INTERNATIONAL JOURNAL OF EDUCATION, PSYCHOLOGY AND COUNSELLING (IJEPC)

www.ijepc.com

GAE
GLOBAL ACADEMIC EXCELLENCE

THE INFLUENCE OF SELF-ESTEEM, LONELINESS, AND SUICIDALITY ON SOCIAL MEDIA ADDICTION

Kah Kay Sam[1], Ching Sin Siau[2], Choy Qing Cham[3*], Kam Fong Lee[4], Latha Ravindran[5], Norhayati Ibrahim[6]

[1] Faculty of Social Sciences and Liberal Arts, UCSI University, Kuala Lumpur, Malaysia
Email: 1001749031@ucsiuniversity.edu.my

[2] Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia
Email: chingsin.siau@ukm.edu.my

[3] Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia
Email: p11693@siswa.ukm.edu.my

[4] Faculty of Social Sciences and Liberal Arts, UCSI University, Kuala Lumpur, Malaysia
Email: leekf@ucsiuniversity.edu.my

[5] Faculty of Social Sciences and Liberal Arts, UCSI University, Kuala Lumpur, Malaysia
Email: latha@ucsiuniversity.edu.my

[6] Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia
Email: yatieibra@ukm.edu.my

* Corresponding Author

Article Info:

Abstract:

The purpose of this study was to determine the relationship between self-esteem, loneliness, suicidality with social media addiction. University students ($N = 198$) were sampled by utilizing an online survey, using convenience sampling method. Five instruments were used, including the Social Media Addiction Scale (SMAS), Rosenberg Self-esteem Scale (RSE), University of California Los Angeles (UCLA) Loneliness Scale-3, and Yatt Suicide Attitude Scale (YSAS). In the multiple linear regression analysis, the regression model accounted for a significant 12.3% of the variance in social media addiction. Only self-esteem was a significant predictor of social media addiction. Lastly, loneliness and suicidality were not significantly associated with social media addiction. Treatment of social media addiction should take into consideration the evaluation and intervention of self-esteem issues among university students.

Keywords:

Social Media Addiction, Suicide, Self-Esteem, Loneliness

Introduction

Social media refers to a range of internet-based applications that provide platforms for users to create and exchange content generated by users which build on ideological and technical foundations of Web 2.0 (Kaplan & Haenlein, 2010). Around 45% of worldwide population were active social media users and the social media addiction manifested when individuals unable to regulate their social media usage which interrupt other daily life tasks (Emarsys, 2019; Ryan et al., 2014). While 87.4% of Malaysian were found to be active internet users and group of age 20s' accounted 30% of the total internet users in Malaysia (Malaysian Communication and Multimedia Commission, 2018).

Although the issue of social media addiction has become an important concern, it is still not included in the latest version of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), even though social media addiction features met certain criteria of an addiction (Pantic, 2014). A study indicated that 47% of a college student sample is addicted to Facebook, which is one of the most widely used social media platforms in Malaysia (Jafarkarimi et al., 2016). Individuals used social media to enhance their self-esteem (Andreassen, 2015). Besides, individuals who reported higher levels of loneliness were found to spend more time online (Turkmen, 2016). Demir and Kutllu's (2016) study indicated that loneliness predicted internet addiction and depression. However, some studies found that loneliness and social media addiction were not related (Guo et al., 2018; Yavich et al., 2019). The mixed findings indicated that more studies should be conducted to understand the factors affecting greater social media use, especially among university students.

The Ministry of Health Malaysia (2017) stated that over the past 45 years, the proportion of suicide case has elevated for 60%. More than 700,000 individuals died of suicide annually in the world (World Health Organization, 2019). The estimated rate of suicide in Malaysia was 5.6 per 100,000 population between 2017-2019, with an estimated five suicide deaths per day (Lew et al., 2022). On the other hand, the prevalence of lifetime suicidal ideation, plans, and attempts among college students were 32.7%, 17.5%, and 4.3%, respectively (Mortier et al., 2018). Risk factors of suicidality were mental health conditions such as depression (Melhem et al., 2019) and bipolar disorder (Miller & Black, 2020). Self-esteem was found to mediate the relationship between depression and suicidality. Another study showed that individuals who reported low self-esteem were more likely to present with depression symptoms and suicidal behavior (Lakey at al., 2014).

Individuals addicted to social media tended to experience greater psychological distress, low self-rated mental health and higher risk of suicidal ideation (Kim et al., 2018; Memon et al., 2018). The extensive use of social media could be problematic as it may lead to addiction and affect individuals psychologically, academically, and in their work performance (Bilgin et al., 2018; Hawi & Samaha, 2017). Low self-esteem and higher loneliness were found to be related to social media addiction and suicidality (Andreassen et al., 2017; Stickley & Koyanagi, 2016). The Social Learning Theory posits that an addictive substance or behavior acts as a reinforcer to the addicted person, and this is partly shaped by the person's expectations and beliefs about the addictive substance or behavior (Marlatt, 1978). Contextual factors such as perceived

acceptance by the online community may drive someone with a low self-esteem and loneliness to engage addictively with social media platforms, with the belief and expectation that social media helps to alleviate loneliness and boost self-esteem.

Although there were a number of previous research which linked heavy social media usage to suicidality, yet there was a lack of study that also investigated the influence of loneliness and self-esteem at the same time. Therefore, this study aimed to investigate the relationship between various demographic factors, self-esteem, loneliness, and suicidality on social media addiction.

Methodology

Research Design
This study utilized the cross-sectional research design.

Population and Study Location
A survey by the Malaysian Communications and Multimedia Commission (2018) showed that adults in their 20s' who lived in urban areas engaged most with the internet. Therefore, university students in Kuala Lumpur, Malaysia who were aged between 18 to 25 were chosen to participate in this study through the convenience sampling method. The inclusion criteria included undergraduates aged between 18 to 25 years old and having at least a high-school level of English proficiency. Individuals who were not able or willing to provide informed consent were excluded from this study.

Instruments

Social Media Addiction Scale (SMAS)
The scale was designed to evaluate the level of social media addiction. The scale contains of 29 items and 4 sub-dimensions including virtual tolerance, virtual communication, virtual problem, and virtual information. A 5-point Likert Scale was adopted, with a range of 1 = Strongly disagree; 2 = Disagree; 3 = Neither agree nor disagree; 4 = Agree; 5 = Strongly agree. The scale demonstrated a high level of reliability with Cronbach's Alpha coefficient of.93 and test and retest reliability of .94 (Sahin, 2018).

Rosenberg Self-esteem Scale (RSE)
The scale was developed to measure global self-esteem. The scale contains of 10 items, with 5 positively worded items (e.g. "I feel that I have a number of good qualities") and 5 negatively worded items (e.g. "I feel I do not have much to be proud of"). The scale was measured using a 4-point Likert Scale. The scale is found to have high level of reliability with Cronbach's alpha coefficient of .88 and test-retest reliability of .88 (Robins et al., 2001).

University of California Los Angeles (UCLA) Loneliness Scale - Version 3
The degree of loneliness was assessed using this scale. The scale contained a total of 20 items, with 11 positive worded items (e.g. "How often do you feel that you are "in tune" with the people around you?") and 9 negative worded items (e.g. "How often do you feel that you lack companionship?"). The scale was administered with a 4-point rating scale (1 = never, 4 = always). Positive items were reverse-scored. The scale was found to possess coefficients

ranging from .89 to .94 of internal consistency reliability and test-retest reliability of .73 (Russell, 1996).

Yatt Suicide Attitude Scale (YSAS)

Suicidal behavior was assessed by employing this scale. There were 2 subscales in this scale and each subscale had 5 items, measuring suicidal ideation (e.g. "I have no will to continue my life.") and suicide attempt (e.g. "I have hurt myself for the purpose of ending my life."). A 5-point Likert scale was adopted in measuring this scale. The scale recorded a good Cronbach's alpha coefficient of .80 (Ibrahim et al., 2019).

Procedures

Convenience sampling was used to recruit the participants using online platforms such as WhatsApp and Facebook. The participants answered the questionnaire after providing informed consent.

Data Analysis

Data analysis was conducted using the IBM SPSS Statistics for Windows, Version 23.0 (IBM Corp., Armonk, N.Y., USA). The significance level of was set at $p < .05$ and the normality of the data was established using skewedness and kurtosis ±2.0 as cut-offs. Descriptive statistics was used to tabulate percentage, means, and standard deviations. The independent samples *t*-test and one-way variance analysis (ANOVA) were used to determine the differences of social media addiction in the context of demographic background such as gender, ethnicity, religion. Correlation analysis was adopted in identifying the relationship between household income, self-esteem, loneliness, suicidality and social media addiction. The variables which were significantly associated with social media addiction were entered into a multiple linear regression model to determine the independent significance of each variable in predicting social media addiction.

Results

Demographic Background

A total of 198 individuals (Mean age = 23.06, SD = 4.21) participated in the research. Most of the participants were female (62.1%), Chinese (83.4%), Buddhists (69.7%) undergraduates (69.7%), and had a monthly household income of RM2000-RM3,999 (32.8%) (Table 1). The results of the independent samples t-test and one-way ANOVAs showed that there was a significant difference in the mean scores of social media addiction in terms of ethnicity (p=.004), religion (p=.004), education level (p=.002), and monthly household income (p=.005) (Table 1).

Table 1: Demographic Background of Participants (N=198)

Variables	n (%)	Social Media Addiction Mean	SD	p-value
Gender				
Male	75 (37.9)	82.77	16.27	.758
Female	123 (62.1)	82.09	14.34	
Ethnicity				

Malay	18 (9.1)	74.00	10.24	.004
Chinese	165 (83.4)	84.05	14.59	
Indian	9 (4.5)	76.22	18.12	
Others	6 (3.0)	69.83	21.85	
Religion				
Muslim	24 (12.2)	73.63	11.45	.004
Buddhism	138 (69.7)	83.89	15.04	
Hinduism	5 (2.5)	68.00	21.54	
Christianity	27 (13.6)	85.33	11.07	
Others	4 (2.0)	79.25	27.02	
Education level				
Pre-university	22 (11.1)	84.73	15.53	.002
Undergraduate	138 (69.7)	84.09	14.76	
Postgraduate	38 (19.2)	74.66	13.76	
Monthly household income				
Less than RM2,000	28 (14.1)	83.57	11.99	.005
RM2,000 – RM3,999	65 (32.8)	85.31	12.69	
RM4,000 – RM5,999	43 (21.7)	83.51	16.91	
RM6,000 – RM7,999	23 (11.7)	84.00	11.66	
More than RM8,000	39 (19.7)	74.28	17.95	

Note. F = Frequency, % = Percentage, M = Mean, SD = Standard Deviation

Correlation between Social Media Addiction, Age, Cumulative CGPA, Self-Esteem, Loneliness, and Suicidality

Pearson's correlation showed that only age ($r(196) = -.313$, $p<.001$), self-esteem ($r(196) = -.286$, $p<.001$), and loneliness ($r(196) = .212$, $p<.01$) were significantly correlated with social media addiction (Table 2).

Table 2: Correlational analysis of the Variables (N = 198)

	M	SD	1	2	3	4	5	6
Social Media Addiction Scale (1)	82.35	4.84	1					
Age (2)	23.06	4.21	-.313***	1				
Cumulative GPA (3)	3.47	0.66	-0.130	0.029	1			
Rosenberg Self-esteem Scale (4)	27.56	4.84	-.286***	.322**	0.080	1		
University of Los Angeles Loneliness Scale (5)	47.20	0.66	.212**	-.421**	-0.110	-.562***	1	
YATT Suicide Attitude Scale (6)	15.94	15.06	0.104	-.190**	-0.046	-.417***	.461**	1

Note. F = Frequency, % = Percentage, M = Mean, SD = Standard Deviation. GPA=Grade Point Average. **$p<.01$. ***$p<.001$

Multiple Linear Regression of Factors Associated with Social Media Addiction

A multiple linear regression model on factors predicting social media addiction was fitted. Due to the high level of multicollinearity between religion and ethnicity, only ethnicity was entered into the model. Postgraduate students were also excluded due to multicollinearity issues. The results of the multiple linear regression showed that the predictors accounted for a significant 12.3% of the variance in social media addiction (R^2=0.123, adjusted R^2=0.058, $F_{(11, 148)}$=1.887, p=.045). Only self-esteem remained a significant predictor of social media addiction, B=-0.676, 95%CI (-1.292, -0.060), p=.032 (Table 3).

Table 3: Multiple Linear Regression Of Factors Influencing Social Media Addiction

Variable	B	95% CI		β	p-value
		Upper	Lower		
Age	-0.31	-1.36	0.75	-0.06	0.566
Self-esteem	-0.68	-1.29	-0.06	-0.21	0.032
Loneliness	0.08	-0.23	0.39	0.05	0.613
Ethnicity					
Malay	8.16	-14.00	30.33	0.12	0.468
Chinese	14.96	-7.35	37.26	0.32	0.187
Indian	13.76	-9.37	36.88	0.19	0.242
Others (Ref)					
Education level					
Pre-university (Ref)					
Undergraduate*					
Postgraduate	-0.56	-7.38	6.27	-0.01	0.872
Monthly household income					
RM0-RM1,999	-2.24	-11.70	7.22	-0.05	0.641
RM2000-RM3,999	0.87	-7.27	9.00	0.03	0.834
RM4000-RM5,999	0.58	-8.05	9.21	0.02	0.894
RM6000-RM7,999	1.38	-8.61	11.38	0.03	0.785
RM8,000 and above (Ref)					
Constant	91.35	41.64	141.06		

Note. R^2=0.123, adjusted R^2=0.058, $F_{(11, 148)}$=1.887, p=.045. CI = Confidence Intervals. Ref = Reference group. *Excluded from analysis due to multicollinearity issues.

Discussion

This study aimed to examine the relationship between social media addiction and self-esteem, loneliness, and suicidality. We found that only self-esteem significantly predicted social media addiction after adjusting for potential confounding variables. This finding was consistent with previous studies (Hawi & Samaha, 2017; Forest & Wood, 2012; Vogel et al., 2014). Individuals with low self-esteem may have increased social media addiction as the anonymity or selectiveness of self-presentation on social media allowed them to enhance their self-esteem and escape from a sense of inferiority (Andreassen, 2015). Being on the social media allowed

them to avoid the stress of face-to-face communication, and allowed them to build their desired persona online (Hawi & Samaha, 2017).

Gender was found to be not associated with social media addiction which contradicted previous studies that indicated females were more addicted to social media (Simsek et al., 2019; Köse & Doğan, 2019). There were also studies which suggested males were more addicted (Çam & İşbulan, 2012). But the findings of this study were consistent with research by Hawi and Samaha (2017) and Kirik et al. (2015). There may be a lack of differences in the level of social media addiction between males and females as both may be equally driven by self-image enhancement when comes to involvement with social media (Krasnova et al., 2017).

In addition, the results of the univariate analysis found that the Chinese ethnic group appeared to be the most addicted to social media when compared to other races. This may be facilitated by the fact that the Chinese spent time online twice the duration of Malays and Indians (Soh et al., 2017). The variations across ethnicity was attributed to cultural differences between races. For example, Chinese culture stressed higher levels of independence while Malay and Indian culture emphasized family coherence. Therefore, Chinese students tended to have more freedom to engage in the relatively individualistic activity of social media activities, whilst Malays and Indians were more likely to engage with their family which resulted in a reduction in time on social media networks (Soh et al., 2017). However, ethnicity became non-significant in the multiple linear regression, perhaps due to the influence of other factors such as socioeconomic status and education level.

This study showed that household income was not significantly associated with social media addiction. The findings contrasted with past studies which found that students with a greater household income tended to have a lower level of social media addiction (Micheli, 2015; Wu et al., 2016). It may be possible that engagement with social media was prevalent among the study sample despite household income as it is an activity which is becoming more common among university students, as is a primary means of communication amongst them.

The existing study is also not consistent with past study in respect of the non-significant association between loneliness and social media addiction. Özdemir et al. (2014) implied that a lonely individual possessed a higher tendency to develop problematic internet use. Greater engagement on social media addiction will result in social isolation and a greater level of loneliness (Chou & Hsiao, 2000). Apart from that, individuals may seek for compensation for their low social support via social media rather than resolving their social communication issues (Kim et al., 2009). As social media use becomes more common, however, it may be a common communication tool which all individuals engage in despite their level of loneliness.

Lastly, suicidality was found no significant relationship with social media addiction and this result were not consistent with the initial hypothesis in current study Social media use has been shown to provoke suicidal ideation and behavior by allowing users to access or being inadvertently exposed to information on suicide. But it is also possible that social media provided social support and suicidal prevention information, which were protective factors against suicidality. In a nutshell, social media can either provoke or prevent suicidal behavior and ideation (Robert et al., 2015).

There were a few limitations to the current study. The findings of the current research were not representative and therefore could not be generalized to represent the whole population. Besides, due to time constraints and limited resources, convenience sampling was adopted in the study and the possibility of under or over representing the population may have created bias. For instance, a larger proportion of the participants in this study were Chinese and Buddhists. Last but not least, "social media" was a rather general terms which comprised a wide range of media and functions, and the current study may not have addressed all the aspects of social media addiction.

Conclusions

This study showed that only self-esteem was significantly associated with social media addiction. Considering this finding, treatment of individuals with social media addiction should routinely include assessment of self-esteem, and the influence of self-esteem in the etiology of social media addiction development. For future studies, the cluster sampling method is suggested to improve the representativeness of the study population. In addition, considering the cultural diversity in Malaysia, future studies could examine the roles of cultural differences on both social media engagement and addiction. Finally, the breadth for social media addiction could be extended to examine other aspects of social media engagement such as the impact of interactive video games.

Ethics Approval

This study has obtained ethics approval from UCSI University Institutional Ethics Committee (IEC-2020-FoSSLA-048).

Disclosure Statement

The authors declare no conflicts of interest.

Data Availability

The data for this study are available upon reasonable request from the corresponding author.

References

Andreassen, C. S. (2015). Online social network site addiction: A comprehensive review. *Current Addiction Reports*, *2*(2), 175-184.

Andreassen, C. S., Torsheim, T., Brunborg, G. S., & Pallesen, S. (2012). Development of a Facebook addiction scale. *Psychological Reports*, *110*(2), 501-517. https://doi.org/10.2466%2F02.09.18.PR0.110.2.501-517

Armitage, C. J., Panagioti, M., Rahim, W. A., Rowe, R., & O'Connor, R. C. (2015). Completed suicides and self-harm in Malaysia: A systematic review. *General Hospital Psychiatry*, *37*(2), 153-165. https://doi.org/10.1016/j.genhosppsych.2014.12.002

Bilgin, O., & Tas, I. (2018). Effects of perceived social support and psychological resilience on social media addiction among university students. *Universal Journal of Educational Research*, *6*(4), 751-758. http://dx.doi.org/10.13189/ujer.2018.060418

Çam, E., & Isbulan, O. (2012). A new addiction for teacher candidates: Social networks. *Turkish Online Journal of Educational Technology-TOJET, 11*(3), 14-19. https://eric.ed.gov/?id=EJ989195

Chou, C., & Hsiao, M. C. (2000). Internet addiction, usage, gratification, and pleasure experience: The Taiwan college students' case. *Computers & Education*, *35*(1), 65-80. https://doi.org/10.1016/S0360-1315(00)00019-1

Demir, Y., & Kutlu, M. (2016). The relationship between loneliness and depression: mediation role of internet addiction. *Educational Process: International Journal*, *5*(2), 97-105. https://doi.org/10.12973/edupij.2016.52.1

Emarsys. (2019). 5 big social media prediction for 2019. *EMARSY*. Retrieved from: https://www.emarsys.com/resources/blog/top-5-social-media-predictions-2019/

Forest, A. L., & Wood, J. V. (2012). When social networking is not working: Individuals with low self-esteem recognize but do not reap the benefits of self-disclosure on Facebook. *Psychological Science, 23*, 295–302. https://doi.org/10.1177%2F0956797611429709

Guo, Y., You, X., Gu, Y., Wu, G., & Xu, C. (2020). A moderated mediation model of the relationship between quality of social relationships and internet addiction: mediation by loneliness and moderation by dispositional optimism. *Current Psychology, 39*(4). https://doi.org/10.1007/s12144-018-9829-3

Hawi, N. S., & Samaha, M. (2017). Relationships among smartphone addiction, anxiety, and family relations. *Behaviour & Information Technology*, *36*(10), 1046-1052. https://doi.org/10.1080/0144929X.2017.1336254

Ibrahim, N., Din, N. C., Amit, N., Ghazali, S. E., & Safien, A. M. (2019). Development and validation of Yatt Suicide Attitude Scale (YSAS) in Malaysia. *PloS One*, *14*(2). https://doi.org/10.1371/journal.pone.0209971

Jafarkarimi, H., Sim, A. T. H., Saadatdoost, R., & Hee, J. M. (2016). Facebook addiction among Malaysian students. *International Journal of Information and Education Technology*, *6*(6), 465. http://dx.doi.org/10.7763/IJIET.2016.V6.733

Kaplan, A. M., & Haenlein, M. (2010). Users of the world, unite! The challenges and opportunities of social media. *Business Horizons*, *53*(1), 59-68. https://doi.org/10.1016/j.bushor.2009.09.003

Kim, J., LaRose, R., & Peng, W. (2009). Loneliness as the cause and the effect of problematic Internet use: The relationship between Internet use and psychological well-being. *Cyberpsychology & Behavior*, *12*(4), 451-455. https://doi.org/10.1089/cpb.2008.0327

Kim, K., Ryu, E., Chon, M. Y., Yeun, E. J., Choi, S. Y., Seo, J. S., & Nam, B. W. (2006). Internet addiction in Korean adolescents and its relation to depression and suicidal ideation: a questionnaire survey. *International Journal of Nursing Studies*, *43*(2), 185-192. https://doi.org/10.1016/j.ijnurstu.2005.02.005

Kirik, A., Arslan, A., Çetinkaya, A., & Mehmet, G. Ü. L. (2015). A quantitative research on the level of social media addiction among young people in Turkey. *International Journal of Sport Culture and Science*, *3*(3), 108-122. http://dx.doi.org/10.14486/IntJSCS444_

Köse, Ö. B., & Doğan, A. (2019). The Relationship between Social Media Addiction and Self-Esteem among Turkish University Students. *ADDICTA: The Turkish Journal on Addictions*, *6*, 175-190. http://dx.doi.org/10.15805/addicta.2019.6.1.0036

Krasnova, H., Veltri, N. F., Eling, N., & Buxmann, P. (2017). Why men and women continue to use social networking sites: The role of gender differences. *The Journal of Strategic Information Systems*, *26*(4), 261-284. https://doi.org/10.1016/j.jsis.2017.01.004

Lakey, C. E., Hirsch, J. K., Nelson, L. A., & Nsamenang, S. A. (2014). Effects of contingent self-esteem on depressive symptoms and suicidal behavior. *Death Studies*, *38*(9), 563-570. https://doi.org/10.1080/07481187.2013.809035

Lew, B., Kõlves, K., Lester, D., Chen, W. S., Ibrahim, N., Khamal, N. R., Mustapha, F., Chan, C. M. H., Ibrahim, N. Siau, C. S., & Chan, L. F. (in press). Looking into recent suicide rates and trends in Malaysia: A comparative analysis. *Frontiers in Psychiatry*.

Malaysian Communications and Multimedia Commission. (2018). *Internet Users Survey*. https://www.mcmc.gov.my/skmmgovmy/media/General/pdf/Internet-Users-Survey-2018.pdf

Marlatt, G. A. (1978). Craving for alcohol, loss of control, and relapse: A cognitive-behavioral analysis. *Alcoholism*, 271-314.

Melhem, N. M., Porta, G., Oquendo, M. A., Zelazny, J., Keilp, J. G., Iyengar, S., ... & Brent, D. A. (2019). Severity and variability of depression symptoms predicting suicide attempt in high-risk individuals. *JAMA Psychiatry*, 76(6), 603-613. https://dx.doi.org/10.1001/jamapsychiatry.2018.4513

Memon, A. M., Sharma, S. G., Mohite, S. S., & Jain, S. (2018). The role of online social networking on deliberate self-harm and suicidality in adolescents: A systematized review of literature. *Indian Journal of Psychiatry*, 60(4), 384. https://dx.doi.org/10.4103%2Fpsychiatry.IndianJPsychiatry_414_17

Micheli, M. (2015). *What is new in the digital divide? Understanding Internet use by teenagers from different social backgrounds.* Emerald Group Publishing Limited.

Miller, J. N., & Black, D. W. (2020). Bipolar disorder and suicide: a review. *Current Psychiatry Reports*, 22(2), 1-10. https://doi.org/10.1007/s11920-020-1130-0

Ministry of Health Malaysia. (2017). *Malaysian Mental Healthcare Performance*. http://www.moh.gov.my/moh/resources/Penerbitan/Laporan/Umum/Mental%20Healthcare%20Performance%20Report%202016.pdf

Mortier, P., Cuijpers, P., Kiekens, G., Auerbach, R. P., Demyttenaere, K., Green, J. G., ... & Bruffaerts, R. (2018). The prevalence of suicidal thoughts and behaviours among college students: A meta-analysis. *Psychological Medicine*, 48(4), 554-565. https://doi.org/10.1017/s0033291717002215

Özdemir, Y., Kuzucu, Y., & Ak, Ş. (2014). Depression, loneliness and Internet addiction: How important is low self-control?. *Computers in Human Behavior*, 34, 284-290. https://doi.org/10.1016/j.chb.2014.02.009

Pantic, I. (2014). Online social networking and mental health. *Cyberpsychology, Behavior, and Social Networking*, 17(10), 652-657. https://dx.doi.org/10.1089%2Fcyber.2014.0070

Robert, A., Suelves, J. M., Armayones, M., & Ashley, S. (2015). Internet use and suicidal behaviors: Internet as a threat or opportunity?. *Telemedicine and e-Health*, 21(4), 306-311. https://doi.org/10.1089/tmj.2014.0129

Robins, R. W., Hendin, H. M., & Trzesniewski, K. H. (2001). Measuring global self-esteem: Construct validation of a single-item measure and the Rosenberg Self-Esteem Scale. *Personality and Social Psychology Bulletin,* 27(2), 151-161. https://doi.org/10.1177%2F0146167201272002

Russell, D., Peplau, L. A., & Ferguson, M. L. (1978). Developing a measure of loneliness. *Journal of Personality Assessment*, 42(3), 290-294. https://doi.org/10.1207/s15327752jpa4203_11

Ryan, T., Chester, A., Reece, J., & Xenos, S. (2014). The uses and abuses of Facebook: A review of Facebook addiction. *Journal of Behavioral Addictions,* 3(3), 133-148. https://doi.org/10.1556/jba.3.2014.016

Sahin, C. (2018). Social Media Addiction Scale-Student Form: The reliability and validity study. *Turkish Online Journal of Educational Technology-TOJET*, *17*(1), 169-182. https://eric.ed.gov/?id=EJ1165731

Simsek, A., Elciyar, K., & Kizilhan, T. (2019). A comparative study on social media addiction of high school and university students. *Contemporary Educational Technology*, *10*(2), 106-119. https://doi.org/10.30935/cet.554452

Soh, P. C., Chew, K. W., Veeri, C. A., & Ang, P. H. (2011). Ethnic-based digital divide and Internet use amongst Malaysian students. *Akademika*, *81*(1). https://ejournal.ukm.my/akademika/article/view/515

Stickley, A., & Koyanagi, A. (2016). Loneliness, common mental disorders and suicidal behavior: Findings from a general population survey. *Journal of Affective Disorders*, *197*, 81-87. https://doi.org/10.1016/j.jad.2016.02.054

Turkmen, M. (2016). Violence in animated feature films: Implications for children. *Educational Process: International Journal (EDUPIJ)*, *5*(1), 22-37. http://dx.doi.org/10.12973/edupij.2016.51.2

Vogel, E. A., Rose, J. P., Roberts, L. R., & Eckles, K. (2014). Social comparison, social media, and self-esteem. *Psychology of Popular Media Culture*, *3*(4), 206. http://dx.doi.org/10.1037/ppm0000047

World Health Organization. (2019). *Suicide data*. https://www.who.int/mental_health/prevention/suicide/suicideprevent/en/

Wu, C. S. T., Wong, H. T., Yu, K. F., Fok, K. W., Yeung, S. M., Lam, C. H., & Liu, K. M. (2016). Parenting approaches, family functionality, and internet addiction among Hong Kong adolescents. *BMC Pediatrics*, *16*(1), 1-10. https://doi.org/10.1186/s12887-016-0666-y

Yavich, R., Davidovitch, N., & Frenkel, Z. (2019). Social Media and Loneliness--Forever Connected?. *Higher Education Studies, 9*(2), 10-21. https://eric.ed.gov/?id=EJ1206454