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Mobile Phone Usage, Sleep Quality, and Life Satisfaction among University Students in Malaysia

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Abstract

Life satisfaction is a cognitive evaluation on one's life, ranging from positive to negative. This study aims to determine the relationship between mobile phone usage, sleep quality, and life satisfaction among university students in Malaysia. Sample of this study was 463 university students from National University of Malaysia (UKM) and University Putra Malaysia (UPM), age between 18-30 years old. Sample was chosen using snowball technique. Instruments used for this study are Satisfaction with Life Scale (SWLS), Test of Mobile Phone Dependence (TMD), and Cleveland Adolescence Sleep Questionnaire (CASQ). Data was collected using an online self-administered survey questionnaire. Statistical Package for Social Sciences (SPSS) was used to analyse the data. Pearson correlation was used to describe relationships between the three variables. In determining the predictor of life satisfaction, multiple regression was conducted to determine which factors contribute most to life satisfaction among university students. The result shows that mobile phone usage contributed positively amounting to 21.3% of students' quality of life ($\beta = .213$; $p < .05$) and sleep quality contributed negatively to 36.9% of students' quality of life ($\beta = -.369$; $p < .05$). Majority of university students, who participated in this study are having an average level of satisfaction with life. These results showed that, being a young adult and university students at the same time, decreases their perception on how they feel and evaluate on life satisfaction.

Keywords: Mobile Phone Usage, Sleep Quality, Life Satisfaction, University Students

Background of the Study

Young adults, according to World Health Organization (WHO), a group of people with age ranging from 10 to 24 years old. The United Nations describes young adults aged 15 to 24 years old. Young adults in the National Youth Development Policy of Malaysia (1997) known as individuals between 15 to 40 years old. However, the definition of young adults was then replaced with age ranging from 15 to 30 years old (UNICEF, 2018). According to Erikson (1977), young adults discover their self-identity upon this phase of their life whereby, they are ready

to seek for relationships with society. It offers opportunities to develop their identity during adulthood transition phase in fulfilling their societal needs (Branje et al., 2021). In this context, young adults are a group of high school students that are still adjusting from secondary education level into university. Besides, during the adjustment phase, they have challenges to overcome as university students (Karyotaki et al., 2020). They are responsible in managing their own lives and need to know-how in handling financial situation without the presence of parents. Some of them were separated from their parent and home when they enrolled into college or university. Hence, university years are one of stress initiator phase for young adults which force them to survive on their own (Cress & Lampman, 2007).

Existing research shows that 12% of college students had a high level of stress and 75% of the students had a moderate level of stress (Pierceall & Keim, 2007). The numbers of students with a moderate level of stress are quite worrying since the level of stress will increase when it triggers by stressors around them, either external or internal. In Malaysia, Shamsuddin et al (2013) reported that university students, who is 20 years old and above, achieved higher score in anxiety and depression among 506 respondents. Recent studies have revealed that first and second years of university life can be stressful as they have difficulties in adjusting with new environment while being responsible towards their academic performance (Langtree et al., 2018; Fauzi et al., 2021). These include high academic workload, frequent tests and quizzes, and personal challenges such as dealing with expectations. These stressors can contribute to dissatisfaction in life.

An individual's cognitive assessment happens when an individual evaluates or measures quality of one's life which is then determined by their own personal needs and wants (Diener, 1984; Aghaei et al., 2013; Leung et al., 2017; Kim, & Ko, 2018). Moreover, the environment can influence in developing an individual's judgement about the way he thinks of himself and the world around him (Topaloglu, 2015; Sezer & Gulleroglu, 2017). In addition, the surroundings, either positive or negative, would determine the personal development of an individual's progress. This includes the development of one's talents and then by achieving his full potential (Rogers, 1961). It eventually helps in enhancing one's quality of life and then leading to fulfil one's life goals. In this context, students with high life satisfaction were secured with succession in academic-related activities, and less diagnosed with life-threatening health conditions, which indicates low in mortality risk (Siahpush et al., 2008; Duffy et al., 2012; Antaramian, 2017). Students who are living well will show positive outcomes in a few domains of life, which include, interpersonal relationship, career, and physical functional (Lewis et al., 2011). It encompasses how well people are functioning that allows them to develop after realizing their potential. By showing how well an individual is living their life, life satisfaction also affected by changes in emotion (Koots-Ausmees et al., 2012; Sanchez-Alvarez et al., 2015), which is one of the factors that may influence the changes in behaviour (Maher & Conroy, 2017) and does not value social interactions with others (Ateca-Amesoy et al., 2013). According to Diener (1984), those who are experiencing positive emotions tend to increase their valuation towards life. Therefore, discovery of the study shows that higher level of satisfaction may result in positive individual's mental health and well-being. Students with positive result in life satisfaction tend to enjoy their time at the university (Ojeda et al., 2011; Cagle, 2017) and reducing their academic stress.

According to the data from Malaysian Communications and Multimedia Commission (MCMC), young adults in 2017 have ownership of mobile phones. In 2021, MCMC revealed that mobile

phone users among Malaysian is highest among young adults. For young adults, by owning mobile phone is one step away from being dependence to their parents (Firth et al., 2016; Langford et al., 2019). Mobile phones, especially smart phones, is portable and multipurpose tool of communications. It does not limit to communicate and engage with others on the networks, also it gives an individual the ability to have access to global news and entertainment across the globe (Scherer, 1997; Kraut et al., 1998, Guo et al., 2015). Nowadays, many applications and features of the phones are designed to cater people needs, especially university students. It is widely used as a tool for educational purposes and social networking (Kaysi et al., 2021).

The rapid growth of information and communications technology (ICT) and mobile phones enable people to interact with each other via faceless communication. This interaction does not require them to meet physically. Mobile phones have become an important tool in individuals' life. It somehow turns the importance of using this communication tool into addiction whenever the usage limit is exceeding. Without being aware that stress can unconsciously create when an individual is overusing mobile phone (Boonjing, & Chanvarasuth, 2017). The scenario of over usage of mobile phone increases along with the emergence of wireless networks, which allows the subscription of mobile internet data. Moreover, Internet can be accessed easily in public and private places, for example, coffee shops and restaurants. they provide free internet networks services for customers. This service leads to increase the usage of mobile phone among people including youngsters at any time and from everywhere.

For most users, mobile phones have become an integral tool and serve numerous benefits in aiding their lives. However, the effects caused by addiction of mobile phone are similar as drugs abuse, but without consumption of substances, whenever the users exceeding the recommended regular time of usage (Panova & Carbonell, 2018). It casts a negative impact to user's health, interpersonal relationships, and may experience lack in emotion control (Choliz, 2010; Epkins & Heckler, 2011; Chen et al., 2017). Moreover, past research shown that an individual who is uncomfortable with face-to face communication tends to have high anxiety and depression and confront difficulties in socializing with 'real people' (Epkins & Heckler, 2011; Saling & Haire, 2016). In the context of this study, high dependency on mobile phone among university students may contribute to academic procrastination (Yang, Wang & Hu, 2020). The study revealed that over usage of mobile phone caused by high level of stress and overpowered with negative emotions.

Sleep is an important factor that may contribute to life satisfaction of an individual. Sleep defines as one of the body states which is a condition of body and mind that repeatedly occurs for several hours, which includes non-active in nervous system activities, and consciousness of an individual is shut down (Martinez et al., 2010). Sleep is very important for human-being to give their body a good rest and helps in regulating the brain to function well, healthy emotional well-being, and reenergize the body for the use of next day performance. It is then eventually will contribute to high satisfaction in one's life. There are two constructs in evaluating one's sleep, which are quality and quantity (Schlarb et al., 2017; Ness & Saksvik-Lehouillier, 2018). Sleep quality indicates as satisfaction of the sleep experience and the individual can maintain their bodily functioning the next day. While sleep quantity defines as the time spent to restore one's energy during sleep. Hence, every

human-being needs to perform a good and adequate of sleep, thus contributing to high levels of life satisfaction.

According to Abdalqader et al (2018), they conducted a study on 445 university students, aged from 18 to 30 years old, in Selangor. They found that only 31% of the students did not score high in insomnia. Most of them wide awake during sleep time and they spend the sleepless nights by accessing social media. The frequent use of mobile phones before sleeping was revealed that 66.7% of them use it at night-time which then caused sleep deprivation. It is associated with prolonged use of mobile phone daily and loss in self-control (Rafique et al., 2020; Liu, Zhu, & Liu, 2020). Therefore, poor sleep quality may lead to disruption in brain and emotion regulation, thus reducing their life satisfaction.

Statement of Problem

During university years, there is an underlying stress arises from new challenges ahead. Being both university student and young adult at the same time, adds up more stressful event in their life since they need to take responsibility of their own life. It is stressful enough to live with the transition and changes in life schedule, while the need to perform successfully in academic (Miqdadi et al., 2014; Langtree et al., 2018; Seo et al., 2018; Fauzi et al., 2021). For instance, as university students, they must be able to fulfill their academic responsibility. These include completing assignments, managing study time for quizzes and tests, and attending classes. Besides that, social engagement with others also becoming part of educational process in university (Kong et al., 2012; Bowden et al., 2021). Students may acquire it by participating in non-academic activities such as co-curricular activities and clubs. However, less involvement with peers may influence one's to have difficulty in adapting and has negative impact on their resilience (Wu et al., 2015; Khalid, 2021).

Every university student wants to ace in both academic and non-academic activities. These include having good grades and gaining experience while socializing with peers. A study conducted by Semenov et al (2021) stated that, high level of self-acceptance among university students may increase their social expectations, thus experiencing positive outcome in evaluation of life. In addition, being a university student is quite stressful as there is university requirements to fulfill as well as social expectations. However, to what extent university students in Malaysia feel satisfy with their life. Notably, when they need to manage their time while actively participating in university activities.

Living in technological era, mobile phone is an essential tool for university students. They can communicate with others via mobile instant messaging application (MIM) such as WhatsApp (Urien et al., 2019). The application offers many advantages such as easier to use and time-efficient. On top of that, mobile phone is useful for educational purposes. Particularly, in gathering information for assignments which includes accessing online academic articles. It is an efficient way to access academic-related information while in class (Iqbal et al., 2017). However, the acts of using mobile phones during lecture is a negative side of possessing a mobile phone (Vaidya et al., 2016). Excessive usage of mobile phone during classes can cause high distraction, thus associated with poor academic performance. It is also contributing factors of low life satisfaction (Frimpong et al., 2016; Kaur, 2020). In previous studies, spending too much time using mobile phone (Amra et al., 2017; Parasuraman et al., 2017) and poor in sleep quality which resulting in feeling too tired (Radek & Kaprelian, 2013; Ness & Saksvik-Lehouillier, 2018; Shin & Kim, 2018) are related to low level of life satisfaction among university students.

A study by Jones (2014) found that majority of students mentioned that they frequently used mobile instant messaging (MIM) feature. Students became addicted to constant communication even it was faceless communication. They became uncomfortable when they did not have mobile phone with them, which is 77.4% of them feel that way. A similar study conducted by Li et al (2021) on tendency of becoming a mobile phone addict. They discovered that loneliness is associated with boredom. Boredom may occur when an individual unable to retain their attention.

Using mobile phone while juggling with other necessary task can contribute to “technostress” which eventually caused negative impact towards one’s functionality in daily lives (Boonjing & Chanvarasuth, 2017; Ghani et al., 2017). Technostress can create strains and resulting in feeling dissatisfied with anything and decreasing daily productivity (Tarafdar, Tu, & Ragu-Nathan, 2011). In Malaysia, a study conducted by Parasuraman et al. (2017), showed 74.3% from 409 respondents acknowledged themselves as those who depend the most on mobile phone and would never stop using it even though almost 70% of them agreed that their lifestyles were being affected. 276 respondents agreed that using mobile phone too much gave them extreme tiredness which in the end affected their sleep quality at night. An exceeding usage of mobile phone in this era of technological revolution, is forcing an individual to turn himself into someone who are very dependent to mobile phone, and it takes away his sleep-time (Shin et al., 2017).

Having a good quality of sleep and waking up without feeling weary is quite impossible for every individual especially for an individual with dual role, by posing a university student and young adult at the same time (Schlarb et al., 2017). In a study conducted by Radek and Kaprelian (2013) revealed that 76.37% of psychology students were not having adequate amount of sleep during weekdays, and 84.42% of them agreed that they also did not getting enough rest on the weekend. It is eventually giving negative impact to students’ health and their cognitive functionality (Correa et al., 2017).

Methodology

Research design itself serves various purposes (Aaker et al., 2000). It is a detailed plan in the selection of information that will be used in this study to answer research questions. It is also to elaborate the relationships between variables in this study. This study used quantitative approach which eventually to explain the correlation of each chosen variables, namely, antecedent variable (respondents’ socio-demographic profile), independent variables (mobile phone usage and sleep quality), and dependent variable (life satisfaction)

This cross-sectional research design (Setia, 2016) was used to determine the associations between characteristics of socio-demographic, mobile phone usage, sleep quality, and life satisfaction among research university students in Malaysia. This study was conducted using survey research with self-administered questionnaire. It was responsible to collect data on mobile phone usage, sleep quality, and life satisfaction, and analyze it at the end of the study. Survey research was used since it involved a large sample size, and a Google form link consists of survey questionnaire was shared with chosen respondent.

Population of the Study

The survey was conducted to identify the relationship between mobile phone usage, sleep quality and life satisfaction among university students. Population of this study consisted of all Malaysian students from public and private universities. By using multi-stage cluster sampling, 20 public universities were selected as a first cluster as shown in **Figure 1**. A list of

public universities in Malaysia was retrieved from Malaysia Qualification Register and Malaysian Youth Data Bank System website. Then, Selangor, a Malaysia state was selected as second cluster. According to Malaysia Youth Data System (2017), Selangor is one of the states with the highest number of university students, especially young adults in Malaysia. It was reported with an estimate of 218,260 students.

Then, four public universities have been shortlisted. There are Universiti Kebangsaan Malaysia (UKM), Universiti Putra Malaysia (UPM), Universiti Teknologi MARA (UiTM) and Universiti Islam Antarabangsa Malaysia (UIAM). A fishbowl draw method was used to select the sample and location of the study. UKM and UPM were finally selected to determine for the actual study. After completing the survey, respondents were asked to share and recommend a friend as the next respondent. It is known as snowball sampling, which allows a study to achieve a desirable number of respondent (Sedgwick, 2013). The sample consisted of 117 (25.3%) male and 346 (74.7%) female students.

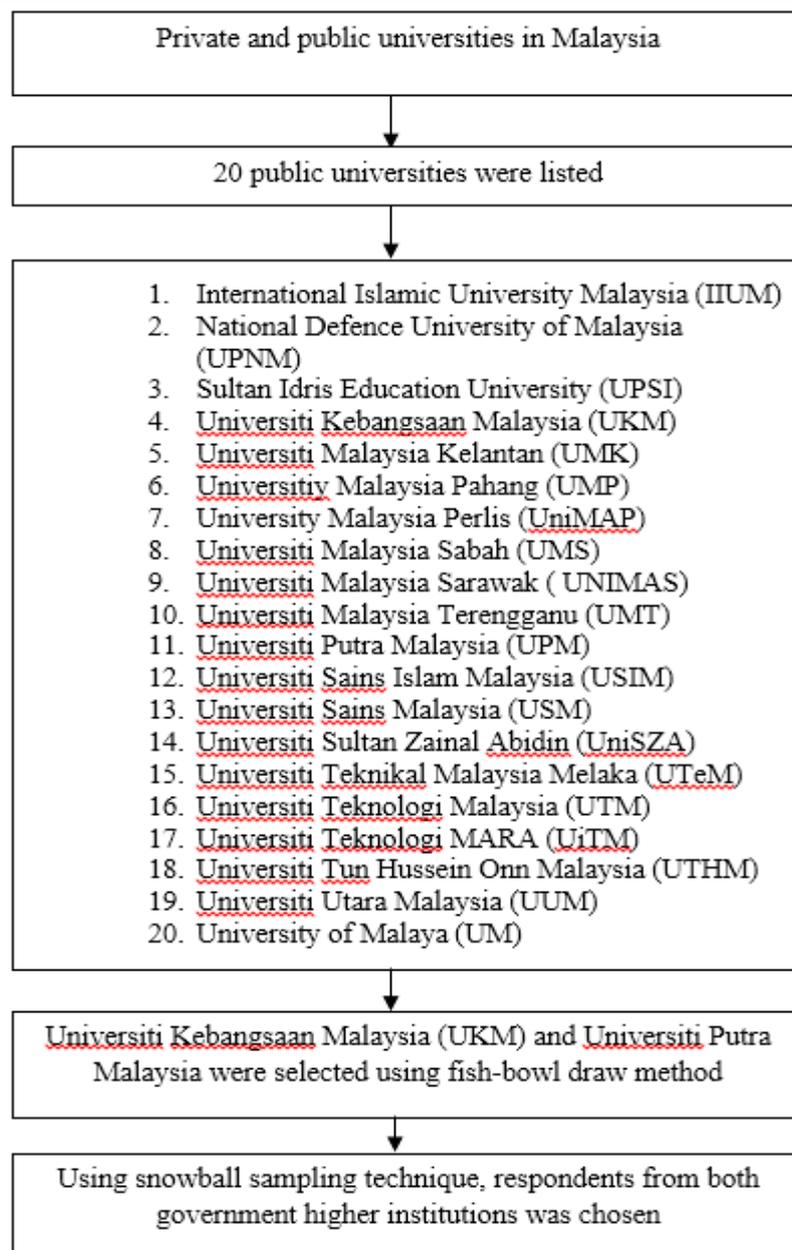


Figure 1. Selection of the sample

Instrumentation

The questionnaire was divided into four sections. Variables such as life satisfaction, mobile phone usage and sleep quality were measured using the Likert scale questions. While socio-demographic characteristics were a self-administered question, which included personal information (age, gender, races, university, faculty) and duration of Internet usage.

Level of life satisfaction among respondents was assessed using Satisfaction with Life Scale (SWLS), developed by (Diener et al., 1985). It consists of five items in measuring global cognitive evaluation of an individual's life satisfaction. In this study, respondents were assessed by their degree of agreement and disagreement with each of the 5 items, using a 7-point Likert scale. This scale ranging from (1) Strongly disagree to (7) Strongly agree.

Test of Mobile Phone Dependence (TMD) was designed by Choliz (2012) to measure to what extent an individual becomes mobile phone addicts on how they spend time with mobile phone (i.e., for personal or academic-related reasons). It consists of 22 items with a Likert scale. The first 10 items, measured how frequents the statement applies to respondents, ranging from (0) Never to (4) Frequently (i.e., I have put a limit on my mobile phone use and I could not stick to it). The remaining items, starting from item 11, ranging from (0) Completely disagree to (4) Completely agree (i.e., When I have my mobile phone with me, I can't stop using it).

Finally, for sleep quality, Cleveland Adolescent Sleep Questionnaire (CASQ) developed by Spilsbury et al (2007) was used. It was designed to measure the level of sleepiness of respondents during broad day light. In addition, there were minor changes for some items. The word 'school' was replaced with 'campus' and 'lecture' replaced the word 'class'. This is due to the nature of the study to collect information among university students. The score for all items is ranging from (1) Never to (5) Almost every day.

Permission to use and translate the original instruments to Malay language for this study were obtained via e-mail. The publicly accessed instrument from respective website do not need any permission. A direct translation from English to Malay language was done in constructing the dual language questionnaire. The questionnaire was then reviewed by a lecturer from Universiti Putra Malaysia (UPM) as a process of obtaining feedback.

Pilot Study

A pilot study was conducted after the reviewing process. 30 self-administered questionnaires were distributed physically. Respondents for pilot study were chosen by convenience sampling. University of Malaya, Kuala Lumpur was selected as the location for pilot test. Researcher explained the main purpose of the survey and asked respondents to mark and write down if there were any problematic items. It was to ensure that, in actual research, the amount of incomplete survey is none. On the other hand, the items in the questionnaire can be improved. These include in language used, difficulties to understand the context, and time to complete the survey. After the completion of pilot study, the information obtained were not included in the actual study. However, the result of reliability test for pilot and actual study were obtained (Table 1).

Table 1

The instruments and reliabilities (Cronbach's alpha)

Instrument	α Pilot study (N=30)	α Actual study (N=463)
Satisfaction With Life Scale (SWLS) 5 items	0.78	0.92
Test of Mobile Phone Dependence (TMD) 22 items	0.94	0.79
Cleveland Adolescent Sleep Questionnaire (CASQ) 16 items (6 reversed items)	0.75	0.76

Findings

Analysis of Pearson correlation was used to describe the relationship between mobile phone usage and life satisfaction. In **Table 2.**, results showed that university students' usage of mobile phone has a positive significant relationship ($r = .102$; $p < .05$) with life satisfaction. The finding provides evidence that, increasing usage of mobile phone among selected university students reported to have high satisfaction with life. When these findings were assessed in view of literature, they appear inconsistent with previous studies (Frimpong et al., 2016; Dayapoglu et al., 2016; Cha & Seo, 2018; Kaur, 2020).

Table 2

Correlations of life satisfaction with mobile phone usage and sleep quality

Variables	Life satisfaction	
	r	p
Mobile phone usage	.102*	.028
Sleep Quality	-.305**	.000

*. Correlation is significant at the 0.05 level (2-tailed)

** . Correlation is significant at the 0.01 level (2-tailed)

By conducting Pearson correlation test, relationship between sleep quality and life satisfaction have been analyzed. The results from data analysis as presented in **Table 2.**, shows that the relationship of sleep quality was negatively correlates with life satisfaction ($r = -.305$; $p < .05$). The findings suggest that university students with poor sleep quality, do have a better life satisfaction. The findings of this study are inconsistent with previous studies (Spilsbury et al., 2007; Lombardo et al., 2018; Ness & Saksvik-Lehouillier, 2018; Shin, Kim & Grigsby-Touissaint, 2017).

The results suggest that respondents with increased usage of mobile phone were reported with a better satisfaction with life. Owning a mobile phone is a must in this technological era and it is an essential item for majority of people, especially young adults. Findings show that, there is a positive significant relationship ($r = .102$; $p < .05$) between mobile phone usage and life satisfaction. This indicates, heavy usage of mobile phone, do make them feel satisfied. Sleep quality determines how well an individual sleeps during night-time. The finding provides evidence that, the relationship of sleep quality was negative significant relationship ($r = -.305$;

$p < .05$) with life satisfaction. The findings suggest that university students with poor sleep quality, do have a better life satisfaction.

Table 3

Regression Models Predicting Life Satisfaction from Mobile Phone Usage and Sleep Quality

Variables	B	Standard Error (B)	β	t	Sig.(p)
Mobile Phone Usage	.141	.030	.213	4.675	.000
Sleep Quality	-.338	.042	-.369	-8.111	.000

Note : R^2 adjusted = .131

Multiple regression analysis was used to test if the mobile phone and sleep quality significantly predicted life satisfaction among university students. The results of the regression indicated the two predictors explained the variance by the model as a whole was 13.1% ($R^2 = .131$, $F(2,460) = 35.673$, $p < .05$). 13.1% of life satisfaction among selected university students were explained by two independent variables used in regression, which are mobile phone usage and sleep quality. However, the remaining 86.9% explained by the other factors, which are not involve in testing regression equation of life satisfaction.

As referred to **Table 3.**, sleep quality has a beta value, β of $-.369$ which proves that sleep quality has a negative relationship with life satisfaction. While β for mobile phone usage is $.213$. Moreover, both p-value are less than $.05$. As the significant value for both, mobile phone usage and sleep quality are $p < .05$. It was found that mobile phone usage contributed positively amounting to 21.3% of students' quality of life and sleep quality contributed negatively to 36.9% of students' quality of life. From these results, it was revealed that mobile phone usage and sleep quality were significant predictors of life satisfaction.

Discussion and Conclusion

This paper found that, mobile phone usage increases, and sleep quality decreases with the increasing in life satisfaction of selected university students. Mobile phone usage is positively significant with life satisfaction among university students. Sleep quality happens to have a significant negative relationship with life satisfaction.

Based on the result presented in the previous section, this study suggests that increases usage of mobile phone by the university student, will increase their life satisfaction. This finding is contradicting with previous study by Arslan and Unal (2013), in which they found that college students spend five hours and above with their mobile phones in everyday lives and the exceeding limit usage of mobile phone can have negative effect on university students' attention span during classes. Supported by study from Dayapoglu et al (2016), decreases in life satisfaction is a result from using too much mobile phone. The studies by Aslan (2013); Dayapoglu (2016) were consistent with studies by (Tan et al., 2013; Jones, 2014; Li et al., 2021). They discovered that university students who find leisure in mobile phone tend to be lonely and less contact with real social life. These findings show that as an individual immerse themselves in mobile phone, they may experience a great loneliness without they realising it. Current findings shows that the relationship between sleep quality and life satisfaction is significantly negative. Thus, contrary to Ness & Saksvik-Lehouillier (2018); Shin & Kim (2018), highlighted that having a good sleep quality is important in improving one's life satisfaction. They claimed that undergraduate students who attain less sleep will encounter circadian

rhythm disorder, which is then resulting in decreased life satisfaction. The delayed sleep during night-time among university students can influenced their academic performance, and decreases their productivity (Hershner & Chervin, 2014). However, in this study, good quality of sleep caused negative life satisfaction among university students.

Why this study portrays different result from previous literature? Based on the study as well as researcher's daily observation and discussion with students, it is concluded that in this context of study, mobile phone is used to communicate and connect with their loved ones. Hence whenever they feel lonely, they will use smart phone to have live chat or video call, and this sometimes takes hours. Most of the time, they will use night-time to make the call which leads to sleep deprivation. In a way the usage of mobile phone in this context of study helps them from being lonely which then leads to their life satisfaction.

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