

Jurnal Penelitian Keperawatan Medik	Vol. 5 No. 1	Edition: Mei – Oktober 2022
	http://ejournal.delihusada.ac.id/index.php/JPKM	
Received: 16 Agustus 2022	Revised: 25 Oktober 2022	Accepted: 28 Oktober 2022

THE RELATIONSHIP OF SMARTPHONE USE WITH QUALITY DISORDERS SLEEPING IN SMA NEGERI 2 PEMATANG SIANTAR

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ABSTRAK

Psychological problems that arise in the form of sleep disorders, anxiety, depression, and emotional stress. Sleep is one of the basic needs that everyone needs. The need for rest and sleep must be sufficient for the body to concentrate, make decisions and participate in daily activities. The type of research is descriptive analytic research using a cross sectional approach. The population in this study is all class XI IPA 1 and XI IPA 2 in SMA Negeri 2 Pematangsiantar as to function normally. Lack of sleep will have an impact on the decreased ability many as 71 people and as many as 42 people as samples with simple random sampling method. Data obtained by interview using a questionnaire and analyzed by chi square test. From the results of the chi square test ($\alpha < 0.05$), it shows that there is a significant relationship between smartphone use and sleep quality disorders in adolescents ($\alpha = 0.00$) and the test results show that there is a relationship between smartphone use and sleep quality disorders in adolescents ($\alpha = 0.00$). It is hoped that adolescents will increase their knowledge that excessive smartphone use can cause sleep quality disorders in adolescents

Keywords: Smartphone Use, Sleep Quality

1.INTRODUCTION

The development of information and communication technology is getting faster, changing the order of human life in various aspects of life. The field of communication is one example. You can see a lot of changes in the field of communication. One of them is electronic communication (Saputra, 2017 in Mohamad et al, 2020). Smartphone is one example of electronic communication

technology that has developed rapidly. According to (Rachmawati et al, 2017 in Mohammad et al, 2020) smartphones are electronic devices that have special functions. According to (Aini Musarifah, 2018) in (Mohamad et al, 2020) is a product made with various advanced features that can facilitate its use in finding information, accessing the internet, presenting news and seeking various desired entertainment.

Common features on smartphones include camera, internet, gps, video calls, telephone, sms, email, bluetooth, wifi, games, music and others. Because of the many features that make the smartphone one of the basic needs for everyone. A study conducted by Yen in 2009, found that from 10,191 adolescents studied, it was reported that 30% of participants could tolerate smartphone use, 36% experienced withdrawal, 27% showed smartphone use and 10% experienced impaired social interaction. Many government authorities recognize that there is definitely a risk of addiction from overuse or misuse of smartphones. However, due to limited findings and no validated standards regarding smartphone addiction or problematic user characteristics, no clear conclusions can be drawn at this time. Meanwhile, the main feature of smartphones is internet-based application operation. Thus, the functional use of smartphones must use the internet (Mok et al, 2014 in Muflih et al, 2017). If left unchecked, excessive smartphone use can cause physical and mental health problems (Barkley and Lepp, 2016 in Abdul et al, 2020). Psychological problems that arise in the form of sleep disorders, anxiety, depression, and emotional stress (Nahas et al, 2018 in Abdul et al, 2020). Indonesia is the second largest country with the number of smartphone users, as many as 124.3 million people (Kominfo, 2016 in Abdul et al, 2020).

Smartphones are sophisticated communication technology devices that are able to communicate directly or indirectly. Smartphones are not only a means of communication, but smartphones can also access the internet, store data, and even send email messages (Cumiskey, 2013 in Ramaita, 2019). Smartphones are also a new technological development that resembles the Personal Digital Assistant (PDA), which is an innovation from mobile phone technology that has various advantages, advantages to assist the activities of its users and, has various kinds of multi-functions such as MP3, video, games, cameras and even the internet, which of course can make it easier for users to access the website (J.C. & T.H, 2011 in Ramaita et al., 2019). However, excessive use of smartphones can have negative impacts, including addiction and disrupting sleep. Dependence on using smartphones can lead to worsening of adolescent sleep quality (Sevil Sahin KO et al, 2013 in Muhammad et al, 2019). Excessive use of smartphones is one of the important factors that affect the sleep quality of users and can be a sign of someone experiencing smartphone addiction (Kibona & Maya, 2015 in Faradian et al, 2018). Sleep is one of the basic needs that everyone needs. The need for rest and sleep must be sufficient for the body to function normally. In conditions of rest and sleep the body performs a recovery process to restore the body's

stamina so that it is in optimal condition (Putri et al, 2017 in Maya et al, 2020). Sleep is needed by every individual to be able to maintain health status at an optimal level. Sleep can restore the body's condition, improve one's memory, reduce stress, depression, anxiety and maintain a balance of concentration abilities when doing activities (Kozier et al, 2010 in Raudhatul et al, 2018).

The lack of need for sleep will have an impact on the decreased ability to concentrate, make decisions and participate in daily activities (Nilifda, 2016 in Maya et al, 2020). Age greatly affects the quality of sleep, because based on the literature, young people or adolescents have unstable psychology and are the main basis for technological development and are an age group that is very active in using smartphones and tends not to be separated from smartphones throughout the day which causes addiction and interferes with sleep quality. (Hidayat et al, 2014 in Muhammad et al, 2019). The normal hours that should be used for rest and sleep for teenagers, are converted by teenagers to do other activities. Activities carried out by teenagers such as doing schoolwork, watching television or sleeping at night are widely used to play online games and play gadgets (Rimbawan, 2016). According to the Centers for Disease Control and Prevention (CDC), sleep deprivation is one of the health problems with a prevalence of sleep disorders in American adolescents around

68.8%. Adolescent girls have a higher prevalence of not getting enough sleep than boys (71.3% versus 66.4%). The percentage of the prevalence of not getting enough sleep in grade 12 (76.6% higher than grade 9 (59.7%), grade 10 (67.4%) and (73.3%) grade 11 (CDC, 2017 in Miranda et al. , 2018). In addition, the results of research from Ganda (2016) found that as many as 89.3% of teenagers at SMAN 9 Padang were addicted to smartphones which caused disruption of sleep quality. According to Cho, et al (2015) in (Faradian et al, 2018) the mechanism of smartphones that can affect a person's life, namely being exposed to bright light from the smartphone screen (Blue Light) so that it can inhibit the secretion of melatonin so that it can make individuals delay sleep as well as the timing mechanism. wrong sleep in many teenagers, which is caused by using a smartphone too long before going to bed at night so that it will greatly affect sleep. Based on some data and facts obtained that excessive use of smartphones can indicate addiction and cause disruption of sleep quality (Cojochen, et al 2011 in Faradian, 2018).

RESEARCH METHODS

The research is a descriptive analytic research design using a cross sectional approach, which is a study that studies the relationship between risk factors (independent) and effect factors (dependent).

The location of the research was conducted at SMA Negeri 2

Pematangsiantar, located at Jalan Patuan Anggi No. 85a, Suka Dame Village, North Siantar District, Pematang Siantar City. Population is all subjects (humans, animals, experiments, laboratory data and others) to be studied and meet the specified characteristics (Riyanto, Agus, 2015). The population in this study were all class XI IPA 1 and XI IPA 2 at SMA Negeri 2 Pematangsiantar as many as 71 people. The sample is part of the population that is expected to be representative or representative of the population (Riyanto, Agus, 2015). Sampling technique is a sampling technique. To determine the sample to be used in the study, there are various sampling techniques used. In this study, the sampling technique used was simple random sampling method. Simple random sampling technique means that the sampling technique from the population is carried out randomly without any terms and conditions in the members of the population. Researchers used this sampling technique because the samples were taken randomly and did not have special requirements in taking existing samples. Meanwhile, according to Slovin, the sampling method for a small population can use the sample calculation formula.

RESULTS AND DISCUSSION

Based on the results of research conducted by researchers in April 2021 at SMA Negeri 2 Pematangsiantar with the total number of students in class IX 349

people with a number of teachers as many as 66 people, 42 respondents have been obtained who are willing to become respondents. From the results of this study, the relationship between smartphone use and quality disorders in adolescents at SMA Negeri 2 Pematangsiantar has a relationship.

1 Character of Respondents Frequency Distribution of Respondents Characteristics

N	Variabel	Frekuensi N = 42	Persentase (%)
1.	Age		
	15	2	4,8
	16	24	57,1
	17	16	38,1
Amount		42	100.0
2.	Gende		
	Man	11	26,2
	Woman	31	78,8
Amount		42	100.0

In Table 4.1 it can be seen that the number of samples of the relationship between smartphone use and sleep quality disorders in adolescents is 42 people with the highest age being 16 years, 24 people (57.1%) and the lowest age being 15 years, as many as 2 people (4.8%) and the characteristics of the respondents

were dominated by the female sex as many as 31 people (78.8%) and the male sex as many as 11 people (26.2%).

1.Univariate Analysis

Table 4.2 Distribution of the Frequency of Smartphone Use in Adolescents

No	Variabel	Frekuensi N = 42	Persentase (%)
	Smartphone Usage		28,6
	Low	12	71,4
	High	30	
	Amount	42	100.0

From the data in the table above (Table 4.2), information is obtained that from 42 respondents there were 12 people (28.6%) with low smartphone use and 30 people (71.4%) high smartphone use.

Table 4.3 Frequency Distribution of Sleep Quality Disorders in Adolescents

No	Variabel	Frekuensi N = 42	Persentase (%)
	Sleep Quality	28	
1.	Bad	14	66,7
	Good		33,3
	Amount	42	100.0

Based on the results of interviews using questionnaires that have been carried out, respondent data obtained based on sleep quality disorders in the table above, namely good sleep quality as many as 14 people (33.3%) and bad sleep as many as 28 people (66.7%).

Bivariate Analysis

Table 4.4 Cross-tabulation of the Relationship between Smartphone Use and Sleep Quality Disorders in Adolescents

No	Penggunaan Smartphone	Kualitas Tidur						Chi-square P value
		Buruk		Baik		Total		
		F	%	F	%	F	%	
1	Rendah	2	4,8	10	23,8	12	28,6	
2	Tinggi	26	61,9	4	9,5	30	71,4	0.000
	Total	28	66,7	14	33,3	42	100.0	

From Table 4.4 above, it can be seen that of the 42 respondents the number of respondents who received low smartphone use was 2 people (4.8) with poor sleep quality and 10 people (23.8%) with good sleep quality so that overall respondents who have low smartphone usage as many as 12 people (28.6%). Respondents who received high quality were 26 people with poor quality (61.9) and as many as 4 people (9.5%) with good sleep quality so that overall respondents who had high smartphone use were 30 people (71.4%). From 42 people, it can be concluded that 28 people (66.7%) have poor sleep quality and 14 people (33.4) have good sleep quality.

Based on the results of statistical tests and data processing using chi square calculations with the help of spss version 25 for windows, the value of $P = 0.000$ ($P < 0.05$) can be concluded that there is a significant relationship between smartphone use and sleep quality disorders in adolescents.

at SMA Negeri 2 Pematangsiantar, North Siantar District.

Table 4.5 Cross Tabulation of the Relationship between Smartphone Use and Sleep Quality Disorders in Adolescents

No	Penggunaan Smartphone	Kualitas Tidur						PRn
		Buruk		Baik		Total		
		F	%	F	%	F	%	
1	Rendah	2	4,8	10	23,8	12	28,6	
2	Tinggi	26	61,9	4	9,5	30	71,4	0.03074
	Total	28	66,7	14	33,3	42	100,0	

The prevalence of poor sleep quality group = $2/26 = 0.0769$

Prevalence of good sleep quality group = $10/4 = 2.5$

Prevalence Ratio = $0.0769 / (2.5) = 0.03074$ From the data above, it can be concluded that the quality of sleep in adolescents with high smartphone use with protection is 0.03074 times having poor sleep quality compared to good sleep quality with high smartphone usage.

The results of the study at SMA Negeri 2 Pematangsiantar based on the frequency distribution of smartphone use from 42 respondents there were still 12 people (28.6%) who had low smartphone use, where this was triggered by good sleep quality in adolescents, but there were as many as 30 people. (71.4%) high

smartphone usage. In this case, SMA Negeri 2 Pematangsiantar has more high smartphone use than low smartphone use. Thus, sleep is an unconscious condition in which the individual can be awakened by a stimulus or appropriate sensory or can also be said to be a state of relative unconsciousness. Sleep is not just a state of complete serenity without activity, but rather a repetitive sequence of cycles. Sleep is characterized by minimal activity, varying awareness, changes in physiological processes and a decreased response to external stimuli (Alimul, 2012 in Emi, 2017). Therefore, it is very important for adolescents to have good sleep quality, while based on data obtained from the frequency distribution of sleep quality in adolescents at SMA Negeri 2 Pematangsiantar there are still 28 teenagers who have poor sleep quality (66.7%). However, those who have good sleep quality have a lower percentage compared to adolescents who have poor sleep quality, namely 14 people (33.3%) who have good sleep quality. This shows that in SMA Negeri 2 Pematangsiantar that teenagers do not realize the importance of good sleep quality. In this study, researchers wanted to prove that there is a relationship between smartphone use and quality problems in adolescents, thus researchers have conducted research by taking a sample of 42 respondents at SMA Negeri 2 Pematangsiantar. Then from the results of the Cross Tabulation of

the Relationship between Smartphone Use and Quality Disorders in Adolescents, the number of respondents who received low smartphone use was 2 people (4.8) with poor sleep quality and as many as 10 people (23.8%) with good sleep quality so that overall respondents 12 people who get low smartphone use (28.6%). Respondents who obtained high quality were 26 people with poor quality (61.9) and as many as 4 people (9.5%) with good sleep quality so that overall respondents who had high smartphone use were 30 people (71.4). From 42 people, it can be concluded that 28 people (66.7) have poor sleep quality and 14 people (33.4) have good sleep quality. Based on the results of statistical tests and data processing using chi square calculations with the help of SPSS version 25 for windows, the value of $P = 0.000$ ($P < 0.05$) because $P < 0.05$ then H_0 is rejected, it can be concluded that there is a significant relationship between smartphone use with sleep quality disorders in adolescents at SMA Negeri 2 Pematangsiantar, North Siantar District. The results of this study are in line with research conducted by Yunda, et al. (2019), it was found that the results of the correlation test showed a significant value of $p = 0.017$ ($p < 0.05$) so that it was stated that H_0 was rejected and H_a was accepted, which means that there is a relationship between smartphone use and sleep quality. Likewise with Aulia's research (2017) in her research, it was found that the

results with an independent parametric t test with a p value of 0.03 ($p < 0.05$) and concluded that there was a significant difference in the mean quality of sleep according to the use of gadgets or H_0 was rejected and H_a was accepted, which means that There is a relationship between gadget use and sleep quality.

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

Based on the results of research on the relationship between smartphone use and sleep quality disorders in adolescents at SMA Negeri 2 Pematangsiantar in 2021, the following conclusions were obtained:

1. Of the 42 respondents there are 12 people (28.6%) who use low-end smartphones and as many as 30 people (71.4%) who use high-end smartphones at SMA Negeri 2 Pematangsiantar.

There are as many as 28 people (66.7%) of respondents who experience poor sleep quality and as many as 14 people (33.3%) yang experience good sleep quality at SMA Negeri 2 Pematangsiantar.

There is a relationship between smartphone use and sleep quality disorders in adolescents at SMA Negeri 2 Pematangsiantar, North Siantar District with the acquisition of p-value = 0.000

a. Suggestions

b. For students, the results of this study are expected to be a reference material for students related to the quality of their sleep in order to maintain and improve

their physical and psychological health.

c. Respondents from this study gained knowledge about the impact of excessive smartphone use such as sleep disorders

d. The results of this study can be used as reference material regarding the relationship between smartphone use and sleep quality disorders, as well as to add to the literature of the Department of Nursing Science Study Program, Faculty of Nursing, Deli Husada Deli Tua Health Institute.

e. Nursing Profession The results of this study are expected to be a source and reference for nursing science in basic human needs courses, especially in the need for rest and sleep.

f. For further researchers as additional information for further researchers who will develop topics related to sleep quality disorders.

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