

# The Relationship Of Smartphone Addiction, Sleep Quality And Academic Performance Among UMS Students

Ling Leh Qing\*  
Universiti Malaysia Sabah

\*Corresponding author: [linglg23@gmail.com](mailto:linglg23@gmail.com)

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**Abstract:** *In modern times, smartphone has become the most popular electronic gadget in our daily life. The development of smartphone has bring a lot of convenience and improve people' daily lives, but it also bring negative effects to people. The major group of smartphone users are college students and they have experienced the situation which the use of smartphone has lower the academic performance. Besides of smartphone, sleep quality also has found important for students in improving their academic performance. Besides that, smartphone addiction also has been reported associated with sleep quality which the use of smartphone has lower the sleep quality of a student. The study has presented quantitative research on college students in Universiti Malaysia Sabah to explore the relationship between smartphone addiction, sleep quality and academic performance. A simple random sampling has been used in the study. Data was collected from 123 college students who are smartphone user through questionnaire by Google form online, containing demographic details, Smartphone Addiction Scale Short Version (SAS-SV) and Pittsburgh Sleep Quality Questionnaire (PSQI). SPSS was used to analyse descriptive statistics and Pearson correlation. The result of the study has shown that smartphone addiction and sleep quality is significantly associated with academic performance. The result indicated that the higher the smartphone addiction the lower the academic performance of a students. The finding also has proven that the 'bad sleeper' may have low academic performance. Besides, smartphone addiction also has been found associated with sleep quality. The overuse of smartphone also will lower the sleep quality of an individual.*

*Keywords:* smartphone addiction, sleep quality, academic performance

## Introduction

In the hustle and bustle of modern life, people are increasingly inseparable from the internet. Thus, internet-based equipment has become an important element in daily life especially smartphone. The utilization of smartphones has been increasing in recent years. Within the past 5 years, about 1.4 billion of smartphones were overenrolled worldwide annually. The quantity of smartphone users worldwide these days surpasses 3 billion and is forecast to more grow by many hundred million within the next few years (O'Dea, 2020). For Malaysia, the quantity of smartphone users is calculable to succeed in 4 million in 2019 (Müller, 2019).

A smartphone could be a radiophone with an associate integrated laptop and alternative options that aren't

originally related to telephones (Rouse, 2007). Most smartphones connect with a virtual store with thousands of apps that flip the phone into one thing a lot of smarter than an everyday telephone (Fendelman, 2020). Smartphones facilitate North American country to remain up-to-date with our family and friends worldwide. Besides, the smartphone isn't solely the devices that facilitate North American countries to attach on the individual to another; it may be used at media players, cameras, GPS navigation units, inbuilt virtual assistants and internet browsers. It's become the foremost common device in trendy life.

Smartphone users have interaction in causation and receiving emails, text, pictures and transmission messages, taking part in games and video chat. Result from the past survey shown majority of adults

report victimization a minimum of one among the social media platforms or electronic messaging apps that Facebook and whatsapp are that the most typical social media platform (Silver, Smith, Johnson, Jiang, Anderson & Rainie, 2019). Smartphone has modified our lives for the higher in some ways that, however, it really has its drawbacks. Smartphone has brings negative effects like smartphone addiction once excessive usage.

Smartphone addiction is also called “nomophobia”: the concern of going while not your phone, “textaphrenia”: the concern that you simply can’t send or receive texts, “phantom vibrations”: the sensation that your phone is alerting whereas it doesn't (Stanborough, 2019). According to Valladolid (2017) sixty-seven of smartphone owners have admitted to checking their phones for calls or messages once their phones didn’t vibrate or ring. This has shown that the smartphone user admitted with one amongst the foremost signs of smartphone addiction.

Smartphone addiction might have a major sign like bother finishing tasks, has placed a relationship or job in danger because of excessive telephone use, depression, irritability and restlessness once smartphones and networks area unit inaccessible (Singh Bhatia, 2008). Besides, smartphone addiction may additionally bring physical and psychological hurt that has shown within the past analysis and like depression, sleep disturbances, anxiety, relationship issues, digital eye strain, neck issues, and even automobile accidents because of the misuse of the smartphone-like texting or victimization smartphone whereas driving (Babadi-Akashe & Zamani, 2014; Patel, 2015; Davis, 2018).

The previous study has reportable that smartphone addiction is a lot of

common in people ages 18-29 that are faculty students (Silver, Smith, Johnson, Jiang, Anderson & Rainie, 2019). A study has shown that students check their phones on average each six to eight minutes daily (Hymas, 2018). Students have interaction in water sport online, social networking, checking emails and text messages and consequently pay less attention to their lessons (Hiscock, 2004; Selwyn, 2003). This might have an effect on the tutorial performance of scholars because of smartphone addiction.

Now a day, sleep problem has become significant focus. Sleep is a naturally process of all living things, it characterized by altered consciousness, relatively inhibited sensory activity, reduced muscle activity and inhibition of nearly all voluntary muscles during rapid eye movement (REM) sleep (Ferri, Manconi, Plazzi, Bruni, Vandi, Montagna & Zucconi, 2008). Most adults need 7 to 8 hours of good quality sleep each day. A good quality of sleep is important for us especially for students. Good quality of sleep brought a lot of benefit. The benefit of good quality sleep include reduces stress, prevent cancer, improves memory and make you more alert (Stibich, 2019).

However, the quality of sleep of the students has declined. Based on The Star (2018) has reported that there are 9 out of 10 of Malaysians suffer from sleep problem and having poor sleep quality (Tan, 2018). The sleep quality can affect by night time exercise, alcohol, room temperature, stress and electronic gadget such as smartphone. The news of The Star (2018) also reported that the lack of quality sleep has brought a lot of consequences such as headache, fatigue, trouble thinking or concentrating and mood swings. Besides, students who lack of quality sleep may also bring

negative effect on their memory performance (Fischer, Diekelmann & Born, 2011). Thus, due to the negative effect on physical and emotion of poor sleep quality to the students will lower the academic performance of the students. Besides educational performance, smartphone addiction may additionally have an effect on the sleep quality of scholars. Itinerant usage for taking part in, surfing, texting was absolutely related to sleep disorder (Patel, 2015). They will pay their getting dark with smartphones for social media, taking note of music and looking at films that can have an effect on their quality and amount of sleep (Sellgren, 2016). The report on BBC news (2016) has shown that victimization mobile devices at night time can have an effect on student's school assignment and cause them couldn't focus within the room which can have an effect on their educational performance (Sellgren, 2016).

### Research Objective

This study consists of three main objectives. The first objective of the

research is to study the relationship of smartphone addiction and sleep quality among students of universiti malaysia sabah. The second objective is to study the relationship of smartphone addiction and the academic performance among student of universiti malaysia sabah. The third objective is to study the relationship of sleep quality and academic performance among the students of universiti malaysia sabah.

### Methodology

The researchers used the quantitative method of obtaining data because the researchers wanted to get an in-depth data from participants and to achieve the objectives. The study is a survey study by questionnaire. Simple random sampling has been used in this study. Simple random sampling is a sampling technique where select a group of subjects for study from a larger population. The data collection was based on the questionnaire distributed to the respondents through Google form online.

### Results

Table 1

*Mean and Standard Deviation of SAS-SV*

	Mean	Std. deviation	Percentage (%)
SAS1	4.24	1.42	11.00
SAS2	4.57	1.26	11.84
SAS3	3.78	1.63	9.80
SAS4	3.81	1.64	9.88
SAS5	3.39	1.56	8.78

SAS6	3.23	1.52	8.36
SAS7	3.81	1.47	9.88
SAS8	3.82	1.65	9.90
SAS9	4.73	1.17	12.26
SAS10	3.20	1.64	8.30
Total SAS			100

Table 2

*Frequency and Percentage of Smartphone Addiction and Non-Smartphone Addiction*

	Numbers	Percentage (%)
Smartphone addiction	86	69.92
Non-smartphone addiction	37	30.08
Total	123	100

Table 3

*Mean, Standard and Percentage Deviation of PSQI*

	Mean	Std. deviation	Percentage
Component 1	1.37	.86	19.86
Component 2	1.64	1.06	23.88
Component 3	.58	.92	8.39
Component 4	.58	.87	8.39
Component 5	1.37	.65	19.98
Component 6	.21	.55	3.07
Component 7	1.13	.81	16.43
Global PSQI			100.00

Table 4

*Frequency and Percentage of Poor Sleeper and Good Sleeper*

	Number	Percentage
Poor sleeper	88	71.54
Good Sleeper	35	28.46
Total	123	100

### Discussion

The first objective is to find the relationship between smartphone addiction and academic performance. The result indicated that there is a significant relationship between smartphone addiction and academic performance. Thus, we can conclude that smartphone addiction may decrease the academic performance of students which the higher the smartphone addiction the lower the academic performance. This finding is similar as a few of past study.

Uses and Gratifications Theory stated that people will seek for media when they get satisfy from media (Severin & Tankard, 2001). Smartphone has become an important device for student in their daily or study. They may use smartphone as the device to release their stress, communication with friend and family and searching information. For example when students found that smartphone has fulfil their need such as knowledge searching, gaming and communicating with friend has made the smartphone become more important in their life. Thus, students may become more dependent with smartphone and addicted to smartphone. The addiction to the smartphone of the student will affect their academic performance which they

may start to ignore their study and lower the academic performance.

From Roberts and Rees (2014) we knew that the use of smartphone or laptop in lecturer hall may lower grades overall of students. The study has shown that even the use of smartphone may give a lot benefit for students but it also brought negative effect to the students especially when they use smart devices in lecture hall. When students use smartphone in lecturer hall will divide their attention on the lecture, then they may learn nothing form the lecture (Nield, 2018). Thus, their academic performance will be affected.

Besides that, Sinsomsack and Kulachai (2018) also reported the similar result in their study. From the result obtained by researchers has pointed out that smartphone addiction had negative consequences on academic performance of students. The study stated that the use of smartphone while studying will decrease the attention of students to the teachers. Hence, they cannot understand the lesson distributed by their teachers. Then, the academic performance of students will be affected.

Besides that, the finding of the result is same the previous study of Domoff, Foley and Ferkel (2019) which has

showed that the addictive use of cell phones may be the risk for decreased academic performance in young adults of United States. The study has shown that when the smartphone addicted student may start to dependence on the smartphone and ignore the other important things in their daily life such as their study. Thus, the study proven that the greater dependence on smartphone is associated with lower GPA in university students.

Based on Santhi and Rajesh (2020) reported that medical students felts overuse of smartphone has affect their academic performance. The study also reported that the respondents found that smartphone addiction is the main reason for poor academic performance. The use of smartphone or the smartphone addiction has disrupted teaching and reducing attention of students in class which result in negative educational outcome for the students. When students cannot focus in their class they may learned nothing and cannot answer for the exam. Lastly, they may fail in their exam.

The overuse of smartphone is considered as psychological disturbances. The psychiatrist has reported the smartphone addiction as an obsessive compulsive disorder (OCD) (Nishad & Rana, 2016). Even some of the students has realise of their overuse of smartphone while they fail to stop it due to the addiction. When they fail to stop the overuse of smartphone, they may spend most of their time on smartphone than the other things. Thus, the overuse of smartphone has caused a disturbed their daily life and even disturbed their study time which they may reduce or give up the time for study to use smartphone.

Khan, Khalid and Iqbal (2019) shown that the amount of time spent on

smartphone affected students' academic performance and time management skill. Form the study we knew that an individual with smartphone addiction may has poor time management which they spent almost all of their time on playing smartphone and ignores the other important things in their daily life. The poor time management due to smartphone addiction may also affect the academic performance of students. This is due to students may not have enough time to do their assignment and revision for their exam. Thus, they may get lower academic performance.

The study of Chaudhury and Tripathy (2018) has examined the relationship between smartphone addiction and academic performance. Form the result we knew that the high addiction of smartphone have a negative impact on academic performance which may lower the academic performance. The study also found a strong relation between internet connectivity and smartphone addiction which students with 4G or 3G internet connectivity on their smartphone may has higher risk to involve in smartphone addiction. The student with good internet connectivity will more easily to be addicted to smartphone and these students may have the poor academic performance.

Based on Gladius et al (2018) showed that there is significant correlation between smartphone addiction and academic performance. The study found that night time phone usage and time spent on mobile phones responded in decline study habits, difficulty in concentration, increase in missed classes, and going late for classes. The addiction of the smartphone may cause the student to overuse the smartphone even in the night time which may reduce the sleeping time of them. This attitude may affect the student

concentration on the next day especially in class. When the student cannot concentrate in study they may learn nothing in the class and this will affect the result of exam. Thus in this study had conclude that the effect of smartphone addiction on academic will lower the educational performance of students.

The second objective of the study is to find the relationship between smartphone addictions and sleep quality. Form the result we can indicated that smartphone addiction do have relationship with sleep quality which high addiction of smartphone may has higher score in PSQI which mean poor sleep quality.

Sleep quality is important for everyone. Good sleep can keep your heart healthy, prevent cancer, reduce stress, improves memory and help you lose weight (Stibich, 2019). However now a day there has a lot of people stay up late for several reasons and affects the sleep quality. There are some reasons which may cause poor sleep quality. Smartphone addiction is one of the important which cause people to stay up late and affect the sleep quality.

The Uses and Gratifications Theory stated that people will seek for media when they get satisfy from media (Severin & Tankard, 2001). Thus, when the use of smartphone has made them feel satisfy for the need of media, they may get addicted and more dependent on it. Thus this may affect the daily routine of an individual and reduce the sleeping time them. The sleep quality of smartphone addicted also will be affected.

There are a lot of study established that smartphone could disturb sleep quality. The use of smart device such as smartphone and smart portable television on larger quantities of time will affect sleeping time and waking time which may possibly harm

our health and disturbed our daily life (Liu, Zhou, Yang, Kong, Niu & Fan, 2017).

From the past study of Khan et al (2019) has proven that smartphone addiction has the relation with time management. An individual with high addiction of smartphone will has poor time management skill. The students may overspend their time in gaming, chatting and others activities with their smartphone rather than spend their time more effectively. This behaviour will create a negative impact on their sleep quality which they may extend their sleep time for using smartphone.

Besides, there are some study shows that the blue light of smartphone may affect sleep quality. Based on Swiner (2020) has reported that blue light may hurt sleep. When the body is exposed to the blue light at night time will affect the biological clock of our body. This is because the blue light form the smartphone inhibited the brain to produce melatonin which involves in help us to fall asleep. Thus, we can conclude that the amount of screen time we expose each day will affect our sleep quality. When a students use their smartphone at their bedtime will has the poor sleep quality.

Based on Gladius et al (2018) has shown there was a significant correlation between use of smartphone and sleep disturbance. The study showed that the duration of mobile usage is associated with sleep quality. An individual who using their smartphone more than 2 hours per day are more easily to have poor sleep quality than less than 2 hours per day. Based on Tamura, Nishida, Tsuji and Sakakibara (2017) also showed that excessively long hours of mobile phone use was associated with insomnia, particularly in students using mobile phones for 5 h or more per day compared with those using mobile phones

for less than 1 h per day for Japanese adolescents. In this study showed that female adolescents are more addicted to smartphone than male adolescent. Then, the use of online communication such as smartphone is the reason to cause sleep disturbances among female.

Kurugodiyavar, Sushma, Godbole and Nekar (2018) showed that medical students who are addicted to smartphone have poor quality of sleep. The students who has the higher scores on SAS scale also has higher score on PSQI scale which indicated high level of poor sleep quality associated with high usage of smartphone. The study also stress from smartphone overuse is the main reason for poor sleep quality among medical student and male students are more likely to has sleep problem due to overuse of smartphone.

Amra et al (2017) has done the study to find the relationship of late-night cell phone use with sleep parameter. The result has indicated that the use of smartphone at late night (after 9pm) is associated with sleep quality. The late night smartphone user may has poor sleep quality, later wake-up time and higher sleep latency while not direct associated with sleep duration. When the smartphone addicted student has overuse the smartphone on bed time will reduce the sleep time of them. Thus, they may wake up late on the next day or has no energy on the next day.

Based on Ibrahim et al (2018) has shown that showed that smartphone addiction is associated with the sleep quality, sleep disturbance, daytime dysfunction and PSQI global score of the medical students at King Abdulaziz University. Form the study has concluded that females are dependent on smartphone and the longer the average spent on the

smartphone the poor the sleep quality of an individual.

The third objective is to study the relationship between sleep quality and academic performance. The result has indicated that there is a significant relationship between sleep quality and academic performance. The poorer sleep quality, the lower the academic performance.

Form the hypothesis before we have knew that smartphone addiction will cause poor sleep quality. There are a lot of disadvantages when a person is having a poor sleep quality. Lack of sleep will reduce the attention of students in class and affect the memory performance of students (Segaren, 2018). During sleep, our body is in the process of resting and making connections between events, sensory input, feelings and memories (Stibich, 2019). Thus, when students are lack of sleep they may have no enough time for the body to rest and this will affect their attention and memory performance in study.

Based on the past study of Craig, Troy, Caroline and Lyndsay (2008) showed that sleep quality is correlated to academic performance. The result indicated that 'good sleep' are more likely associated with good physical health which is the predictor for academic performance. Besides, the findings also reported that good sleeper may be less experienced anxiety, good body health and more energize in study. Poor sleep quality may also significantly associated with the stress level (Alotaibi, Alosaimi, Adcullah, Alajlan & Abdulrahman, 2020). The good physical health and less stress that cause by the good sleep quality may increase the motivation of study and higher the performance of students in education.



Based on Maheshwari and Shaukat (2019) indicated there was a significant association between sleep quality and academic performance. The result is similar as the study of Adelantado-Renau et al (2019) which also shown that sleep quality was associated with academic performance. The researcher has stated that poor sleep quality reduces daytime alertness and memory performance which affect attention and academic performance impairment. Poor sleep quality is associated with low academic performance. The study also highlight the importance in maintaining good sleep quality in promoting good physical and mental health and increase the academic performance of students.

The past study done by Aung, Nurumal and Zainal (2016) with 105 nursing students in International Islamic University Malaysia (IIUM) also showed the similar result. In the majority of the students experienced poor sleep quality. The finding also has proven that poor sleep quality was associated with low academic performance. Students with good sleep quality have the better result than students with bad sleep quality.

Report form Mirghani, Mohammed, Almutadha and Ahmed (2015), has established poor sleep quality and daytime sleepiness are associated with poor academic performance, cardiovascular events, and motor vehicle accidents. Students may delay their bedtime for late-night study and excessive internet use which will affect the sleep quality. The study shown that poor sleep quality is found more in poor academic performance respondent. Thus, form this result the researcher conclude that the poor sleep quality is one of the factor of lower

academic performance of university students.

The study of Aluoja, Vasar and Veldi (2005) shown that there is a significant negative correlation between Global sleep quality score and academic performance (GPA). The result indicated that bad sleep quality is associated with poor academic performance. Poor sleep is associated with lack concentration and inability during day time which will affect the student in study. Thus, with the low concentration that cause by poor sleep quality will lower down the academic performance of a student.

The result from Topal (2019) also reported the relationship of sleep quality and academic performance. In this study the researcher uses PSQI and Bodymedia's Armband Sense Wear to utilize the effect of sleep quality on academic performance. The result of the finding reported quality sleep has an effect on school performance. Sleep is the important factor for physical growth and strengthening academic performance. There is a links between sleep disturbances, attention, learning and memory in adolescent. When the students involved in insomnia they may having the problems related to memory, decision-making, learning and concentration. Thus, the students who have poor sleep quality may have low academic performance.

## **Conclusion**

The study has been run in Universiti Malaysia Sabah (UMS) among respondents which may have problem in smartphone addiction. The researcher decided to do this study because the problem of smartphone addiction has become serious especially during this MCO period. The problem of smartphone addiction has become one of

the problems that affect the sleep quality and academic performance among most of the student.

There are a lot of study has been done on the smartphone addiction topic. The finding of the researcher is similar with most of the past study. From the finding the researcher indicated that there is a significant correlation between smartphone addiction and academic performance. The higher the addiction of smartphone, the lower the academic performance of the students. Researcher also indicated that there is a significant correlation between sleep quality and academic performance. The higher the poor sleep quality, the lower the academic performance of students. Finally, there is a significant correlation between smartphone addiction and sleep quality. The higher the addiction of smartphone, the higher the poor sleep quality of students.

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