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THE GAME ON 2022:

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BRIGHT

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THE FUTURE IS BRIGHT**

**FACUTLY OF HOSPIATLITY, TOURISM AND WELLNESS,  
UNIVERSITI MALAYSIA KELANTAN**

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## **Editors**

Aifa Rozaini Mohd Radzol, PhD

Ataul Karim Patwary, PhD

Nurul Aziah Binti Ahmad

Nik Alif Amri Bin Nik Hashim, PhD



# Factors Affecting Sleeping Patterns During Covid-19 Among Undergraduate Students in Universiti Malaysia Kelantan City Campus

Aisha Azman, Farah Afiqah Othman, Najmunhuda Zainudin, & \*Mohammed Ruqaimi Remeli

*Faculty of Hospitality, Tourism and Wellness, Universiti Malaysia Kelantan*

*Corresponding email: [ruqaimi@umk.edu.my](mailto:ruqaimi@umk.edu.my)*

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## ABSTRACT

*Covid-19 spread around the world in December 2019 and started spreading in Malaysia around March 2020. As an implication, a lockdown or movement control order (MCO) has been implemented worldwide to control the disease. MCO has changed daily routine,, especially in sedentary behaviours, which means decreased physical activity, change in sleeping patterns, and increased use of screen gadgets. The research objectives of this study were to analyse the relationship between physical activity, smartphone usage and sleeping quality that affect sleeping during covid-19 among undergraduate students at Universiti Malaysia Kelantan City Campus. This research uses quantitative data to collect data from 294 respondents that consist of students in two faculties which are FHPK and FKP at UMK City Campus. Data was collected using a questionnaire and analysed by using SPSS version 26. To conclude, the results of the study were achieved and supported the variable of the study.*

*Keywords: Sleeping Pattern, Physical Activity, Smartphone Usage, Sleeping Quality*

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## INTRODUCTION

The World Health Organization (WHO) has suggested social isolation and home quarantine to control the spread of the coronavirus disease (Covid-19). Therefore, a lockdown was implemented worldwide in March 2020, and Malaysia is one of the most afflicted countries.

The sleeping pattern of teenagers during the Movement Control Order (MCO) also changed due to their laziness and depending too often on social media. This is because teenagers stay at home too long due to MCO restrictions, so some may sleep too often and sleep less. Those who sleep too much may make their daily schedule boring; and choose to sleep for long periods. In the current study, participants delayed their wake time by 12 minutes, resulting in a 5-minute increase in total sleep per day, but no significant improvement in sleep quality was found.

A good night's sleep is widely recognized as a source of physical and mental health, happiness, and vigour. Individuals who do not get enough restorative sleep will be unable to perform, study, develop, or interact to their full potential at any given time. With the new life of studying, a university student's lifestyle transforms. Students' academic progress is greatly hampered by sleep issues and disorders.

The current study, according to Zhou, Wang, L. L., Yang, R., Yang, X. J., Zhang, Guo, Chen, J. C., Wang, J. Q & Chen (2020) revealed a high prevalence of sleep problems among adolescents and young adults during part of the covid-19 epidemic in China, especially among senior high school and college students, which were negatively associated with the level projection in covid-19 trends. They also discovered that social support could ease or minimise sleeplessness symptoms by reducing anxiety and depression symptoms; therefore, during the covid-19 outbreak, parents, school organisations, and other groups should provide some social

support to teenagers and young adults. These findings also indicate that the government should pay greater attention to sleep-related issues. These findings also imply that, in the fight against covid-19, the government should pay more attention to sleep difficulties among teenagers and young people.

This research consists of three objectives:

1. To analyse the relationship between physical activities and sleeping patterns during covid-19 among undergraduate students at Universiti Malaysia Kelantan City Campus
2. To identify the relationship between the usage of smartphones and sleeping patterns during covid-19 among undergraduate students at Universiti Malaysia Kelantan City Campus.
3. To determine the relationship between the quality of sleep and sleeping patterns during covid-19 among undergraduate students at Universiti Malaysia Kelantan City Campus.

### **Significance of Study**

#### **Researcher**

This research can help some researchers to make decisions and gain statistics on sleep behaviour in students. Additionally, as the research is related to the covid-19 pandemic, some parties or professionals can analyse factors influencing sleep behaviour like smartphone use- and identify some comparisons related to sleep behaviour during home confinement due to covid-19 and before covid-19 arise.

#### **Students and Parents**

Students can also improve their knowledge about the importance of a healthy lifestyle, such as being an active student and increasing physical activity, whether on campus or at home. Based on the findings in this research, parents and guardians can be made aware of the sleeping pattern of their children; and their time on gadgets, including smartphones, tablets, laptops, and others.

#### **Government and Society**

In brief, this research will assist society in obtaining a healthy lifestyle, especially regarding the quality of sleep patterns and other health concerns like physical activity. Also, the concern with sleeping patterns by practising adequate sleep hours daily, eating healthy foods and having a balanced diet. Government and non-government organisations can collaborate to create campaigns or awareness to reduce sleep issues and achieve quality sleep patterns, especially during movement control order or home confinement. For example, public health campaigns about sleep hours, including health talk, advertisements, and short film, can be outlined by the Ministry of Communications Multimedia Malaysia and the production team for electronic devices such as television and, radio to increase awareness.

#### **Entrepreneur**

This research may create awareness for entrepreneurs to develop a business to improve the quality and duration of sleep, and to ensure that society can obtain a good sleep habits. For instance, a business promoting sleep items like a pillow with musical elements, an application for sleep schedule or pattern of a user.

## **LITERATURE REVIEW**

### **Physical Activity**

According to WHO (2020), physical activity refers to all movement, during leisure time, for transport to and from places, or as part of a person's work, either moderate or vigorous-

intensity physical activity. Physical activity is an important element in determining a human's life. This is important to reduce the risk of chronic diseases like coronary heart disease, kidney failure and others. According to WHO (2020), adults between 18 to 64 years old must be active in moderate physical activity at least 150 to 300 minutes a week or equal to 30 minutes per day. Meanwhile, for vigorous-intensity activity, a person should do at least 75 to 150 minutes weekly.

Banno, Harada, Taniguchi, Tobita, H. Tsujimoto, Y. Tsujimoto, Kataoka & Noda (2018) stated, several studies showing the positive effects of physical activity on sleep quality, and it is considered one of the non-pharmacological interventions to improve sleep quality. However, the investigation on physical activity level and sleep pattern are still ongoing, and there is no proper evidence on the effect of lesser physical activity due to the covid-19 situation can contribute to sleeping patterns (Diniz, Christofaro, Tebar, Cucato, Botero, Correia, Ritti, Lofrano & Prado, 2020).

### **Smartphone Usage**

Smartphone users are predicted to reach 3.8 billion by 2020 and continue to rise at a rapid rate. Researchers investigate the effects of social distancing on social connectedness and happiness, as well as the moderating effect of smartphone use. Many people are unaware that smartphone addiction is serious and can severely impact on people's thoughts, behaviours, habits, emotions, and overall well-being (Alhassan, Alqadhib, Taha, Alahmari, Salam & Almutairi, 2018).

During the lockdown and home confinement, there is an increase in smartphone consumption which records 2 hours per day in smartphone use. This is evidenced in recent statistics that show adults spending more than the recommended daily hours on smartphone usage. It's worth noting that while increased digital media consumption before bed affects sleep latency and wake duration, it does not affect sleep quality. Furthermore, during the quarantine, people spend more time in front of screens, which has been linked to increased sleep difficulties in young adults (Sañudo et al., 2020).

### **Sleeping Quality**

Sleep quality is obtained by getting enough sleep, an essential component of a good sleep pattern. According to Chaput, Dutil & Kanyinga (2018), sleep duration varies substantially during a human's life and has an inverse connection with age. Sleep length guidelines made by public health authorities are vital for surveillance and informing the public about interventions, policies, and healthy sleep behaviours. Individuals in home quarantine during the covid-19 crisis had significantly worse sleep quality than during the pre-quarantine period (Salehinejad, Azarkolah, Ghanavati & Nitsche, 2021).

The covid-19 pandemic-related lockdown appears to have altered several elements of students' unique lifestyles, particularly by boosting screen time, sleep duration and patterns. However, as Toscano, Arbinaga, Ozcorta, Salgado & Frutos (2020) stated in their research, women have the worst sleep quality than men, supported by the various indicators examined consistings of sleep patterns, sleep quality, other related subscales like subjective quality, latency, duration, efficiency, sleep disturbances, and diurnal dysfunctions as well as nightmare frequency and propensity.

## **Sleeping Pattern**

According to the National Sleep Foundation's recommendations, short sleep duration is defined as less than 8 hours per night. The frequencies were dichotomised into binary variables (0 = short sleep duration, 1 = long sleep duration) via ways as follows.

As Franceschini et al. (2020) indicated in their study, that sleeping patterns have changed during the covid-19 pandemic especially during home confinement. This occurs because of changes in work schedules and the adaptation of everyone to cope with the new norm of covid-19 home confinement. This change includes time management as individuals must adapt to new changes like online learning methods and working from home. This may impact the quality of sleep and sleeping schedule as everyone stays at home all day.

An imbalanced sleeping pattern has a more significant effect on health particularly, physical and mental health. In terms of physical health, inadequate sleep is related to the risk of chronic disease. A Malek (2020) refers to a study conducted by the American Cancer Society about inadequate sleep, which stated that a person that sleeps less than 7 hours has a greater risk of developing coronary artery heart disease. In terms of mental health, sleep deprivation can negatively impact on the individual's attention and emotion. This happens because of a decline in the brain's function because sleep deprivation reduces blood flow and neural functions like working memory in a part of the brain (Silva & Sobral, 2021).

## **Research Hypothesis**

Based on the literature discussed, the independent variables like physical activity, smartphone usage and sleeping quality are the factors that affect sleeping patterns during covid-19 among undergraduate students in University Malaysia Kelantan City Campus. Therefore, the hypotheses have been created and to be tested:

- H1 There is a significant relationship between physical activities and sleeping patterns during covid-19 among undergraduate students at Universiti Malaysia Kelantan City Campus.
- H2 There is a significant relationship between smartphone usage and sleeping patterns during covid-19 among undergraduate students at Universiti Malaysia Kelantan City Campus.
- H3 There is a significant relationship between the quality of sleep and sleeping patterns during covid-19 among undergraduate students at Universiti Malaysia Kelantan City Campus.

## **Research Framework**

Figure 1 below shows the research framework used for this study.

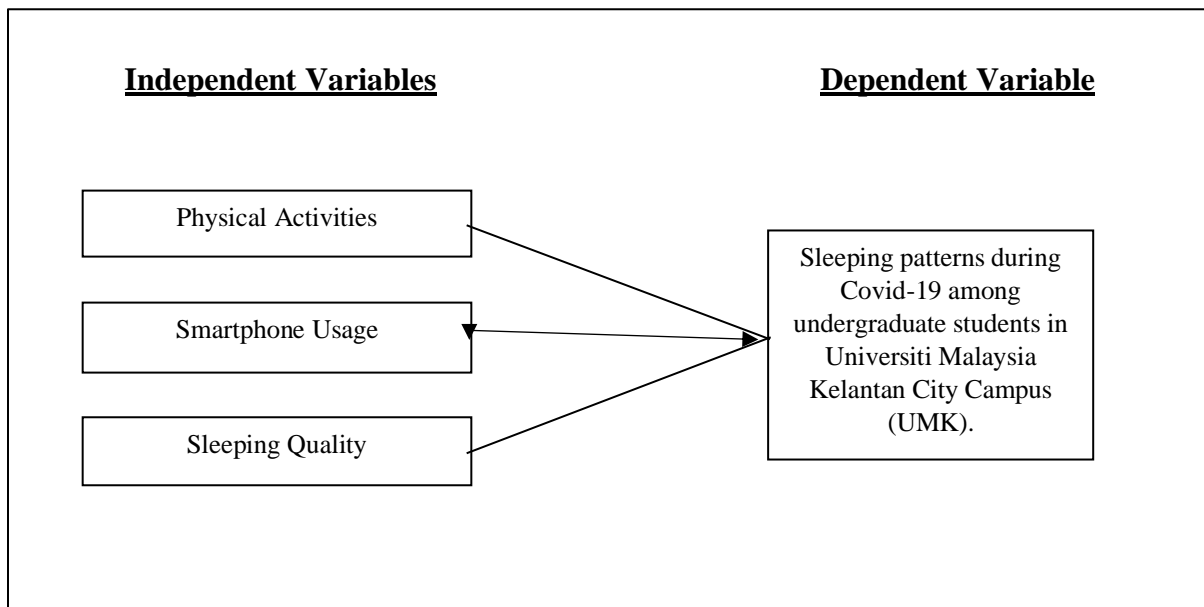


Figure 1: Research Framework

## **METHODOLOGY**

### **Research Design**

This research uses quantitative as a primary tool to collect the numerical respondent's data, including questionnaires that consist of questions related to independent and dependent variables. This research used a non-experimental research design consisting of three designs: descriptive research (which includes observational research and survey research), correlational research and causal-comparative research. In this study, the descriptive research design was used.

The researchers utilised past surveys as a basis to create a questionnaire that was both reliable and functional for respondents to complete. Section A, Section B, Section C, Section D, and Section E were the questionnaire sections. The dependent variable had ten questions, whereas each independent variable included seven questions for physical activity, six in the smartphone usage section and eight in the sleep quality section. In part A, the demographic profile of the responder was examined, including gender, semester, race, religion, and some additional questions. All the items in sections B, C, D, and E were graded on a five-point scale: "1 = severely disagree," "2 = disagree," "3 = neutral," "4 = agree," and "5 = highly agree."

### **Data Collection**

This study utilised the quantitative technique since it is more scientific, impartial, quick, focused, and acceptable. The researchers utilised Google Forms to distribute online questionnaires. The online questionnaire distribution was delivered via WhatsApp groups or Telegram and posted on a Google form link, and data was gathered from FHPK and FKP undergraduate students at the UMK City Campus. The survey was performed online due to the current covid-19 concerns in Malaysia.

### **Sampling**

The researchers used snowball sampling as it was hard to find respondents from the two faculties. Therefore, by using this sampling technique, this study was able to increase the number of respondents to 33, who have been identified by Krejcie & Morgan (1970) in a shorter time.



For this study, the sample population consisted of the following group of respondents/participants from FHPK and FKP at the UMK City Campus. As the population of the two faculties (FHPK and FKP) students at the UMK City Campus was reaching 6,000, the researcher's sample size was 294.

$$s = \frac{x^2 N p (1 - P)}{e^2 (N - 1) + x^2 p (1 - p)}$$

n= sample size

N= population size

e = the degree of accuracy expressed as proportion (0.05)

$x^2$  = chi-square of degree of freedom 1 and confidence 95% (3.841)

p = proportion of population (if unknown, 0.5)

### Data Analysis

In this research, researchers use Statistical Package Social Sciences (SPSS) software version 26 for statistical data and analysing purposes. Four types of data analysis used in this study, were frequency analysis, descriptive analysis, reliability analysis and Pearson correlation analysis.

## FINDINGS

### Result of Frequency Analysis

Table 1 below shows the frequency analysis of this research.

Table 1: Demographic Analysis (n=294)

Characteristics	Frequency	Percentage
Gender		
Male	128	43.5
Female	166	56.5
Semester		
Semester 1	16	5.4
Semester 2	18	6.1
Semester 3	28	9.5
Semester 4	36	12.2
Semester 5	50	17.0
Semester 6	92	31.3
Semester 7	24	8.2
Semester 8	30	10.2
Race		
Malay	210	71.4
Chinese	45	15.3
Indian	34	11.6
Bumiputera	4	1.4
Bumiputera Sabah	1	0.3
Religion		
Islam	214	72.8
Christian	32	10.9
Buddha	22	7.5
Hindu	26	8.8
Nationality		
Malaysian	288	98.0
Non-Malaysian	6	2.0
Marital Status		

Single	277	94.2
Married	17	5.8
Faculty		
FHPK	168	57.1
FKP	126	42.9

### Result of Descriptive Analysis

Table 2 below shows the descriptive analysis of this research.

Table 2: Descriptive analysis

Variable	Items	Mean	Standard
		Score	Deviation
Sleeping Pattern	1. It takes me 30 minutes or more to fall asleep.	3.80	1.233
	2. My work (Assignments) or other activities prevent me from getting at least 7 hours of sleep.	3.11	1.334
	3. It takes me 30 minutes or more to fall asleep.	2.71	1.458
	4. I am awake for 30 minutes or more during the night.	2.58	1.225
	5. I wake up 30 or more minutes before I must and can't fall back asleep.	1.70	1.044
	6. I am tired, fatigued, or sleepy during the day.	3.65	1.158
	7. I sleep better if I go to bed before 9 pm and wake up before 4:30 am.	1.51	0.987
	8. I sleep better if I go to bed late (after 1 am) and wake up late (after 9 am).	2.01	1.407
	9. I am prone to fall asleep at inappropriate times or places.	1.64	0.481
	10. I Snore	2.55	1.427
Physical Activities	1. During lockdown/MCO, how would you rate your vigorous physical activities like heavy lifting, digging, aerobics, or fast bicycling?	3.26	0.607
	2. How much time did you usually spend doing vigorous physical activities on one of those days? (Each number represents 30 minutes, e.g.,: 1. Less than 30 minutes, 2. 30 minutes to 1 hour...)	3.15	1.476
	3. During lockdown/MCO, how would you rate your moderate physical activities like carrying light loads or others? Do not include walking.	3.15	1.476

	4. How much time did you usually spend doing moderate physical activities on one of those days? (Each number represents 30 minutes, e.g.,: 1. Less than 30 minutes, 2. 30 minutes to 1 hour...)	3.15	1.476
	5. During lockdown/MCO, how would you rate your walking pattern for at least 10 minutes at a time?	3.15	1.476
	6. How much time did you usually spend on that activity? (Each number represents 30 minutes, e.g.,: 1. Less than 30 minutes, 2. 30 minutes to 1 hour...)	3.15	1.476
	7. During lockdown/MCO, how much time did you spend sitting on a weekday? (Each number represents 1 to 2 hours, e.g.,: 1. One or less than 2 hours, 2. Two to 4 hours....)	3.15	1.476
Mobile Phone Usage	1. How long have you owned a mobile phone?	3.15	1.476
	2. How much time do you spend on your mobile phone daily?	3.15	1.476
	3. It is easy for me to spend all day not using my mobile phone.	3.22	1.390
	4. I don't pay attention to my mobile phone spending.	3.15	1.476
	5. I use my mobile phone in situations that would qualify as an emergency	3.15	1.476
	6. I borrow money from family or friends to pay my mobile phone bills.	3.15	1.476
Sleep Quality	1. During lockdown (MCO), when do you usually go to bed?	3.01	1.495
	2. During lockdown (MCO), how long (in minutes) does it usually take you to fall asleep each night?	3.15	1.476
	3. During lockdown / MCO, when have you usually get up in the morning?	3.15	1.476
	4. During lockdown (MCO), how would you rate the hours of actual sleep you get at night?	3.04	1.551
	5. During the lockdown (MCO), how would you rate your trouble sleeping?	3.15	1.476
	6. During Lockdown (MCO), how would you rate your overall sleep quality?	2.83	1.524
	7. During the lockdown (MCO), how often have you taken medicine	3.15	1.476

(prescribed or 'over the counter') to help you sleep?

8. During lockdown (MCO), how often have you had trouble staying awake while driving, eating meals, or engaging in social activity? How would you rate it? 2.73 1.525

Table 3 shows the mean and standard deviation for 25 statements under three independent variables and ten statements under the dependent variable based on the survey involving 294 respondents. The highest mean value for optimism was obtained by question 1 with 3.26, where the respondents agreed that during lockdown/MCO, how would you rate your vigorous physical activities like heavy lifting, digging, aerobics, or fast bicycling? The other mean for another question was maintenance, which is 3.15. Next, the highest mean value for the second independent variable was obtained by question 3 with 3.22, where the respondents agreed to not spend all time with mobile phones. Others mean value for another five questions were maintained which is 3.1. Furthermore, the highest mean value for the last independent variable was obtained by four questions with the same mean value of 3.15. The lowest mean value belongs to question 8 with 2.73, where the respondents do not have any problem with their sleepiness during the day.

### Result of Reliability Analysis

Table 3 below shows the reliability analysis of this research.

Table 3: Reliability Atalysis

Variable	Number of Items	Cronbach Alpha
Sleeping Pattern	10	0.209
Physical Activity	7	0.998
Smartphone Usage	6	0.999
Sleeping Quality	8	0.986

The Cronbach's Alpha scores for the questionnaire were in the range of poor level 0.20 to high level 0.999, as shown in Table 3. Cronbach's Alpha was used to assess three independent variables and one dependent variable. In the strength of correlation (10 questions: = 0.209), the first independent variable, sleeping pattern, was determined to be the lowest level in reliability analysis. The physical activity is then (7 questions with a score of 0.998). However, the correlation strength with smartphone usage was the weakest, with a high score in Cronbach Alpha (6 questions: = 0.999). Finally, sleeping quality has eight questions, with the score for Cronbach Alpha value being 0.986. Because the present Cronbach's Alpha value is already above the excellent threshold, the total variables have remained around 31 questions. As a result, the data were deemed appropriate for future investigation.

## Result of Pearson Correlation Analysis

Table 4 below shows the correlation analysis of this research.

Table 4: Pearson Correlation Analysis

Hypothesis	P-Value	Result (Supported/ Not Supported)
H1: There is a significant relationship between physical activities and sleeping patterns during covid-19 among undergraduate students at University Malaysia Kelantan City Campus.	0.205	H1 is supported
H2: There is a significant relationship between smartphone usage and sleeping patterns during covid-19 among undergraduate students at University Malaysia Kelantan City Campus.	0.225	H2 is supported
H3: There is a significant relationship between the quality of sleep and sleeping patterns during covid-19 among undergraduate students at University Malaysia Kelantan City Campus.	0.503	H3 is supported

The table shows that physical activity and sleeping patterns significantly correlated with  $r=0.205$   $p<0.01$ . Next, the p-value of H2 also shows a significant correlation between smartphone usage and sleeping pattern with  $r=0.225$   $p<0.01$ . Similarly, there is also significant between sleeping quality and sleeping pattern with  $r=0.503$   $p<0.01$ . Therefore, the overall result is supported by the three hypotheses of the study.

## DISCUSSION AND RECOMMENDATION

This study has analysed the factors affecting sleeping patterns during covid-19 among undergraduate students at University Malaysia Kelantan City Campus. In this section, there are several recommendations provided by researchers for improvement purposes in future studies.

Based on the findings, the suggested recommendation is the government can cooperate with non-government organisations to promote a healthy lifestyle by establishing an awareness campaign about healthy lifestyle, virtual run campaigns and other activities. This includes educating the public about good sleeping habits, an active lifestyle, and proper smartphone usage.

Next, it is also suggested that longitudinal studies be used in future research. This strategy is useful in research since it allows researchers to repeat the same investigations over a period. Based on Zuki. et al. (2021), the purpose of a longitudinal study is to see if there are any changes in the research over time.

It is suggested that future research seeks out additional populations and increases the sample size, such as from other universities in another state. As a result of this method, the study will become more precise as more data or information becomes accessible.

## CONCLUSION

Finally, this research looked at the factors affecting sleeping patterns during covid-19 among undergraduate students at the Universiti Malaysia Kelantan City Campus. Physical activity, smartphone usage, and sleeping quality were chosen as independent variables to investigate the association between the dependent variables of students' responses. With a total of 294 respondents from semester one to semester eight undergraduate students, researchers were able to determine their sleeping patterns and how they affected covid-19. Overall, based on the finding of Pearson's correlation analysis, the sleeping pattern scored a value of  $*0.1$ , followed by physical activity with  $*-0.074$ , smartphone usage with  $*-0.071$  and sleep quality with  $-0.039*$ . As a result, if pandemics affect the entire world, this research can give a conclusion or insight into the future, particularly for students.

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