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The Relationship Between Smartphone Addiction and Sleep Quality in Youth of GMIM "Eben Haezar" Kaaten Congregation

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Abstract. *Sleep is a vital process for human recovery, occurring predominantly during rest. High-quality sleep is essential for the recovery process, helping to alleviate excessive fatigue, while poor sleep quality can lead to reduced immunity. One significant issue affecting young people today is sleep quality, which is influenced by various factors, including smartphone use. This study aimed to investigate the relationship between smartphone addiction and sleep quality among the youth of the GMIM "Eben Haezar" Kaaten. Conducted in August 2024, this cross-sectional study included all 173 youth registered in the GMIM Youth SIT, with a research sample consisting of 63 respondents. The study variables were smartphone addiction and sleep quality, analyzed using univariate and bivariate methods. Results showed that 36 respondents (57.1%) experienced a high level of smartphone addiction, while 28 respondents (44.4%) reported poor sleep quality. The study concluded a significant relationship between smartphone addiction and sleep quality, with a p-value of 0.010 and a significance level of α = 0.05.*

Keywords*: smartphone addiction, sleep quality, youth health, GMIM "Eben Haezar" Kaaten, cross-sectional study*

1. INTRODUCTION

Sleep is a very important process for humans because recovery occurs in a state of sleep. This process has the benefit of returning a person's condition to its original state, so that the body that was previously exhausted will be refreshed. The hampered recovery process causes the body's organs to not be able to work optimally, resulting in faster fatigue and decreased concentration. In this case, sleep quality also plays a very important role.

Sleep quality is a sleep process experienced by individuals with the hope of producing freshness and fitness when awake. Sleep quality can be used as an indicator of whether someone is experiencing sleep disorders or not. Good sleep quality can be used for the recovery process in order to reduce excessive fatigue, and vice versa. Poor sleep quality causes reduced immunity. In addition, poor sleep quality is also prone to accidents, physical health problems, memory and learning disorders and is at high risk of obesity and mental health problems (Khusnal, 2017).

Based on the phenomena that occur, sleep quality is one of the most serious problems that occur in young people and is the main focus today. There are various factors related to sleep quality such as room temperature conditions, bedroom lighting conditions, exercise habits, workload and smartphone usage habits (Sulistiyani, 2012)

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In an increasingly modern era, the development of technology is growing rapidly, especially with the demands of the need for fast and precise information exchange. A tool that can be used practically in exchanging information quickly and precisely is a smartphone. A smartphone is a mobile phone that has more capabilities, ranging from resolution, features, computing including the presence of a mobile operating system in it. Smartphone users are not only from adults but also from various age groups ranging from children to the elderly.

Quoted from Bisnis from Mobile World Live, the number of smartphone users is currently recorded at 54% of the world's total population. In the GSMA report entitled State of Mobile Internet Connectivity, it states that around 3 billion of the world's 4.6 billion population are smartphone users by 2022. Meanwhile, Indonesia is the 4th country with the most smartphone users in the world. In the State of Mobile 2024 released by Data AI, in 2023 Indonesians will be the users who spend the longest time, namely 6.05 hours every day with smartphones.

According to Katadata Media Network, North Sulawesi is among the 10 provinces with the percentage of the population aged 5 years and over who own smartphones in 2022. Meanwhile, according to data from the Central Statistics Agency (BPS), the percentage of the population aged 5 years and over who own smartphones in Tomohon City continues to increase from year to year, in 2019 it was 83.77%, in 2020 it was 84.12% and in 2021 it was 89.06%.

Long-term use of smartphones can lead to addiction. Smartphone addiction means an attachment to a smartphone that is accompanied by a lack of control and has negative impacts (Norhafizaah and Hidayat, 2022). Someone who uses a smartphone for too long raises concerns because it can reduce the quality of social life and even health quality. The impact on health that can be felt is sleep problems. This sleep problem occurs because of poor sleep quality by a person. Moreover, with the sophistication of today's smartphones, it is potential for young people to prioritize playing smartphones rather than resting and sleeping

The results of a brief interview with the youth found that some of them were accustomed to using smartphones until late at night so that they had less sleep time so that during the day they experienced decreased productivity with signs of frequent yawning and headaches. Lack of sleep will certainly interfere with a person's productivity. Rest and sleep time are as important as our daily needs for food.

2. LITERATURE REVIEW

Smartphone addiction has become a pervasive issue, especially among adolescents and young adults, significantly impacting their daily lives and health. Characterized by an uncontrollable urge to use the device, smartphone addiction often interferes with essential activities such as sleep. Research indicates that excessive smartphone use is linked to various negative outcomes, including disruptions in sleep patterns, increased stress levels, and decreased overall well-being (Kuss & Griffiths, 2017). This addiction not only affects psychological health but also has broader implications for physical health, particularly in relation to sleep quality.

The broader implications of smartphone addiction extend beyond just psychological effects; they also impact physical health, particularly in relation to sleep quality. Poor sleep quality has been linked to a host of physical health problems, including weakened immune function, increased risk of cardiovascular disease, and metabolic disorders such as obesity and diabetes. Additionally, inadequate sleep can exacerbate mental health issues like anxiety and depression, creating a vicious cycle where poor sleep leads to increased smartphone use, which in turn further disrupts sleep. Research has consistently shown that individuals with high levels of smartphone addiction are more likely to report sleep disturbances, such as insomnia, frequent awakenings during the night, and non-restorative sleep. These disturbances not only affect overall well-being but also impair cognitive functions like memory, attention, and decision-making, highlighting the urgent need to address smartphone addiction to improve sleep quality and overall health.

Sleep quality, defined by the satisfaction of sleep duration, continuity, and depth, is vital for physical recovery, mental health, and cognitive functioning. Poor sleep quality, often exacerbated by excessive smartphone use, can lead to a weakened immune system, increased risk of chronic health conditions, and impaired cognitive performance. Studies have shown that individuals with high levels of smartphone addiction are more likely to experience sleep disturbances, including difficulty falling asleep, reduced sleep duration, and frequent night awakenings (Lemola et al., 2015). Understanding the relationship between smartphone addiction and sleep quality is crucial for addressing this growing public health concern, particularly among vulnerable populations like adolescents.

Excessive smartphone use is one of the leading contributors to poor sleep quality, particularly among young people who are more prone to developing smartphone addiction. The use of smartphones late into the night can delay the onset of sleep by stimulating the brain and suppressing melatonin production due to exposure to blue light. This disruption in

the sleep-wake cycle can result in difficulty falling asleep, shorter sleep duration, and frequent awakenings during the night, all of which contribute to a feeling of unrefreshing sleep. Over time, these sleep disturbances can weaken the immune system, making individuals more susceptible to infections and increasing the risk of chronic health conditions such as hypertension, diabetes, and obesity. Additionally, poor sleep quality can impair cognitive performance, leading to difficulties in concentration, memory lapses, and reduced ability to make decisions, which are particularly concerning in adolescents who are in critical stages of development. Understanding the intricate relationship between smartphone addiction and sleep quality is therefore essential for developing effective interventions to protect the health and well-being of young people.

3. METHODS

This type of research is an analytical survey research using a Cross Sectional Study research design. The location of the research was carried out at the GMIM "Eben Haezar" Kaaten Congregation with the implementation time in August 2024. The research population was all GMIM "Eben Haezar" Kaaten Youth registered at the GMIM Youth SIT with a total of 173 youth. The research sample was 63 respondents whose data collection was carried out using proportional random sampling. The research variables were smartphone addiction as the independent variable and sleep quality as the dependent variable. The data used were primary data obtained directly from respondents using questionnaires, or by direct interviews with respondents and secondary data, namely data obtained from the GMIM Youth SIT and the GMIM "Eben Haezar" Kaaten Congregation Profile. The research instrument, namely the Smartphone Addiction Scale-Version (SAS-SV) Questionnaire was used to measure smartphone addiction and the Pittsburgh Sleep Quality Index (PSQI) Questionnaire was used to measure sleep quality. The data analysis used was univariate and bivariate analysis.

4. RESULTS AND DISCUSSION

Results

Univariate Analysis

Respondent Gender Characteristics

Table 1. Distribution of respondents by gender

Gender	n	(%)
Man	29	46.0
Woman	34	54.0
Total	63	100

Based on table 1, it shows that 34 (54.0%) respondents were female, while 29 (46%) respondents were male.

Respondents' Age Characteristics

Table 2. Distribution of respondents by age

Age	(n)	(%)
17-20	10	15.9
21-25	45	71.4
26-30	8	12.7
Total	63	100

Based on table 2, it shows that the age of the respondents is mostly 21-25 years, as many as 45 (71.4) respondents.

Overview of Sleep Quality in Youth of GMIM "Eben Haezar" Kaaten Congregation

Table 3. Distribution of sleep quality in the Youth of the GMIM "Eben Haezar" Kaaten Congregation

Sleep Quality	(n)	(%)
Good	35	55.6
Bad	28	44.4
Total	63	100

Based on table 3, it shows that 35 (55.6%) respondents have good sleep quality while 28 (44.4%) respondents have poor sleep quality.

Description of Smartphone Addiction among Youth of the GMIM "Eben Haezar" Kaaten Congregation

Table 4. Distribution of smartphone addiction among the youth of the GMIM "Eben Haezar" Kaaten congregation

Smartphone Addiction	(n)	(%)
Tall	36	57.1
Low	27	42.9
Total	63	100

Based on table 4, it shows that 36 (57.1%) respondents experienced high smartphone addiction while 34 (42.9%) respondents experienced low smartphone addiction.

Bivariate Analysis

Table 5. Distribution of the relationship between smartphone addiction and sleep quality in GMIM "Eben Haezar" Kaaten Youth Congregation

Smartphone Addiction	Sleep Quality				Total		*p*value
	Good		Bad				
	(n)	%	(n)	%	(n)	%	
Tall	15	42.9	21	75.0	36	100	0.010
Low	20	57.1	7	25.0	27	100	
Total	35	100	28	100	63	100	

Based on table 5, it shows that respondents who have high category smartphone addiction with good sleep quality are 15 (42.9%) respondents, while respondents who are addicted to high category smartphones with poor sleep quality are 21 (75%) respondents. Then respondents who are addicted to low category smartphones with good sleep quality are 20 (57.1%) respondents, while those who are addicted to low category smartphones with poor sleep quality are 7 (25.0%). The results of the statistical test obtained that the p value = 0.010

($p < 0.05$) so it can be concluded that there is a relationship between smartphone addiction and sleep quality in the Youth of the GMIM "Eben Haezar" Kaaten Congregation.

Discussion

Respondent characteristics

In the results of the study in the characteristics section, it shows that the female gender is 34 (54.0%) respondents while the male gender is 29 (46%) respondents. According to Phillips and Bianchi (in Mawarpury, 2020) women and men have the same interest in the latest technological and information developments. However, for women, smartphone addiction is higher because of the tendency to use the internet to chat, send messages, update personal social media homepages, blogs and search for information. While men are more interested in using smartphones following their personal pleasure orientation, while women use smartphones to fulfill social pleasures, and maintain relationships with people. Women use smartphones more than men to maintain social relationships, so this makes them tend to be inseparable from smartphones.

The second characteristic is the age of the respondents. Age is one of the characteristics possessed by a person that has a close relationship to a person's attitude and character. The results of the study showed that the age of the respondents was the most, namely 21-25 years, as many as 45 (71.4) respondents. In a study by Dongre et al. (2017) involving 650 people, it was stated that the second largest smartphone users were in the age range of 21-25 years with 190 users.

Sleep Quality

The results of the study showed that 35 (55.6%) respondents had good sleep quality while 28 (44.4%) respondents had poor sleep quality. In the respondents' answers regarding sleep quality, most of them answered that they had good sleep quality, but some also had sleep problems such as waking up in the middle of the night or too early, using sleeping pills, and even often feeling sleepy in the morning or afternoon due to lack of sleep.

Lakshono (2018), researched that sleep is a change in consciousness whena person's perception and reaction to the environment decreases, because sleep is an activity that has different levels of consciousness. This is based on the reality that with sleep a person can recover physically after a day of activity so that it can reduce stress, anxiety, and even increase the ability to concentrate when they want to do activities again.

As a young person with various busy activities such as studying, working and organizational activities, it takes a lot of time, energy and thought, so the process of rest and sleep is the main factor in keeping the body healthy and fit.

Smartphone Addiction

Based on the results of the study, it shows that 36 (57.1%) respondents experienced high smartphone addiction while 34 (42.9%) respondents experienced low smartphone addiction. It can be seen that smartphone addiction in the GMIM "Eben Haezar" Kaaten Youth Congregation has a high smartphone addiction category. This is evidenced by the average respondent's answers regarding smartphone addiction.

The research results show that because*smartphone*most of therespondents have difficulty concentrating in class, doing assignments or working, respondents feel pain in the wrist or back of the neck when using a smartphone, respondents cannot stand not having a smartphone, feel impatient and restless when not holding it, will not stop using a smartphone even though they know that everyday life has been greatly affected by smartphones, check their smartphones regularly so they don't miss other people's conversations on social media, use their smartphones longer than planned, and respondents even think about their smartphones when they are not using their smartphones.

According to Lestari and Sulian (2020), there are 4 factors that influence smartphone addiction, namely: internal factors, situational factors, social factors and external factors.Internal factors that are the main cause of students' addiction to mobile phones are low levels of sensation seeking and low self-control. This sensation seeking means boredom, while self-control means someone who cannot control themselves for something related to pleasure. So, when he is bored, he needs something exciting and makes him happy. Playing with a mobile phone is one of the best ways.

The external factor that is the main cause of students' addiction to mobile phones is the media factor. This factor is related to the high media exposure about mobile phones and their various facilities. The higher the media exposure about mobile phone advertisements, the greater the possibility of causing mobile phone addiction. The situational factor that is the main cause of students' addiction to mobile phones is the learning saturation factor. This means that when they feel bored in learning, they will play with their mobile phones. If this continues to happen, it will eventually make children addicted to playing with their mobile phones.

The social factor that is the main cause of students' addiction to mobile phones is the connected presence factor. Connected presence itself is defined as the desire to interact with social that comes from within oneself. The desire or wish to establish social interaction without any coercion and obligation from anywhere. The most widely accessed applications

by students that cause them to continue playing mobile phones are Facebook applications and online games.

Addiction to smartphones and the internet has a bad effect on a person because they tend to be minimal in physical activity and prefer to spend time playing smartphones. Not only that, they tend not to pay attention to their health either. Excessive use of smartphones will affect a person's sleep quality so that a person can have sleep disorders (Demerici, et al. 2015).

The Relationship between Smartphone Addiction and Sleep Quality in Youth of the GMIM "Eben Haezar" Kaaten Congregation

The results of the chi-square test show thatrespondents who have high category smartphone addiction with good sleep quality are 15 (42.9%) respondents while respondents who are addicted to high category smartphones with poor sleep quality are 21 (75%) respondents. Then respondents who are addicted to low category smartphones with good sleep quality are 20 (57.1%) respondents while those who are addicted to low category smartphones with poor sleep quality are 7 (25.0%). The results of the statistical test obtained that the p value = 0.010 ($p < 0.05$) then it can be concluded that there is a relationship between smartphone addiction and sleep quality in the Youth of the GMIM "Eben Haezar" Kaaten Congregation.

In line with the research conducted by Ulag et al. showed that there is a significant relationship between smartphone addiction and sleep quality with a p-value of 0.003 ($p < 0.005$). Excessive smartphone use during sleep hours results in decreased sleep efficiency. Likewise with the research conducted by Irfan et al., the results obtained were not addicted to gadgets with good sleep quality as many as 39 people, not addicted to gadgets with poor sleep quality as many as 6 people, addicted to gadgets with good sleep quality as many as 17 people and addicted to gadgets with poor sleep quality as many as 38 people with a p value = 0.000 ($p < 0.05$) which means that there is a significant relationship between gadget use and sleep quality of adolescents at SMA Negeri 2 Majene.

This relationship is also seen as a positive relationship, namely the higher the level of smartphone addiction, the higher the level of sleep disturbance in students. Smartphone addiction behavior also causes a person's focus to be fixated on one thing they like, such as a cellphone, and the time to sleep is used to play with a smartphone. This causes a person to lose the time that should be used to sleep so that the next day they feel unmotivated.

Sleep is a very important process for humans. This need is one of the main needs of individuals. Good sleep quality can improve the health and well-being of individuals, while poor sleep quality will cause health problems in individuals.

Smartphone can be said that it has become a daily lifestyle for every individual, especially for young people, who cannot be separated from gadgets. Excessive use of time in using smartphones will certainly reduce the time to do other activities in daily life. Excessive use of smartphones at night shows that the higher the addiction to smartphones, the lower the quality of sleep. Control from each individual is very necessary so as not to get addicted, which causes poor quality sleep.

5. CONCLUSION

After conducting the research, the following conclusion was obtained: there is a relationship between smartphone addiction and sleep quality in the Youth of the GMIM "Eben Haezar" Kaaten Congregation with p = 0.010 (<0.05). The suggestions that can be given is expected to implement a healthy lifestyle in this case to be able to regulate smartphone usage and control oneself in using smartphones as well as maintain sleep quality so that one is more productive in carrying out tasks and responsibilities without experiencing poor sleep quality and endangering health.

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