experiencing depression during the pandemic (AOR = 3.32, 95% CI = 1.23–8.90, $p = .02$) compared to the Malays. Given the pervasive use of social media during the COVID-19 lockdown, the findings of the study suggest that educators at higher education institutions can leverage on the ubiquitous use of social media among students to disseminate targeted educational messages regarding mental health.

Keywords: social media, depression, first-year university students, COVID-19 lockdown

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INTRODUCTION

The COVID-19 pandemic has created unprecedented changes in the lives of students at all levels. Schools and institutions were shut across the world and online learning became the default approach to education. Teaching was mostly carried out remotely using digital platforms. The new mode of education delivery also implies that the social lives of students are drastically altered. However, for a lot of students, the familiarity and ubiquitous use of social media (SM) provide an avenue for them to remain connected socially to others. SM refers broadly to web and mobile platforms that allow individuals to connect with others within a virtual network such as Facebook, Twitter, Instagram or Snapchat. Users of SM can share, co-create, or exchange various forms of digital content, including information, messages, photos, or videos (Ahmed et al., 2019).

This study aimed to investigate if there is a relationship between the use of SM and the mental health of first-year undergraduate students during the time of pandemic when physical classes were replaced completely with remote classes. These students were new students at a public university who had just enrolled for the first semester in a 4-year degree programme. This study is significant because the students were part of Gen Z, a generation who are said to be digital natives (Prensky, 2001), raised in a digital, media-saturated world enabled by the internet and smartphones. What begs a question is how the early exposure to technology and SM plays out in helping these young adults to navigate their mental health during the lockdown. For many incoming undergraduates, the university campus isn't just a place for learning. It also provides a space for relationships that helps them form important networks and new alliances. Traditional social settings such as lecture halls and hostels have always been important venues for college students to interact and communicate with others (Scheufele et al., 2004). However, during the pandemic, social distancing was promulgated, and interactions were mainly confined to the media digital environment.

Much of the extant literature on the implications of SM use on mental health is based on a normal environment before the pandemic. The presumption in past studies is that individuals using these systems would be connecting with others outside their pre-existing social group or location. Little is known about whether and how SM use is associated with individuals' mental health during lockdowns when there is a complete absence of physical interaction with others. Prior studies have found mixed results regarding the relationship between social media use and college student mental health (Coyne et al., 2020; Dorien et al., 2021; Heffer et al., 2019). This relationship has become increasingly complex during the COVID-19 pandemic (Haddad et al., 2021). While most of the scientific literature focusing on the relationship between social media use and mental health outcomes was before the COVID-19 pandemic, it is reasonable to infer that these relationships remain consistent, if not stronger, during a time where social media is more heavily relied on for all types of communication. Nonetheless, given the paucity of available literature to clarify the impact of social media on the mental health of college students during the COVID-19 pandemic, this study hopes to fill the gap in the

literature by investigating how the pattern of SM use during lockdown is associated with depression in first-year university students in Malaysia.

LITERATURE REVIEW

Although there is no consensus on the age boundaries of adolescence, it is generally defined as the transition period between childhood and adulthood, approximately between 10–22 years (Ledford, 2018). During the period of adolescence, individuals are vulnerable to developing mental illnesses such as depression and anxiety (Blakemore, 2019). Brain regions that are involved in social behavior undergo extensive changes during this period which make young adults particularly potent to be impacted by media use (Beeres et al., 2021).

Social Media Usage Among Young Adults

According to Pew Research Centre (PRC), Generation Z (Gen Z) is broadly defined as individuals born between 1997 and 2012. By that measure, most of the undergraduate students aged between 19 and 24 in universities today belong to Gen Z (Dimock, 2019). What is unique for Gen Z is that wireless communication technology has been part of their lives from the start. Smartphones and high-speed internet access are the dominant means in their daily communications and social interaction (Cheung et al., 2011).

According to a 2019 PRC study from the US (PRC, 2019), 90% of the Gen Z owned a smartphone, 53% owned a tablet computer, and 70% owned a laptop computer. The majority of them used these technologies to participate in SM. The participation rate in SM is reportedly even higher in the developing world (Poushter, 2016), which includes Malaysia.

The increased SM usage was noted in the number of users as well as in the frequency of personal use. In 2021, a US survey (Auxier & Anderson, 2021) reported that 84% of young adults aged 18 to 29 used SM, marking an increase of 12% from a decade ago (Lenhart et al., 2010). The majority of them used Instagram, Snapchat and Facebook, while half used TikTok. The use of Instagram, Snapchat or TikTok was more popular among those aged 18–21 (Brooke et al., 2021). Most of the younger users are on these platforms, up to multiple times a day. For instance, 71% of Snapchat users of ages 18 to 29 reported using the app daily, including six in ten who say they do this multiple times a day. The pattern is similar for Instagram, with 73% of the Gen Z Instagram users reported visiting the site every day, with half (53%) reporting they do so several times per day.

A central discourse surrounding the use of SM is the impact these platforms might have on the mental health of young people. The obvious boon of the use of social media is that it provides instant access and mitigates the barrier of distance. During the COVID-19

pandemic, access to SM also meant that people could interact virtually without the risk of getting infected. Different types of social capital, including social ties, are positively associated with the indices of psychological well-being, such as self-esteem and satisfaction with life (Nabi et al., 2013; Valkenburg et al., 2006).

SM fosters a way of social inclusion in online communities. SM allows users to establish new networks with people they have never met before while maintaining existing ones via trivial interaction (Jin, 2015). These new networks can either be weak or strong ties in what is known as bridging or bonding social capital (Putnam, 2000). According to Bourdieu (1986), social capital is “the sum of the resources, actual or virtual, that accrue to an individual or a group by virtue of possessing a durable network of more or less institutionalized relationships of mutual acquaintance and recognition” (p. 14). In other words, social capital is neither time nor place-invariant and requires constant reinvestment by an individual in her or his social networks (Hofer & Aubert, 2013). Bridging social capital refers to loose connections between individuals from different networks which are useful for providing information or new perspectives on a macro-level but typically not for emotional support (Granovetter, 1982). In the context of university students, bridging social capital is *between* social groups, social class, race, religion or other important sociodemographic characteristics. Meanwhile, bonding social capital is *within* a group or community and these strong ties have an emotional rather than informational quality for the members of the network.

SM Usage and Mental Health in Young Adults

SM enables people to socially support each other (Nabi et al., 2013) during difficult times (Pew Research Centre, 2021). Users can share information, ideas or opinions, messages, images and videos. Various media formats are constantly available through portable mobile devices especially smartphones (Konjin et al., 2015). Persons with mental health challenges feel safe to share personal stories in a virtual space such as Reddit, Instagram, or Twitter, thereby gaining peer support for developing coping strategies (Bucci et al., 2019; Naslund et al., 2020; Primack et al., 2017). A study by (Abbas et al., 2021) highlighted that SM played an indispensable role in providing health-related information and social support. Many university students reported wide use of social media platforms for seeking mental health help. Social media provides a platform for young adults to vent and engage in candid self-disclosure and mitigate feelings of isolation, while still maintaining some level of informality, anonymity, and privacy setting (Vornholt & de Choudhury, 2021).

However, there have been studies to suggest that individuals with higher anxiety levels also reported higher SM use in general and not necessarily for help-seeking (Apaolaza et al., 2019; Brailovskaia & Margraf, 2020). It is argued that while SM may provide a temporary escape from negative emotions, individuals also run the risk of developing an unhealthy level of emotional bonding to SM use, leading to addiction over time (Brailovskaia & Margraf, 2020). Cross-sectional research among Spanish university

undergraduates found a relationship between addictive behaviour in SM use and stress symptoms (Apaolaza et al., 2019). Similarly, a study in Sweden (Beeres et al., 2021) showed that excessive time spent daily on SM is indicative of difficulties in managing emotions and peer relations. Likewise, in the US, a study among low-income high school students found that social comparison and online feedback-seeking were associated with an increase in depressive symptoms (Nesi et al., 2017). Meanwhile, cyberbullying, defined as the intentional act of online or digital intimidation, embarrassment, or harassment (Beran & Li, 2005) via social networking sites such as Facebook, Twitter, and YouTube is not uncommon due to the in-built features which allow masses to witness and/or participate in the attacks (Brack & Caltabiano, 2014; Rafferty & Vander Ven, 2014; Whittaker & Kowalski, 2015). A systematic literature review by Watts et al. (2017) indicated that cyberbullying continues to be a disturbing trend not only among adolescents but also undergraduate students. This is contrary to the findings from a single case study carried out in a State University in Mississippi (USA) which showed that only less than 5% of its predominantly African-American undergraduates reported being bullied online (Johnson et al., 2016).

On the other hand, the findings from longitudinal studies were less conclusive about the association between SM usage and mental health. While two different experimental studies undertaken in two different countries namely Denmark (Tromholt, 2016) and the United States (Hunt et al., 2018) found that reduced use of SM resulted in higher levels of psychosocial well-being, there was less certainty in the longitudinal association between SM and mental health. Heffer et al. (2019) failed to find any association between SM usage and later depressive symptoms in 19 years old undergraduates. Similarly, an 8 years old longitudinal study involving adolescents aged between 13–20 years also failed to establish this association (Coyne et al., 2020). Nonetheless, a randomized control trial by Boers et al. (2019) did find that an increase in SM usage was related to more depressive symptoms a year later (Boers et al., 2019). Gender differences have also been noted in one study to suggest that excessive use of SM predicted lower wellbeing among girls (Viner et al., 2019). Coyne et al. (2020), however, did not find any gender differences in their study.

Research has also suggested that while socially isolated youth may use SM more often than their peers (Bonetti et al., 2010), interactions on SM are not perceived by youth to be as useful as face-to-face communication (Schiffirin et al., 2010). It is against the context of mixed findings in linking mental health and SM use and the fact that most of the past studies were conducted where social distancing was not the norm, the current study is positioned to clarify the relationship between SM and mental health in undergraduate students during a protracted period of social isolation and to contribute towards this gap in knowledge.

Theoretical Framework

Two predominant theories are used to explain the potential mechanisms in which SM and mental health might be related to each other. The “media effects hypothesis” posits that the use of SM bears effects on mental health, either directly through social comparison or indirectly through replacement of other social or physical activities (Beyens et al., 2020; Valkenburg & Peter, 2013). This hypothesis asserts that exposure to SM such as high-profile Instagram presence leads to lower levels of self-esteem, which then cascade into poor mental health (Boers et al., 2019). In the opposing direction, the “media selection hypothesis” postulates that mental health status predicts SM use through similar mechanisms (Nesi et al., 2017). This latter hypothesis assumes that individuals consciously choose media and content to fulfill their specific needs. The selective exposure to media content can result in subsequent reinforcement of already existing beliefs or behaviors (Boers et al., 2019). Both hypotheses were supported by cross-sectional and longitudinal studies.

METHODOLOGY

Design, Participants and Setting

An anonymous online survey was carried out among first-year undergraduate students aged 19–22 from one specific degree programme at a public university on their use of SM and signs of depressive behaviours. Participants were recruited in the middle of their first semester in Academic Year 2020/2021. The online survey recorded responses from 385 participants, charting a participation rate of 90%. The design of the study was cross-sectional; hence data were only asked at one time point.

A link to the web-based survey was posted on the e-learning platform which was accessible to all the first-year undergraduate students. The participation of the students was completely voluntary. Data were collected for one month from November 2020 till December 2020. At the time of the study, Malaysia was in a recovery phase of the Movement Control Order (RMCO) which allowed some loosening of the movement control measures. Since 18 March 2020, the government of Malaysia had enforced various levels of movement controls that restricted personal travel and mass gatherings. The institution where the current study was conducted only offered online classes for all students. The first-year undergraduate students for Academic Year 2020/2021 which commenced in September 2020 had never attended any in-person classes since their enrolment.

For the online survey, several measures were taken to ensure the ease of participation and the quality of data. To circumvent the problem of missing data, each item in the survey was marked as ‘required’. In this manner, respondents would not be able to proceed to the next item until they had answered the preceding one. The survey length was also

minimised to reduce the need for scrolling. The median time for survey completion was 10 minutes. To minimise recall bias, students were asked to answer each question keeping in view their behaviour “during the past 7 days”.

Measures

Depression

Depression was self-reported using a 4-item scale developed by the Patient-Reported Outcomes Measurement Information System (PROMIS) (Cella et al., 2010). This instrument is well validated against other commonly used depression instruments, such as the Center for Epidemiological Studies Depression Scale (CES-D), the Beck Depression Inventory (BDI-II), and the Patient Health Questionnaire (PHQ-9) (Choi et al., 2014). Each item is scored on a 5-point Likert scale of (1 = never; 2 = rarely; 3 = sometimes; 4 = often; and 5 = always). Each item asked the participant to rate the severity of the individual's feelings of being hopeless, worthless, helpless, or depressed during the past seven days (Pilkonis et al., 2011). The raw scores on the 4 items were summed to obtain a total raw score which was then converted into T-scores. A corresponding classification on the severity of depression as per guidelines by the American Psychiatric Association (APA) is then worked out. Higher scores are indicative of greater severity of depression. T-scores of less than 55 are considered as none or slight risk of suffering from depression (APA, 2013).

SM usage

Participants' overall SM usage was measured in two complementary ways: time spent and frequency of SM use using a similar design by Pew Research Centre (2015). First, the participants estimated the volume or total time per day (in hours and minutes) on SM for personal use (excluding any time spent on SM for work). Second, the participants were asked to report the frequency of their use of each of the ten widely used SM platforms that include Facebook, Twitter, YouTube, LinkedIn, Instagram, Pinterest, Snapchat, Reddit, WhatsApp and Ticktock. Responses were coded from 0 to 6 to correspond with the frequency of visit which ranges from “I do not use this platform” (0) to “I use this platform 5 or more times a day” (6). A *global frequency score* ranging from 0 to 60 was computed by summing all the responses across all 10 platforms, with higher scores indicating higher levels of investment in SM usage.

Covariates

Environmental and personal factors that may affect depression and SM use were collected. These included age, gender, ethnicity, years of schooling and living situation (with a parent/guardian or other situation).

RESULTS

A total of 385 students took part in the online survey. The mean age of the students was 20.0 years old ($SD = 0.64$). The student population was predominantly female (82.5%) and Malay (77%), followed by Chinese (9%), Indian (1.8%), indigenous Bumiputera (7.5%) and others (4.2%). The mean number of schooling years was 12.62 ($SD = 0.78$). Ninety-four percent (94%) of the students lived with their parents at the time of the study. Table 1 captures the descriptive statistics for the main variables of the study.

Table 1. Descriptive statistics for main variables of the study

Description	Total time spent each day (hr)	Global frequency over a 7-day period	PROMIS depression scores
Mean (SD)	5.83 (3.74)	20.75 (7.32)	50.00
Median	5.00	20.00	49.06
Mode	6.00	17.00	46.00
Maximum	24.00	4.00	36.00
Minimum	0.50	45.00	78.00

To improve the interpretability of the PROMIS depression scores, instead of merely assigning the variable as dichotomous for depression risk, the PROMIS scores were collapsed into tertiles of “low,” “medium” and “high”; each group matching a specific cut-off of T-score based on the APA recommendations. PROMIS score between 0–4 is assigned as a low likelihood for depression, 5–11 (medium) and 12–20 (high).

Non-normal distribution was noted for both variables of SM usage, hence, SM usage was categorised into four quartiles [quartile 1 (Q1 or 25th percentile); quartile 2 (Q2 or 50th percentile); quartile 3 (Q3 or 75th percentile); quartile 4 (Q4 or 100th percentile). Chi-square tests were carried out to determine bivariable associations between the sample characteristics and depression (Table 2). A greater percentage of participants who spent less than 3 hours a day was in the “high” depression category (29%) as compared to other participants who spent longer hours on SM. Female students and indigenous Bumiputera (compared to Malay) were also both associated with being in the “high” depression group.

After confirming that the proportional odds assumption was met, binary logistic regression was carried out to determine the likelihood of depression with SM usage and to find out the odds ratios. Statistical analyses were performed with SPSS Version 27 and p -values $< .05$ were considered significant. The outcome variable was assigned as dichotomous using the APA cut-off based on the T-scores. The first set of analyses was conducted with covariates that had a bivariable association of $P < .15$ with the outcome variable. The subsequent analyses included both the independent variables of global frequency and time spent on SM. The results of the analyses were presented in Table 3.

Table 2. The proportion of participants in depression risk category according to SM usage, sex and ethnicity

Variable	Total participants (<i>N</i> = 385)	Depression			<i>p</i> -value
		Low (<i>N</i> = 42)	Medium (<i>N</i> = 237)	High (<i>N</i> = 106)	
Column % ^b					
Total hours SM use per day					0.04
(less than 3 hrs): Q1	107 (27.9%)	22.4	48.6	29.0	
(3–5 hrs): Q2	97 (26.4%)	7.2	66.0	26.8	
(6–8 hrs): Q3	80 (19.8%)	3.8	67.5	28.7	
(more than 8 hrs): Q4	99 (25.8%)	8.1	66.7	25.3	
SM Global frequency score ^{s, d}					0.14
(0–15): Q1	68 (27.1%)	11.8	69.1	19.1	
(16–20): Q2	59 (23.5%)	8.5	55.9	35.6	
(21–25): Q3	64 (25.5%)	9.4	59.4	31.3	
(26–72): Q4	60 (23.9%)	10.0	61.7	28.3	
Sex					0.05
Female	317 (82.5%)	9.2	62.7	28.2	
Male	68 (17.5%)	19.4	58.2	22.4	
Ethnicity					0.05
Malay	296 (77.1%)	8.8	48.1	20.3	
Chinese	36 (9.4%)	11.1	58.3	30.6	
Indian	7 (1.8%)	0.0	71.4	28.6	
Bumiputera	29 (7.5%)	3.4	58.6	37.9	
Other ^e	16 (4.2%)	18.8	56.3	25.0	

Notes: ^a*p*-value was derived using Chi-square analyses comparing proportion of users in each category; ^bColumn percentages values may not total 100 due to rounding; ^cIncludes Facebook, Twitter, YouTube, LinkedIn, Instagram, Pinterest, Snapchat, Reddit, WhatsApp, Tick-Tock; ^dBased on a 7-point Likert-type response scale ranging from “I don’t use this platform” to “5 or more times a day.” A summary score was created for the 10 SM platforms with scores ranging from 0–72; ^eIncludes Multiracial (mixed).

Table 3. Results of binary logistic regression predicting odds of experiencing depression

Variables in the model	Odds ratio	95% confidence limits		<i>p</i> -value
		Lower	Upper	
Sex				
Ref: male				
Female	1.44	0.65	3.19	0.37

(Continued on next page)

Table 3. (Continued)

Variables in the model	Odds ratio	95% confidence limits		<i>p</i> -value
		Lower	Upper	
Ethnicity				
<i>Ref: Malay</i>				
Chinese	1.61	0.56	4.61	0.38
Indian	1.77	0.29	10.88	0.54
Bumiputera	3.32	1.23	8.90	0.02
Others	0.69	0.14	3.47	0.65
Total time spent on SM				
<i>Ref: less than 3 hrs (Q1)</i>				
3–5 hrs (Q2)	0.74	0.33	1.64	0.45
6–8 hrs (Q3)	1.05	0.44	2.48	0.91
<8 hrs (Q4)	0.69	0.30	1.57	0.37
Global frequency visits				
<i>Ref: less than 15 (Q1)</i>				
16–20 (Q2)	2.94	1.22	7.08	0.02
21–25 (Q3)	2.49	1.04	5.94	0.04
<26 (Q4)	2.03	0.82	5.02	0.12

Note: $p < 0.05$

DISCUSSION

This study found a significant association between increased investment in SM usage and depression among first-year undergraduate students. The finding is consistent with prior research that showed an association between investment in SM usage and mental health of students (Lin et al., 2016; Neira & Barber, 2014; Feder et al., 2020; Karim et al., 2020). The association, however, was only significant for the second and third quartile users but not for the heaviest users. This could be attributable to the fact that students in the heaviest usage group (Q4) were already chronic users of SM even before the lockdown, hence, there was little difference on how their SM usage during lockdown would affect their mental health. This contrasts with the other two usage groups (Q2, Q3) who might have resorted to higher investment in SM only during the lockdown as a countermeasure for social isolation. Compared with the lightest users, both Q2 (AOR = 2.94, 95% CI = 1.22–7.08, $p = 0.02$) and Q3 (AOR = 2.49, 95% CI = 1.04–5.94, $p = 0.04$) usage groups significantly increased odds of depression, even after controlling for all covariates. In other words, students who were more invested emotionally in social media experienced higher levels of depression.

On the other hand, time spent on SM did not show any association with depression. This finding implies that investment in SM could be considered a measure of how important SMs are to students, whereas the time spent is simply a measure of the duration of time spent on SM. Consistent with the media effects hypothesis, students who are highly invested in their SM may place greater importance on the frequency of interactions that they have with their SM. Therefore, such young adults may fervently seek peer feedback, and may be very sensitive to absence or lack of feedback, resulting in them internalising those negative feelings. By using a multidimensional approach, this study could differentiate between the time spent on SM and the degree to which students are invested in their SM.

In terms of ethnicity, compared to the Malays who are the dominant ethnic group in Malaysia, the indigenous Bumiputera from East Malaysia recorded significantly higher odds of experiencing depression (AOR = 3.32, 95% CI = 1.23–8.90, $p = 0.02$). This higher likelihood of depression in the Bumiputera students probably has more to do with the remote locations of their homes. The population of East Malaysia is widely spread out, with 46% of the population in Sarawak and Sabah living in rural areas as opposed to 20% within West Malaysia (MAC, 2021). The internet connectivity in East Malaysia is particularly poor (Zaheera, 2020), restricting the way how students engage in SM. Passive SM use (e.g., reading posts) has been found to be more strongly associated with depression than active use (making post). Given that certain learning content and exchanges were facilitated through SM such as Facebook or YouTube, East Malaysian students who lacked internet access might feel frustrated. A study has found that fresh first-year college students who encountered difficulties with distance learning experienced higher rates of depression (Fruehwirth et al., 2021). Additionally, for those who fear missing out, participation in social media will feed their desire to continually stay connected with what others are doing (Boursier et al., 2020); however, the unreliable internet in remote or rural places may sabotage those plans and increase the risk of depression during a protracted period of social isolation.

In terms of depression among young adults, this study which was conducted nine months after the start of the pandemic reported a slightly lower prevalence (27.5%) in Malaysian first-year undergraduates compared to the US first-year undergraduates from a North Carolina university (31.7%) conducted three months after the pandemic (Fruehwirth et al., 2021). The Malaysian prevalence of depression among undergraduates is still far less than an earlier 58-campus US study (40.9%) (Healthy-Minds-Network [HMN], 2020). The different measuring instruments, age of students and the time of data collection could explain the large discrepancy in data. Given that the data collection of the current study took place almost 9 months after the first lockdown in Malaysia, the most intense experiences associated with the pandemic might have normalised for most people, unlike the multi-campus 2020 study (HMN, 2020) which took place at the start of the COVID-19 pandemic (March–May 2020). The age range of the students from the multi-site US study was also a lot wider (18–24 years) compared to the current study (19–22 years).

Due to the nature of the cross-sectional data, the current study is not able to establish the directionality of the association between SM and depression. It is likely that individuals with depression tend to use more SM. According to the media selection hypothesis, young adults who experienced despair or anxiety engendered by the COVID-19 pandemic or transition to tertiary education may turn to engagements in SM for multiple of reasons, from emotional validation (Rasmussen et al., 2020) to information seeking (O'Reilly et al., 2018). A recent study in the US (PRC, 2020) suggested that the young adults aged 18 to 23 and their families were the hardest hit economically during the COVID-19 outbreak. By the time these young adults entered college, most of their parents would likely have taken on a fair share of financial commitments such as a mortgage, hire purchase and funding for adult children's education. What might aggravate the matter further is that the university where the current participants are based has a disproportionate level of low-income students of 70% (known as B40 where the monthly household income is less than MYR4,630) (Rafiq, 2020). As the majority of the participants from the current study still lived with their parents at the time of the study, the economic life hassles (Nathiya et al., 2020) would inevitably affect the mental well-being of the entire household including the participants (Akdeniz et al., 2020). The situation is further exacerbated by the long duration of social isolation from the pandemic, and uncertainty about the structure of the programme in their new educational setting. The social networks that the students had built from pre-university schooling years might be less helpful in the current context as they live in social isolation against a new educational environment. SM, on the other hand, is highly accessible, barring any problems with internet connectivity. The need to obtain real-time health-related updates, job openings, government announcements and college administrative matters would require the young adults to crisscross multiple platforms, hence, part explaining the high investment in SM sites. The enormous amount of distributed information on SM may disorient and overwhelm individuals. In addition, emotional COVID-19 related tweets may amplify feelings of anxiety and depression (Cauberghe et al., 2021). The intense and random use of SM driven by the constantly evolving norms may cause individuals with underlying depression to spiral further down the vicious cycle of low self-efficacy and negative self-appraisal (Davis, 2001).

The argument could also apply that those who use increased amounts of SM subsequently develop increased depression. Passive consumption of SM content and lack of opportunities to make new friends in the current environment reduces bonding and bridging social capital (Putnam, 2000) and increases feelings of loneliness (Fruehwirth et al., 2021). New social networks, unless given a chance to move from online to offline (Parks & Floyd, 1996) would not be sufficient to proffer any form of emotional support for the users. Students who are highly invested in their SM may place greater importance on the frequency of interactions that they have with their SM. Therefore, such individuals may fervently seek peer feedback, and maybe acutely sensitive to the fluctuations in volume and content of the feedback. The fear of being excluded and the consistent urgency to become visible within the media environment may intensify social comparisons (Manago et al., 2008) and lead to poor self-perception.

Limitations

There are several limitations to the study. Firstly, the cross-sectional design limited the ability to formally test the causative effects. Secondly, the current study measured social media behaviours during the COVID-19 pandemic. These findings may not generalise during normal times when the use of social media may be very different. Thirdly, the use of self-reported measures may be vulnerable to memory bias or social desirability biases. Furthermore, although symptoms of depression and screen time were assessed using commonly used and reliable measurement scales, the results may not match those conducted within a clinical setting. Lastly, although this study successfully differentiated SM time use and SM investment (global frequency) as conceptually different constructs, these measures do overlap. Future studies should develop the measure of SM investment further to adequately capture this phenomenon.

CONCLUSION

This study contributed two critical insights into the nature of the relationship between SM and depression. First, it showed that differentiation between time spent on SM and investment in SM is imperative in order to accurately understand and make the correct recommendations on how SM usage relates to depression in students. Despite popular belief, spending more time on SM was not associated with depression. Instead, the degree to which students invested in SM by the measure of frequency of visits to different media sites provides an indicator of their mental health. The second contribution of this study is that the location where students live is an important factor when trying to understand how SM use may affect the students. This study showed that East Malaysian indigenous students who mostly reside in rural and remote areas had higher odds of experiencing depression.

Given the higher prevalence of mental health problems among university students during the time of pandemic (Sundarasan et al., 2020; Wong et al., 2021) and the high investment in media usage as found in this study, SM can be used to design appropriate interventions to promote better mental well-being in students. The first year at university is understood to be a particularly challenging year for students due to the transition to a new school environment and the expected high level of self-directed learning (Cleary et al., 2011; Geller & Greenberg, 2009). For some, their vulnerability during this time of pandemic is exacerbated by the living situation that may provide less than an ideal environment for online learning, let alone the use of SM. The tripartite factors of academic adjustment (being first-year students), digital access (low-income) and social isolation (pandemic) warrant close attention be given to these students during this protracted lockdown, as a study showed that B40 students are at higher risk of dropping out from their studies (Nor Samsiah et al., 2020).

The implications from the current study suggest that stakeholders at higher education institutions can leverage on the ubiquitous use of SM among young adults to disseminate educational messages and support for mental health. The pandemic has made internet use non-negotiable as evidenced by the large proportion (72%) of the students in this study spending more than 3 hours daily on social media. Observing what student users are discussing in a web-based social support platform could offer educators insights into the types of problems students are currently facing. In addition, observing how students use the platforms and how they interact with others could provide a better understanding of how students manage their problems and handle social interactions. The information can be very useful to campus counseling centers so that targeted strategies and services can be tailored to support the more vulnerable students or when returning to in-person learning. Additionally, future studies need to identify specific affordances provided by SM platforms that are particularly facilitative of providing mental health support to college students. Information should include provisions for both casual and emotional help, informal and private mechanisms to share personal challenges in opening up themselves, help in seeking feedback on dealing with specific academic and personal life-related stressors, and the ability to reach out to the on-campus commiserating student community. This becomes particularly relevant when considering the post-pandemic reintegration process of college students. Students who thrive in online learning environments are often able to focus entirely on content, having to spend little mental energy on understanding the nuances and impacts of social dynamics on the learning process. A return to in-person learning means that students will need to again consider social interactions and manage a social environment.

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