### ORIGINAL ARTICLE

### Association Between Social Media Use and Depression Among Students of International Islamic University Malaysia Kuantan

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#### ABSTRACT

**Introduction:** Depression is a vital issue to be concerned about because it is anticipated to be one of the major health issues confronting Malaysia in the coming years. Social media has emerged as one of the main contributors to depression due to the increased use of technology in modern society. Therefore, this study aimed to investigate the association between social media use and depression among IIUM students. **Methods:** This cross-sectional study involved 227 students of IIUM Kuantan from three Kulliyyahs; Kulliyyah of Allied Health Sciences (KAHS), Science (KOS) and Dentistry (KOD). Convenience sampling was applied and self-administered questionnaires were distributed. Data was analysed using Statistical Package Software for Social Sciences (SPSS), where descriptive frequency table, Mann-Whitney U test, Kruskal-Wallis test and Correlation test were applied. **Results:** This study indicated that the level of social media-related depression among students in selected kulliyyah in IIUM Kuantan was low (n=61, 26.9%). Body image dissatisfaction, online harassment, sleep disturbance and high self-esteem were significantly associated with depression, with a p-value of 0.002 and 0.012, respectively. **Conclusion:** Social media use and depression were associated considerably, involving body image, online harassment, sleep, and self-esteem. A guideline and education for better and safe use of social media in our country should be proposed as part of preventive action in future.

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#### **INTRODUCTION**

Mental illness is a crucial issue as it is expected to be the second-most common health concern among Malaysians after cardiovascular disease by 2020 (1). One of the most prevalent mental health conditions affecting the general population is depression (2). Depression or major depressive disorder (MDD) is a known mental disorder and one of the leading causes of disability globally, affecting approximately 300 million people worldwide (3). However, specific factors contributing to depression remain unclear until today and yet, it is believed to be a multifactorial disorder. In many Western countries, social media is now one of the main contributors to youth depression (4-8). In this quantum era, people often communicate through social media. Social media is a great platform that aids in enhancing communication, social connection and technical skills (6). However, too long of engaging with social media could trigger the rise of an unhealthy nation, particularly in terms of mental health. Evidence suggested that mental health status was affected by the activity in social media use. (4). There is also a possibility that social media use is interrelated with psychological well-being arose nowadays (5).

Social media allows people from walks of life worldwide to communicate with each other. Social media and mental health are not directly interconnected; both will usually be linked through various contributory factors (9). Social media use and depression were addressed

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to be involved with having a poor sleep (4-6), online harassment (4), low self-esteem (4-6) and poor body image (4). Social media abuse may affect mental health, especially when frequently used (5). It was also reported that social media had a direct and positive impact, in which limiting time spent on social media could reduce loneliness and depression (7).

Previous studies related to depression done at International Islamic University Malaysia Kuantan focused on the prevalence and associated factors of depression, anxiety and stress (11-14). However, a study focusing on depression and social media use in Malaysia is currently not available. Therefore, this study aimed to explore if social media impacts depression levels among students in IIUM Kuantan, Pahang. Since there are established data on the prevalence of depression in three kulliyyahs of Allied Health Sciences, Science and Dentistry (12), this study shall focus on these selected kulliyyahs to see if the depression level is related to social media use.

#### MATERIALS AND METHODS

#### Study design and location

This is a cross-sectional study design. The study was carried out between January to March 2019 at International Islamic University Malaysia Kuantan, specifically at three kulliyyahs: Kulliyyah of Allied Health Sciences (KAHS), Kulliyyah of Science (KOS) and Kulliyyah of Dentistry (KOD).

#### Sample size

Single proportion formula was used to determine the sample size for this study. The proportion of the population used for this study was taken from the prevalence of depression among students from the three kulliyyahs, KAHS, KOD and KOS, which was 43.1% (12). As this study involved the participation in filling a survey form, thus non-response rate of 10% participants was added to this study, which was approximately 20 participants. Therefore, in ensuring a more reliable result obtained, the total number of participants employed for this study was more than 213 respondents.

#### Data collection

Convenience sampling was applied and self-administered questionnaires were distributed among KAHS, KOD and KOS students through online distribution. This study involved 227 respondents of undergraduate students from KAHS, KOS and KOD. At the same time, those with chronic disease and did not have social media were excluded from participating in this study.

#### Questionnaire validation

The questionnaire was adopted and modified from a study done in the UK (4). It was available in Malay version and consisted of three sections. The first section was regarding of demographic data, where the questions were on age, gender, level of study, ethnicity and other related components. The second section was the Malay version of the Mood and Behaviour Questionnaire (SMFQ), which was used to measure depression. It is the short version of MFQ, with 13 items, with three scoring scales (0,1 and 2). The third section was on social media use and its multiple potential mediators. It involved statements on online harassment, sleep pattern and quality, self-esteem, and body image, with the Likert scale of five. The reliability of the Malay version of SMFQ with Cronbach's Alpha value of 0.869 was recorded.

#### Data analysis

All collected data from the questionnaire were analysed using the latest Statistical Package for the Social Sciences Version 25 (SPSS version 25). A descriptive frequency table was used to analyse the respondents' demographic information. As the normality assumptions were not met, a non-parametric Kruskal-Wallis and Mann-Whitney u-test were used to determine the socio-demographic factors affecting social media-related depression. The statistical significance level was set at 0.05 for all the tests mentioned. Finally, a correlation test was used to identify the correlation analysis between social media use and depression.

#### **Ethical consideration**

This study was approved by IIUM Research Ethics Committee (IREC), International Islamic University Malaysia IIUM/504/14/19/5/ IREC 2019-BS(KAHS).

#### RESULT

#### Socio-demographic of respondents

A total of 227 students were involved in the study. The participants involved were among the students from the three kulliyyahs; KAHS (n= 82), KOS (n= 79) and KOD (n=66). The majority of the respondents were female (n= 181, 79.7%), Malays (n= 225, 99.1%) and between 21-23 years old (n= 110, 48.5%).

#### Level of social-media related depression

The depression was measured with the short version of the Mood and Feeling Questionnaire (SMFQ), with a cut-off point of 12. The social-media-related depression level among IIUM Kuantan students in KAHS, KOS and KOD were reported to be low, with a percentage of 26.9%. However, it indicated that 61 out of 227 students were depressed.

# The potential correlation analysis from social media use to depressive symptom scores

Online harassment, sleep, self-esteem and body image were significantly involved in the correlation analysis from social media use and depressive symptom scores. A positive correlation was seen between social media use and depression via online harassment, sleep disturbance and self-esteem. On the other hand, a negative correlation was portrayed through the link between social media use and depression via body image. The results were detailed in Table I, where correlation analysis showed a significant correlation with p-values less than 0.05, 0.01 and 0.001.

Table	I Relationship	<b>Between So</b>	cial Media	Use and	SMFQ
score	using Spearma	n's Correlat	ion Test		

ltem	Cor- relation coeffi- cient, r	<i>p</i> - value	Interpretation
Time spent – Online harassmentª	-0.039	0.555	No correlation
Time spent – Online harassment <sup>b</sup>	+0.020	0.763	No correlation
Time spent – Sleep <sup>a</sup>	+0.112	0.091	Weak positive correlation
$Time \; spent - Sleep^{b}$	-0.024	0.721	No correlation
Time spent – Sleep <sup>c</sup>	+0.085	0.204	No correlation
Time spent – Self-es- teem	+0.030	0.655	No correlation
Time spent – Body imageª	+0.021	0.751	No correlation
Time spent – Body image <sup>ь</sup>	+0.011	0.865	No correlation
Time spent – Body image <sup>c</sup>	-0.121	0.070	Weak negative correlation
Time spent – Body image <sup>d</sup>	-0.145	0.029*	Weak negative correlation
Online harassmentª – SMFQ score	+0.221	0.001**	Weak positive correlation
Online harassment <sup>b</sup> – SMFQ score	+0.174	0.009**	Weak positive correlation
Sleepª – SMFQ score	+0.013	0.849	No correlation
Sleep <sup>b</sup> – SMFQ score	-0.003	0.965	No correlation
Sleep <sup>c</sup> – SMFQ score	+0.288	<0.001***	Weak positive correlation
Self-esteem – SMFQ score	+0.490	<0.001***	Moderate positive correlation
Body imageª – SMFQ score	-0.402	<0.001***	Moderate negative correlation
Body image <sup>b</sup> – SMFQ score	-0.310	<0.001***	Moderate negative correlation
Body image <sup>c</sup> – SMFQ score	-0.103	0.122	Weak negative correlation
Body image <sup>d</sup> – SMFQ score	-0.064	0.336	No correlation
Time spent – SMFQ score	+0.020	0.769	No correlation

## Socio-demographic factors that affect the social media related depression

This study adopted seven socio-demographic factors of IIUM Kuantan students from KAHS, KOS, and KOD to be associated with social media-related depression. Part-time jobs and the category of kulliyyahs are sociodemographic factors that were found to be significantly related to social media-related depression, with p-values of 0.002 and 0.012, respectively. However, results showed no significant association between SMFQ scores and the remaining socio-demographic variables of the year of study, a number of electronic devices used, family monthly income, gender and family history of depression (Table II).

Table II Association	between	socio-der	nographic	factors
with SMFQ scores				

Variable	Mean (s.d)	F stat.	<i>p</i> -value
Kulliyyah		6.213	0.002**
KAHS	6.43 (5.765)		
KOS	9.87 (6.605)		
KOD	7.88 (6.287)		
Year of study		0.915	0.498
1	8.10 (7.383)		
2	9.18 (6.219)		
3	7.35 (6.074)		
4	7.81 (5.735)		
5	10.27 (8.004)		
Number of electronic used		0.443	0.655
Smartphone	7.48 (6.901)		
Smartphone, laptop	7.99 (6.179)		
Smartphone, laptop and tablet	9.26 (7.585)		
Family monthly income		1.785	0.232
<rm2500< td=""><td>8.22 (6.483)</td><td></td><td></td></rm2500<>	8.22 (6.483)		
RM2501-RM5000	7.80 (6.378)		
RM5001-RM7500	6.52 (5.627)		
RM7501-RM10000	10.68 (7.129)		
>RM10000	7.50 (5.853)		

Note: a,b,c,d refers to statements in table 4.4

*p*-value is statistically significant (<0.05)\*; \*\*(<0.01); \*\*\*(<0.001)

Note: Stat= Statistic

\*\*p-value is statistically significant (<0.01)

#### DISCUSSION

The low level of social media-related depression is inconsistent with previous studies done in IIUM Kuantan. The prevalence was reported to be lower, with the majority of depression at 43.1% (KAHS), 41% (KOS) and 47.5% (KOD) (11-13). However, the prevalence of this study was higher than an IIUM Kuantan study, with a prevalence of 13.9% (14). The fluctuating trend can be seen in the prevalence of depression across the years in the same study population, where the depression level was measured using the DASS test. As these studies involved different respondents, dissimilarities of prevalence may be obtained. The prevalence of this study, which was delineated to be 26.9%, was also lower than the study done at the University of Malaya, with a prevalence of 29.4% where the Centre assessed depression level for Epidemiological Studies Short Depression Scale (CESD -10) (16). However, a slight difference of 2.3% can be seen in both public universities, which might be due to the different assessment scales. However, the findings of both universities showed a similar trend (17). It was also suggested that the prevalence of depression for Wilayah Persekutuan Kuala Lumpur was ranked in third place, followed by Pahang, with a prevalence of 21.3% and 21.0%, respectively. In the same age population between 19 to 32 years old, the prevalence was also lower compared to a study done among U.S. young adults with a prevalence of 55.5% (8). From the study, it can be assumed that depression is a big issue, as almost half of the respondents were depressed. In addition, the U.S. has been ranked as the third most depressed country worldwide by World Health Organization, after China and India (15).

Several significant correlations intervening social media use and depressive symptom scores can be seen in this present study. The first correlation analysis, between time spent on social media and body image, appeared to be significantly correlated, with a p-value of 0.029. On the other hand, the correlation analysis demonstrated a weak negative correlation, r= -0.145. Furthermore, 11% and 30% of the respondents were reported to disagree strongly and disagree, respectively, on eating less and avoiding the consumption of high in calories food to lose weight or to avoid gaining weight. This showed that eating style had not been a serious issue to be dealt with among the respondents. In addition, this result was consistent with a finding that there was a link between social networking sites and body image, where spending more time on social media sites may enhance an unhealthy relationship with body image (18). Thus, it is believed that spending time on social media and body image are related.

A second correlation analysis was between online harassment and depression score. A significant positive correlation with p-values of 0.001 and 0.009

can be seen in both statements of online harassment. Findings from this study reported that a minority of the respondents, where about 0.9%, agreed to be involved in sending unwanted or nasty emails, texts or messages on social media. On the other hand, 5.7% and 0.4% of respondents agreed and strongly agreed, respectively, having themselves involved in accepting unwanted or nasty emails, texts or messages on social media. This finding is in line with a study where online harassment was associated with a depressive symptoms score (4). Despite the interchangeable usage of online harassment and cyberbullying, cyberbullying is quite common among youths online and may lead to psychosocial outcomes, including depression, anxiety and suicide (19). Cyberbullying is a type of bullying that takes place over digital electronic devices like smartphones, laptops, computers and tablets. Cyberbullies tend to express their anger with hurtful words and pictures rather than physical torture (19). However, no significant association was seen between time spent on social media and online harassment. Hence, it can be assumed that depression among IIUM Kuantan students was most likely not related to online harassment.

The third correlation analysis between sleep and depression score demonstrated a significant correlation, with a p-value less than 0.001. Statistical analysis revealed that 7% and 2% of the respondents strongly agreed and agreed, respectively, to have often awakened and had trouble falling back asleep again during the last four weeks. This study pointed out a weak positive correlation, r=+0.288, between sleep disturbance and depression. This observation is in line with a survey that highlighted the positive correlation between sleep disturbance and depressive symptoms (20). A previous study also stressed that adolescents who spent more time on social media had poorer sleep quality and higher levels of depression (6). Besides, impaired sleep was suggested as the association between social media and depression (9). Research revealed that nighttime-specific social media significantly predicted bad sleep quality (6). It was thought that social media behaviours during bedtime are more crucial to be taken into account as compared to social media behaviours during the day (20). Thus, it would be more appropriate to debate the link between social media use and sleep. In addition, suggested mechanisms before sleep disturbance and depression were the interference with melatonin production via digital screen exposure during bedtime and social media alerts with notifications (6). Despite the insignificant correlation between time spent on social media and sleep disturbance and the weak positive correlation between sleep disturbance and depression, it is believed that having sleep disturbance is associated with depression among IIUM Kuantan students.

The fourth correlation analysis, regarding self-esteem and depression scores, reported a significant correlation with a p-value less than 0.001. A moderate positive

correlation, r= +0.49, showed that self-esteem increased along with depression score. This finding did not reflect the conclusions of some related studies, where low self-esteem was related to depression (4,6). Low selfesteem is believed to contribute towards depression, and low self-esteem is gradually disintegrated by depression (17). This could trigger the issue of which comes first between self-esteem and depression. Thus, a longitudinal study, which would involve follow-up of the respondents, is recommended to discuss how selfesteem and depression are interrelated. No correlation can be seen between time spent on social media and self-esteem. In addition, a moderate positive correlation was illustrated between self-esteem and depression. Hence, this study suggested low self-esteem does not contribute to depression among IIUM Kuantan students.

The fifth correlation analysis exhibited a moderate negative correlation between body image and depression score, r= -0.402 and -0.310, respectively. From the result, it can be seen that 18% of the respondents were unsatisfied with their appearance. Besides, 18.5% and 31.3% strongly disagreed and disagreed about their ideal weight. Findings illustrated a significant association between body image dissatisfaction and depression score with a p-value less than 0.001. This is in line with a study that mentioned that those actively engaged in social media had more negative body image (18). A study also found a negative relationship between body image and depression. This indicated that depressed individuals were dissatisfied with their body image, and it was suggested that having a positive body image may aid in preventing the development of depression (20). A weak negative correlation was displayed between time spent and body image and between body image and depression. Therefore, it can be deduced that spending more time on social media was associated with poor body image and depression among IIUM Kuantan students.

The finding on kulliyyah being significantly associated with depression contrasted with a previous study (19). The study reported the absence of a significant association between faculties of Pharmacy, Health Science and Education with depression. Besides, a study highlighted academic and personal factors as the top stressors among KOS students (14). Therefore, it was concluded that emotional interruptions such as depression, anxiety and stress ought to be focused on as it was recorded to be at a high rate among the students.

Further data analysis discovered that more depressed students were involved in part-time jobs during the study, with a percentage of 33.68%. This finding is in line with the survey done in 2013, where 54% of part-time workers in the U.S. were reported to have been diagnosed with depression. Interestingly, KOS students were found to be the most part-time job during their undergraduate study at IIUM Kuantan. Longer working hours were suggested to be associated with poorer mental health (20). This could indicate that working students are prone to get depressed. Mental Health America (MHA) emphasizes balancing work and school. Students may struggle to balance their lives while engaging with work, school, activities and friends.

#### CONCLUSION

In conclusion, this study revealed that social media use could be deduced as a contributing factor towards depression. Therefore, limiting the time spent on it would be a promising preventive strategy. However, throughout the study, there were some limitations noticed. The imbalance in gender was seen as female respondents were higher than male. Moreover, this study did not discover the type of social media used by the respondent and the time spent on social media during weekends and right before sleep was not recorded. Future research which supports the interventions aimed at increasing self-esteem on social media might help reduce the risk of depression. The findings of this study also benefit the students and the authority in establishing guidelines for better and safe use of social media in our country.

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