Hasil Plagiasi The Relationhip Between Smartphone Addiction and Insomnia

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Research Article

The relationship between smartphone addiction and insomnia among medical students at Muhammadiyah University of Surabaya

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ABSTRACT

Insomnia is a condition characterized by difficulty falling asleep, staying asleep, or waking up early despite having the opportunity to sleep. Insomnia can reduce the quality and quantity of sleep, leading to various negative effects on an individual's health and well-being. One of the potential causes of insomnia is excessive smartphone use, which can lead to addiction. Smartphone addiction can affect people of all ages, from children to adults. It has been associated with several adverse effects, including insomnia, recurrent and prolonged headaches, and fatigue. This study aimed to investigate the relationship between smartphone addiction and insomnia among medical students at the University of Muhammadiyah Surabaya. This cross-sectional observational study involved 87 medical students from the 2019, 2020, 2021, and 2022 cohorts. The sample was selected using a proportionate stratified random sampling technique. Data were collected using the Smartphone Addiction Scale (SAS) and the Insomnia Rating Scale (KSPBJ-IRS) through a Google form. The data were analyzed statistically using the Chi-square test in SPSS version 25. The Chi-square test showed a p-value of 0.005 (<0.05), indicating a statistically significant relationship between smartphone addiction and insomnia among medical students at Muhammadiyah University of Surabaya. In conclusion, the study found a significant relationship between smartphone addiction and insomnia among medical students at Muhammadiyah University of Surabaya. This suggests that excessive smartphone use may contribute to sleep disturbances in this population.

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INTRODUCTION

Insomnia is defined as the difficulty in falling asleep, staying asleep, or waking up earlier than desired despite having the opportunity to sleep (American Academy of Sleep Medicine, 2014). Sleep is essential for everyone as it facilitates the body's recovery process to restore energy. In individuals with insomnia, both the quality and quantity of sleep are diminished

One of the contributing factors to this sleep disorder is excessive gadget usage. Sleep patterns are disrupted due to gadgets that are easily operable regardless of place and time, and the ease of accessing information leads to addiction among users (Bintari, 2020). Addiction is characterized by a compulsive engagement in a preferred activity, often performed five times or more, and individuals find it difficult to distance themselves from such activities. Gadget addiction can be observed across various age groups, from children to adults, and it can result in several effects such as insomnia, recurring and prolonged headaches, and increased fatigue (Nahor, 2023).

Students, particularly those in the medical field, perceive gadgets as necessities and remain constantly connected to the internet. In academic settings, gadgets connected to the internet streamline and expedite learning processes for students, facilitating interactions with professors, especially in demanding academic fields such as medical education (Tuaputty, Kurnia, Simal, & Malawat, 2019). Therefore, the convenience and benefits offered by gadgets have intertwined them with individuals' lives, particularly those pursuing medical education (Marpaung, 2018).

The Jakarta Biological Psychiatry Study Group-Insomnia Rating Scale (KSPBJ-IRS) is an Indonesian insomnia scale developed by the Jakarta Biological Psychiatry Study Group to assess insomnia symptoms and severity in the Indonesian population. It likely includes standardized questions on sleep difficulties and their impact on daily life, with scoring criteria to quantify insomnia. Comparing the Jakarta Biological Psychiatry Study Group – Insomnia Rating Scale (KSPBJ-IRS) with other scales commonly used to assess insomnia, such as the Pittsburgh Sleep Quality Index (PSQI) and the Insomnia Severity Index (ISI), reveals both similarities and differences The KSPBJ-IRS may focus specifically on insomnia symptoms and their severity within the Jakarta or Indonesian population.

The research conducted by Jniene et al. (2019) indicates a relationship between the use of devices emitting blue light and poor sleep quality among college students, which may affect their daytime condition. A study suggested a connection between prolonged gadget usage and the occurrence of insomnia among high school students at SMA Negeri 1 Kawangkoan (Ninla Elmawati Falabiba, 2019). A similar study conducted by Umamy & Chintya (2021b) on twelfth-grade teenagers at SMA Taman Siswa Kisaran in 2020 showed a correlation between extended gadget use before sleep and symptoms of insomnia.

METHODS

Thisresearchemploysananalyticalobservational approach with a cross-sectional data collection method. The population comprises students from the Faculty of Medicine, Muhammadiyah University of Surabaya, from the cohorts of 2019, 2020, 2021, and 2022. Sampling is conducted using the stratified random sampling technique. The sample size is determined using the proportionate stratified random sampling formula. Respondents are asked to complete the Smartphone Addiction Scale (SAS), consisting

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of 33 statement items, and the Jakarta Biological Psychiatry Study Group-Insomnia Rating Scale (KSPBJ-IRS), consisting of 11 statement items. The KSPBJ-IRS questionnaire used in this study is also a standardized questionnaire that has not undergone any modifications, thus there is no need for retesting its validity and reliability.

Data analysis in this research involves both univariate and bivariate analyses. Univariate analysis is utilized to understand the distribution of the data under study. Bivariate analysis employs the Chi-square test to examine the relationship between two variables: gadget addiction as the independent variable and the occurrence of insomnia among students at the Faculty of Medicine, Muhammadiyah University of Surabaya, as the dependent variable. The software used for data analysis is SPSS 25, with ethical clearance number 065/ KET/II.3/AU/F/2023.

RESULT

Respondent Characteristics, Gender, Classes, Gadget Addiction Level among Respondents, Insomnia Level

Table 1 show the respondents characteristics, gadget Addiction, and insomnia level in Medical Faculty of UMSurabaya. Total number of respondent who participate in this study is 87 students from the class of 2019 to 2022.

Table 1. Respondents Characteristics, Gadget Addiction, and Insomnia Level in Medical Faculty of UMSurabaya (N=87)

Characteristic		Frequency	Percentage
Age	17 years old	1	1.1%
	18 years old	7	8%
	19 years old	26	29.9%
	20 years old	21	24.1%
	21 years old	16	18.4%
	22 years old	11	12.6%
	23 years old	5	5.7%
Gender	Male	28	32.2 %
	Female	59	67.8 %
Classes	2019	19	21.8%
	2020	18	20.7%
	2021	24	27.6%
	2022	26	29.9%
Addiction Level	Low	43	49.4%
	High	44	50.6%
Insomnia Level	No Insomnia	16	18.4%
	Mild Insomnia	56	64.4%
	Severe Insomnia	15	17.2%

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This research focuses on young adults as its sample population. The age distribution reveals respondents aged 17-23 years old, with the most prevalent age group being 29 years old (29.9%). Female participants constitute the majority, comprising 59 individuals (67.8%), while males represent a smaller proportion, totaling 28 individuals (32.2%). Regarding the distribution by academic year, the classes of 2022 contribute the highest number of respondents, with 26 individuals (29.9%). In this research, the respondents exhibit a high level of gadget addiction, with 44 individuals (50.6%) reporting such tendencies. Concerning sleep patterns, the majority reported experiencing mild insomnia, comprising 56 individuals (64.4%), while a smaller percentage indicated severe insomnia, with 15 individuals (17.2%). A minority of participants reported no insomnia at all, totaling 16 individuals (18.4%).

The Table 2 above shows the number of students experiencing mild, severe insomnia, and no insomnia based on age. Out of 87 students, the majority experience mild insomnia, with a total of 56 students aged 17-23 years old. Students who do not experience insomnia in the age range of 17-23 years old are 16 students, and severe insomnia is experienced by 15 students. Overall, it is noted that the most common level of insomnia experienced by students is mild insomnia, with 21 individuals aged 19 years old.

Table 2. Insomnia Levels by Respondents' Age

Age	No Insomnia	Mild Insomnia	Severe Insomnia	Total
17	0	1	0	1
18	1	5	1	7
19	2	21	3	26
20	7	10	4	21
21	4	8	4	16
22	2	7	2	11
23	0	4	1	5
Total	**16**	**56**	**15**	**87**

Table 3. Insomnia Levels by Respondent's Gender

Gender	No Insomnia	Mild Insomnia	Severe Insomnia	Total
Male	8	17	3	28
Female	8	39	12	59
Total	16	56	15	87

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Table 4. Insomnia Levels by Classes

Classes	No Insomnia	Mild Insomnia	Severe Insomnia	Total
2019	1	13	5	19
2020	6	8	4	18
2021	7	14	3	24
2022	2	21	3	26
Total	**16**	**56**	**15**	**87**

Table 5. Chi-square Test: Relationship between Gadget Addiction and Insomnia Incidence among Students at the Faculty of Medicine, Muhammadiyah University of Surabaya

Insomnia Levels	Gadget Addicted		Total	Test Results
	Low	High		
No Insomnia	11	5	16	*p-value* =
Mild Insomnia	30	26	56	0.005 (<0.05)
Severe Insomnia	2	13	15	

Based on the Table 3 above, male and female have an equal number, with 8 individuals each not experiencing insomnia. Mild insomnia is more prevalent among females, with 39 individuals compared to 17 males. Similarly, severe insomnia is found more frequently in females, with 12 individuals, while males account for 3 individuals.

The data in Table 4 illustrates the levels of insomnia based on the respondents' cohorts. Out of 87 respondents, those who do not experience insomnia are the least from the 2019 cohort, with 1 individual, and the most from the 2021 cohort, with 7 individuals. The lowest number of individuals experiencing mild insomnia is from the 2020 cohort, with 8 individuals, while the most is from the 2022 cohort, with 21 individuals. Severe insomnia is experienced the least by the 2021 and 2022 cohorts, with 3 individuals each, and the most by the 2019 cohort, with 5 individuals.

Table 5 shows there is a significant relationship between gadget addiction and insomnia incidence among students at the Faculty of Medicine, Muhammadiyah University of Surabaya ($p<0.05$).

DISCUSSION

The research findings from 87 student respondents revealed that the majority of respondents experienced high gadget addiction, with 44 individuals (50.6%). The study also indicates that respondents feel comfortable and enjoy operating gadgets, as well as feel that the features within the gadgets can alleviate the stress they experience. However, respondents also feel the need to limit their gadget usage. According to the points from the SAS questionnaire, respondents cannot control their gadget usage and experience positive anticipation, such as feeling enthusiastic when using gadgets and empty when not using them. (Febrian & Sylvia, 2019) found that students

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addicted to smartphones feel that the desire to always operate smartphones is not wrong, and they can even feel unenthusiastic and have difficulty concentrating when not using smartphones. Students feel that smartphones can facilitate various activities related to their academic and non-academic.

The research findings indicate that mild insomnia is the most commonly experienced type of insomnia among respondents, with a total of 56 sufferers (64.4%), with the highest number of sufferers being 21 years old. Consistent with the study conducted by Putrindashafa, Rotinsulu, and Fikriah (2020), which also reported similar results, stating that out of 140 respondents, the majority experienced mild insomnia and were aged 19 years. Similar results were also found in the study by Choueiry *et al.* (2016), where out of 462 first-year students at Saint-Joseph University in Lebanon, 284 (61.5%) students suffered from mild insomnia. Based on the research findings, the majority of respondents reported feeling sleepy during the day, having difficulty initiating sleep, waking up early, and having irregular sleep-wake schedules.

The research findings indicate that mild insomnia is most prevalent among the 2022 classes. The 2022 classes comprise first-year students who are still adapting to the new environment as university students. Changes in study methods for first-year students can affect other daily activities, including changes in sleep patterns (Yohanes, Wilson, & Muhammad, 2018). First-year medical students will encounter dense lecture schedules and numerous assignments (Augesti, Lisiswanti, Saputra, & Nisa, 2015). This can trigger stress in students and disrupt their sleep, leading to insomnia (Satrio, Wilson, & Kahtan, 2018). According to Permatasari (2020), first-year students are in the process of adapting to a heavier workload and activities compared to their previous education. They have not yet learned to control stressors effectively, leading to a tendency to experience significant stress. Respondents experiencing such conditions will consequently suffer from insomnia (Yohanes et al., 2018).

Based on the Chi-square test, the obtained p-value is 0.015 (<0.05), which indicates a significant relationship between gadget addiction and insomnia incidence among students at the Faculty of Medicine, Muhammadiyah University of Surabaya. These research findings are consistent with the study by (Ranti, Boekoesoe, & Ahmad, 2022) involving 270 final-year students from the Faculty of Sports and Health Sciences, State University of Gorontalo, in the academic year 2021/2022. In that study, it was found that heavy gadget users experienced the highest incidence of insomnia (p-value = 0.000). Respondents in that research had a habit of using gadgets indiscriminately due to the need to search for reading materials and references to fulfill academic obligations. Additionally, respondents were found to have a habit of operating gadgets throughout the day, which disrupted their sleep patterns at night.

Widiyani, Amelia, & Chairani (2021) stated in their study that there is a relationship between online gaming addiction and sleep quality among students at SMP Teratai Putih Global Bekasi (p-value = 0.001). Playing games is usually done at night, causing individuals to postpone their bedtime. This results in reduced sleep duration, disrupted sleep-wake cycles, and sleep disturbances. Sleep patterns and wake cycles can be disrupted due to smartphone usage at night, consequently affecting the production of the hormone melatonin (Rahayu Ningsih & Sri Rahyuni, 2023).

However, this study's findings differ from those of Laurintia, Mahardika, & Wedayani (2019), who researched the relationship between gadget

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addiction levels and sleep quality among 104 respondents from SDN 7 Mataram in Mataram City and SDN 1 Gunungsari in West Lombok Regency. Their study did not find a significant relationship between gadget addiction levels and sleep quality (p-value = 0.205). The lack of significance in the relationship between variables in that study is attributed to the fact that most respondents were able to control their gadget usage well, resulting in a low risk of gadget addiction. The respondents' good sleep quality was due to parental supervision that restricted gadget usage among their children.

There is no relationship between the duration of gadget use before sleep and insomnia symptoms among students of the Public Health Program at the Faculty of Health Sciences, Muhammadiyah University of Surakarta, cohorts 2015, 2016, and 2017 (p-value = 0.132) (R et al., 2018). Several possible factors may influence the lack of relationship between these variables, including the habit of reading books before sleep, listening to music before sleep, staying up late due to student organization activities, sleeping excessively, and irregular sleep patterns. These factors are other causes of insomnia, indicating that the respondents' insomnia is not caused by gadget addiction.

The study conducted on 12th-grade students at SMA Taman Kisaran shows a significant relationship between the duration of gadget use before sleep and insomnia symptoms (p-value = 0.014) (Umamy & Chintya, 2021). Prolonged use of gadgets can make it difficult for someone to fall asleep because the blue light emitted from the gadgets resembles daylight (Irfan, Aswar, & Erviana, 2020). Excessive exposure to blue light, especially at night when melatonin production increases, can inhibit melatonin secretion and increase corticosteroid production, thus affecting sleep (Zhao, Zhou, Tan, & Li, 2018). The use of electronic devices emitting light can increase melatonin suppression and delay circadian rhythms, resulting in decreased drowsiness at night and increased drowsiness in the morning (Wahl, Engelhardt, Schaupp, Lappe, & Ivanov, 2019).

CONCLUSION

There is a relationship between gadget addiction and insomnia incidence among students at the Faculty of Medicine, Muhammadiyah University of Surabaya with a p-value of 0.005 (<0.05). The majority of respondents who participated were female, with respondents predominantly aged 19 years old, and the cohort most involved was the 2022 cohort. The level of gadget usage among students at the Faculty of Medicine, Muhammadiyah University of Surabaya is at a high addiction level.

The distribution of insomnia incidence among the research subjects includes: insomnia predominantly experienced by respondents is mild insomnia, mild insomnia is dominated by 19-year-olds, mild insomnia is most prevalent among females, and the majority of mild cases are found in the 2022 cohort. There is a relationship between gadget addiction and insomnia incidence among students at the Faculty of Medicine, Muhammadiyah University of Surabaya with a p-value of 0.005 (<0.05). The majority of respondents who participated were female, with respondents predominantly aged 19 years old, and the cohort most involved was the 2022 cohort. The level of gadget usage among students at the Faculty of Medicine, Muhammadiyah University of Surabaya is at a high addiction level.

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