



The Effect of social media on the Sleep Quality of University Students

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Abstract

Introduction: One of the greatest effects of COVID-19 pandemic is the escalating culture of technology being practiced worldwide where there is huge change of shift in social media usage. The main objective of this research is to measure the sleep quality of AIMST students and to analyse the relationship between sleep quality and the social networking sites.

Method: The design of this study is cross-sectional study which was conducted from with 347 AIMST students in 2022 in Sungai Petani, Kedah. There were four questionnaires used which consist personalized demographic questionnaire was created to assess social media use and confounding variables followed by the Pittsburgh Sleep Quality Index (PSQI), Social Media Use and Need Scales and social media engagement questionnaire (SMEQ). The SMEQ questionnaire will be used to identify the relationship between social media usage and quality of sleep. Then, the data collected was analysed using SPSS with P-values less than 0.05 were considered significant.

Results: Among the students 117 (33.7%) were male and 230 (66.3%) were female with 333 students were between 18 to 24 years old and the rest of them were 25 to 29 years. The most common social media being used by AIMST students were WhatsApp with 309 (89.0%) being actively used. The Pearson's correlation results showed that there was a positive correlation between sleep quality and social media usage.

Conclusion: In conclusion, the social media usage effects the sleep quality of students immensely. This is greatly influenced by the amount of time they spend on and social media and habits of engaging in social media.

Keywords: Social media usage, sleep quality, university students

Introduction

The COVID-19 pandemic has impacted the lives of students, including their sleep quality, due to increased social media usage. With the rapid growth of technology and the internet, people were forced to rely on social media to stay connected during the Movement Control Order. This study aims

to examine the effect of social media on the sleep quality of students during the pandemic. ^[1]. People experienced lots of during pandemic in terms of work and home life. It is important to understand what these changes are and if they are positive and negative changes. It is understandable that we have also changed that way and amount we use social media ^[2,3].

Social media has made it easier for people to access information and carry out daily activities, leading to increased dependence on these platforms. With more leisure time during the pandemic, people's lifestyles have shifted, and they have become more involved in social networking sites, especially among young generations who were already active users before the lockdowns. This situation has worsened during the pandemic [2]. Therefore, it has stimulated much debate and polarisation regarding its impact on mental wellbeing and sleep as well. Based on the results, it can be concluded that sleep appears to an important role in mediating the association between subjective well-being [1,3].

Sleep is crucial for overall health and wellbeing, according to the National Sleep Foundation. Most healthy adults need about eight hours of sleep a night, although individual sleep requirements can vary. A report from the UK found that 20% of respondents often wake up at night to check social media notifications, leading to increased fatigue compared to their peers. This maladaptive use of social media and compulsive checking can result in sleep disruptions, poor sleep quality, fatigue, and even insomnia if the habit persists. [5,6].

Social media is a computer-based technology that enables the sharing of ideas, thoughts, and information through virtual networks and communities. In other words, social media refers to websites and computer programs that allow people to communicate and share on the internet using a computer or mobile phone. Although the terms social media and social networking are often used interchangeably, they are distinct from each

other. Social media refers to the platform for broadcasting information, while social networking is a platform for communication. Some popular social media platforms include YouTube, Facebook, Instagram, and WhatsApp [3,7].

According to the Digital Report 2020 from "We Are Social" and Hootsuite, a total of 4.14 billion users regularly access at least one social network every month. This represents a growth of 12.3 percent per year, or 450 million new users, and corresponds to 53 percent of the global population and close to 89 percent of internet users worldwide. Additionally, 99 percent of social media users access these platforms on their mobile phones at least once a month. Facebook remains the most popular network, with over 2.7 billion active users per month, followed by YouTube and WhatsApp with 2 billion users each. Instagram has 1.158 billion users, making it the sixth largest social platform in the world, while Twitter has 353 million active users, compared to TikTok (689 million), Snapchat (433 million), and Pinterest (416 million) [3,6]. To understand the social media usage of students in AIMST, it is important to know which platforms are popular among this group.

Objective:

The following research objectives are:

- to measure the sleep quality of AIMST students
- to analyse the relationship between sleep quality and the social networking sites
- to observe the most prevalent social media site among the students and its need

METHODOLOGY

The study was conducted in survey form where physical questionnaires were distributed to students. The students' consent was taken before conducting the survey.

Study Design & Sampling

The study design is cross-sectional survey study where the sample were chosen by stratified random sampling. A personalized demographic questionnaire was created to assess social media use and confounding variables. The Pittsburgh Sleep Quality Index (PSQI), Social Media Use and Need Scales and social media engagement questionnaire (SMEQ) will be used to identify the relationship between social media usage and quality of sleep.

347 students which comprising of 117 male (33.7%) and 230 females (66.3%). Students range of age were between 18 to 24 years old are 333 (96%) and between 25 to 29 are 14 (4%). The number of AIMST students was obtained from the University administration. This research started in October 2021 and was finished in August 2022.

Questionnaires & Procedure of data collection

The questionnaire was created with a focus on social media and sleep and was tailored to the target population. It underwent several rounds of revisions and discussions with experts before being finalized, and a demographic pilot study was also conducted. The internal and external validation

processes have been successfully completed for the questionnaire on the impact of social media on sleep quality among students at AIMST University. The questionnaire is based on existing evidence of the relationship between social media and sleep quality among students at AIMST University. The Pittsburgh Sleep Quality Index (PSQI) developed by Carole Smyth (2012) in the Montefiore Medical Centre.

The Pittsburgh Sleep Quality Index (PSQI) is an effective instrument to measure the quality and patterns of sleep in people. It differentiates 'poor' and 'good' sleep by measuring seven domains which are subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, and sleep disturbances, use of sleep medication and daytime dysfunction over the last month. The participants self-rates each of these seven areas of sleep. Scoring of the answers is based on a scale of 0 to 3, whereby the 3 reflects the negative extreme on the 3-Likert Scale. The PSQI has internal consistency and reliability coefficient (Cronbach's alpha) of 0.83 for its seven components.

Social Networking Sites Usage and Needs Scale (SNSUN) is an instrument for measuring social networking sites usage patterns and needs that consist of 29 items. This questionnaire integrates both dimension of SNSs usage patterns and needs. It covers several subcomponents diversion needs, cognitive needs, affective needs, personal needs, personal integration needs and social integration needs.

RESULTS & DISCUSSION**Table 1: Demographic Characteristics of Study Samples**

	Mean (SD)	Frequency	Percentage (%)
Gender			
Male		117	33.7
Female		230	66.3
Age			
18-24		333	96.0
25-29		14	4.0
Area of study			
Malay		26	12.0
Chinese		125	57.9
Indian		57	26.4
Others		8	3.7
Field of study			
Physiotherapy		39	11.2
Medicine		106	30.5
Dentistry		60	17.3
Pharmacy		58	16.7
Biomedical Science		2	0.6
Nursing		43	12.4
Finance and Management		1	0.3
Engineering		26	7.5
Accounting		5	1.4
Information Science		1	0.3
Foundation		6	1.7
Level of study			
Diploma		62	17.9
Degree		282	81.2
Postgraduate		3	0.9
Year of study			
1 st year		90	25.9
2 nd year		84	24.2
3 rd year		85	24.5
4 th year		80	23.1
5 th year		8	2.3
Residence status			
Hosteller		318	91.6
Non-hosteller		29	8.4

Table 2: Pittsburg sleep quality index (PSQI)-sleep profile

	Mean (SD)	Frequency	Percentage (%)
Time go to sleep			
Before 12 mid-night		232	66.9
After 12 mid-night		115	33.1
Time taken to fall asleep			
5-10 minutes		128	36.9
11-15 minutes		57	16.4
15-20 minutes		33	9.5
21-25 minute		2	0.6
26-30 minutes		93	26.8
Above 31 minutes		34	9.8
Wake up time			
Before 5am		15	4.3
5-6am		49	14.1
6-7am		118	34.0
7-8am		89	25.6
8-9am		42	12.1
9-10am		20	5.8
Above 10am		14	4.0
Hours of actual sleep per night			
	6.55 (1.31)		
Less than 5 hours		20	5.8
5 hours		46	13.3
6 hours		97	28.0
7 hours		106	30.5
8 hours		63	18.2
Above 8 hours		15	4.3
Cannot get to sleep within 30 minutes			
Not during the past month		143	41.2
Less than once a week		104	30.0
Once or twice a week		68	19.6
Three or more times a week		32	9.2
Wake up in the middle of the night or early morning			
Not during the past month		129	37.2
Less than once a week		097	28.0
Once or twice a week		69	19.9
Three or more times a week		52	15.0
Have to get up to use the bathroom			
Not during the past month		183	52.7
Less than once a week		73	21.0
Once or twice a week		57	16.4
Three or more times a week		34	9.8

Cannot breathe comfortably		
Not during the past month	298	85.9
Less than once a week	29	8.4
Once or twice a week	15	4.3
Three or more times a week	5	1.4
Cough or snore loudly		
Not during the past month	277	79.8
Less than once a week	31	8.9
Once or twice a week	24	6.9
Three or more times a week	15	4.3
Feel too cold		
Not during the past month	202	58.2
Less than once a week	80	23.1
Once or twice a week	40	11.5
Three or more times a week	25	7.2
Feel too hot		
Not during the past month	185	53.3
Less than once a week	74	21.3
Once or twice a week	46	13.3
Three or more times a week	42	12.1
Had bad dream		
Not during the past month	188	54.2
Less than once a week	90	25.9
Once or twice a week	47	13.5
Three or more times a week	22	6.3
Have pain		
Not during the past month	276	79.5
Less than once a week	34	9.8
Once or twice a week	25	7.2
Three or more times a week	12	3.5

Table 3: Social network sites questionnaire

	Frequency	Percentage (%)
Facebook		
More than 5 times	97	28.0
3-5 times	42	12.1
Less than 3 times	36	10.4
On alternate days	66	19.0
Never	106	30.5
Twitter		
More than 5 times	28	8.1
3-5 times	16	4.6
Less than 3 times	28	8.1
On alternate days	44	12.7
Never	231	66.6

Whatsapp		
More than 5 times	309	89.0
3-5 times	21	6.1
Less than 3 times	9	2.6
On alternate days	6	1.7
Never	2	6
Instagram		
More than 5 times	267	76.9
3-5 times	44	12.7
Less than 3 times	16	4.6
On alternate days	6	1.7
Never	14	4.0
Snapchat		
More than 5 times	74	21.3
3-5 times	32	9.2
Less than 3 times	31	8.9
On alternate days	31	8.9
Never	179	51.6
Facebook Messenger		
More than 5 times	45	13.0
3-5 times	16	4.6
Less than 3 times	26	7.5
On alternate days	88	25.4
Never	172	49.6
Tik Tok		
More than 5 times	127	36.6
3-5 times	40	11.5
Less than 3 times	18	5.2
On alternate days	21	6.1
Never	141	40.6
Google+		
More than 5 times	164	47.3
3-5 times	45	13.0
Less than 3 times	17	4.9
On alternate days	27	7.8
Never	94	27.1

The data show that WhatsApp was the most used social network site, with 307 participants (89%) reporting using it more than five times per day. Facebook was the second most popular SNS, with 97 participants (28%) reporting using it more than five times per day. Snapchat had the lowest usage, with only 74 participants (21.3%) reporting using it more than five times per day. The data also show that

participants used social media at different frequencies, with some reporting never using certain SNSs. This finding is consistent with the global trend where Facebook is the most widely used social media platform (Statista, 2022). Twitter and Snapchat had the lowest usage rates among the participants, with only 8.1% and 21.3% of respondents using them more than 5 times a day, respectively.

Table 4: Social network sites use pattern

	Frequency	Percentage (%)
Social networking sites use		
Yes	294	84.7
Occasionally	49	14.1
Rarely	4	1.2
Preferred devices		
Mobile phone	328	94.5
Laptop	7	2.0
Desktop computer	6	1.7
Others	6	1.7
Numbers of SNS used actively		
One	15	4.3
Two	67	19.3
Three	88	25.4
Four	68	19.6
Five	35	10.1
More than five	74	21.3
Checking SNS accounts per day		
One every notification beeps	58	16.7
1-2 times per day	13	3.7
3-4 times per day	56	16.1
5-6 times per day	75	21.6
7-8 times per day	30	8.6
9 plus time per day	115	33.1
Time spend on SNS per day		
Less than 15 minutes	23	6.6
30 min to 1 hour	45	13.0
1-2 hour	78	22.5
3-4 hour	100	28.8
5-6 hour	57	16.4
7-8 hour	27	7.8
More than 9 hours	17	4.9
Increase in SNS use		
Day time	63	18.2
Evening	40	11.5
Night	145	41.8
Weekends	99	28.6
Duration of using SNSs		

Less than 1 year ago	17	4.9
1-2 years ago	18	5.2
3-4 years ago	68	19.6
5-6 years ago	75	21.6
7-8 years ago	59	17.0
9-10 years ago	32	9.2
More than 10 years ago	78	22.5

Note: SNSs: Social networking sites questionnaire

Most of the participants (84.7%) reported actively using SNSs, while 14.1% reported using SNSs occasionally. In terms of preferred devices, mobile phones were the most used devices for accessing SNSs. The data show that participants actively used multiple SNSs, with 25.4% of participants reporting using three or more SNSs. The participants also reported checking their SNS accounts multiple times per day, with 33.1% of participants reporting checking their accounts nine or more times per day. Additionally, the data show that

the participants spent varying amounts of time on SNSs per day, with 28.8% of participants reporting spending 1-2 hours per day on SNSs. This finding is in line with the increasing trend of social media usage worldwide (Pew Research Center, 2021). Additionally, the table shows that the preferred device for accessing social media is mobile phones (94.5%). This result is supported by a study by Statista (2021), which reported that mobile phones are the most popular device for accessing social media.

Table 5: Descriptive statistics of Pittsburg Sleep Quality Index (PSQI), Social Media Engagement Questionnaire (SMEQ), and Social Networking Sites (SNSs) Needs Questionnaire

	Mean	SD	95% CI		Min	Max
			Lower	Upper		
PSQI	2.98	0.58	2.92	3.04	1.00	4.00
SMEQ	4.33	1.90	4.13	4.53	0.20	7.00
SNSs Needs	3.28	0.70	3.21	3.35	1.00	6.55

Note: SD: Standard deviation; CI: Confidence interval; PSQI: Pittsburg Sleep Quality Index; SMEQ: Social Media Engagement Questionnaire; SNSs: Social Networking Sites

Table 6: Reliability Coefficient for Social Media Engagement Questionnaire (SMEQ), and Social Networking Sites (SNSs) Needs Questionnaire

	No. of items	Variance	Range	α
SMEQ	5	1.247	2.634	0.771
SNSs Needs	29	0.354	1.715	0.909

Note: SMEQ: Social Media Engagement Questionnaire; SNSs: Social Networking Sites

The reliability coefficient for the Social Media Engagement Questionnaire (SMEQ) and Social Networking Sites (SNSs) Needs Questionnaire. The data show that both

questionnaires have high internal consistency, with the SMEQ having a reliability coefficient of 0.771 and the SNSs Needs Questionnaire having a reliability coefficient of 0.909.

Table 7: Correlation Coefficients between PSQI, SMEQ and SNSs Needs

Variable	N	1	2	3
1. PSQI	347	1	-	-
2. SMEQ	347	p=0.480	r=-0.038	1
3. SNSs Needs	347	p=0.289	r=0.057	p=0.019* r=0.126

Note: PSQI: Pittsburg Sleep Quality Index; SMEQ: Social Media Engagement Questionnaire; SNSs: Social Networking Sites; *p<0.05

The data show that there was a significant positive correlation between SNSs Needs and PSQI (r=0.126, p=0.019), indicating that participants who reported higher SNSs Needs also reported poorer sleep quality. There was no significant correlation between SMEQ and PSQI, indicating that social media engagement did not affect sleep quality. These findings are supported by previous studies that have found

a positive correlation between social media engagement and social networking needs (Ryan et al., 2014). These findings support the existing research that suggests a negative relationship between social media use and sleep quality (Source: Levenson et al., 2021), and a positive association between social media use and the desire to belong and socialize (Source: Chen et al., 2019).

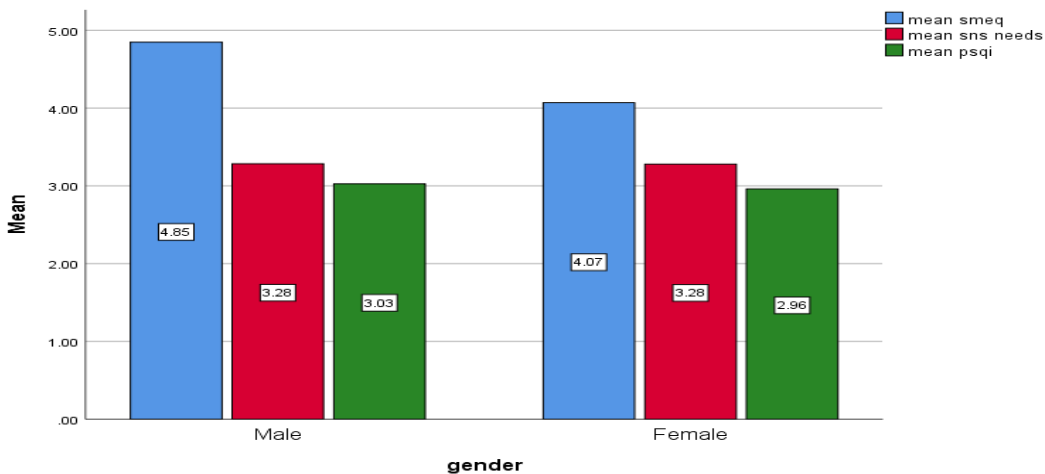


Figure 1: Distribution of PSQI, SMEQ and SNSs Needs score by gender

Note: PSQI: Pittsburg Sleep Quality Index; SMEQ: Social Media Engagement Questionnaire; SNSs: Social Networking Sites

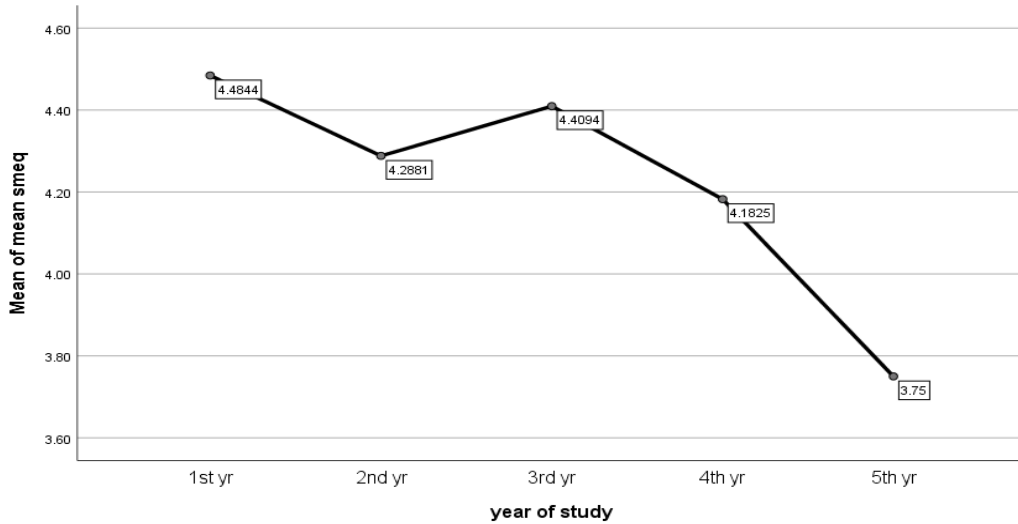


Figure 2: Distribution of SMEQ scores by year of study

Note: PSQI: Pittsburg Sleep Quality Index; SMEQ: Social Media Engagement Questionnaire; SNSs: Social Networking Sites

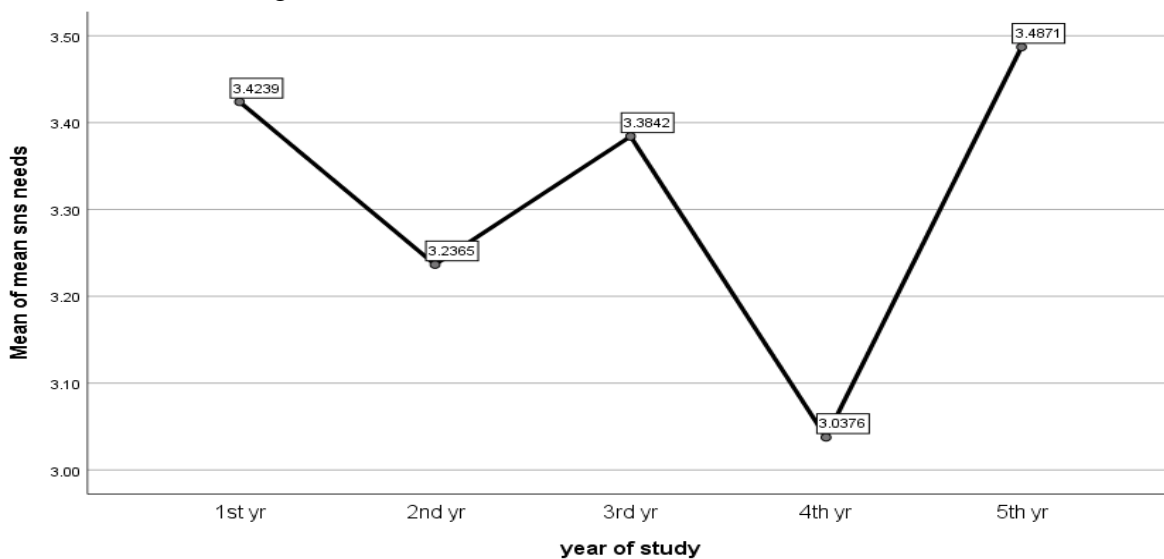


Figure 3: Distribution of SNSs Needs scores by year of study

Note: PSQI: Pittsburg Sleep Quality Index; SMEQ: Social Media Engagement Questionnaire; SNSs: Social Networking Sites

CONCLUSION

Based on the results of this study, it can be concluded that social media use has a significant negative effect on the sleep quality of university students. The majority of students reported poor sleep quality, and the frequency and duration of social media use

were found to be associated with poorer sleep quality. The most prevalent social media site among the students was found to be WhatsApp and Facebook, with a high perceived need for its use.

Therefore, it is recommended that university students should be made aware of the potential

negative effects of social media on their sleep quality and be encouraged to limit their usage. Education and awareness campaigns aimed at promoting healthy sleep habits and responsible social media use can be beneficial for improving the sleep quality and overall well-being of university students. Additionally, further research is needed to explore effective interventions and strategies for mitigating the negative effects of social media on sleep quality among university students.

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