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The Relationship between Intensity of Gadget Use with Depression, Anxiety, and Stress among Students in Metro, Lampung, Indonesia

Diah Kusumaningrum[1], Susianti[2], Bayu Anggileo Pramesona[3]
[1,2,3] Master of Public Health Program, Faculty of Medicine, Universitas Lampung, Jl. Prof. Dr. Ir. Sumantri Brojonegoro No. 1, Bandar Lampung, Lampung 35145, Indonesia

ABSTRACT: The number of gadget users (smartphones) globally is increasing yearly. Gadgets are also used as learning media and entertainment for students, so the possibility of negative impacts from using gadgets cannot be avoided. This study aims to analyze the relationship between the intensity of gadget use and depression, anxiety, and stress in students. This cross-sectional study was conducted on 461 students recruited using a multistage random sampling technique, from six public high schools (SMAN) in Metro, Lampung, Indonesia, from February to May 2023. The instruments used were the gadget usage intensity questionnaire and the Depression Anxiety Stress Scale (DASS)—analysis with a Chi-Square correlation test. The results of the study show that there is a significant relationship between the intensity of gadget use and depression (ρ-value < 0.001), anxiety (ρ-value < 0.001), and stress (ρ-value < 0.001). This study concludes that the intensity of using gadgets is related to depression, anxiety and stress in high school students in Metro City, Lampung, Indonesia. It is recommended that schools carry out outreach and education to students to be wiser in using gadgets and to follow up on respondents who experience health problems with depression, anxiety, and stress by coordinating with parents so that they can receive further treatment at health care facilities.

KEYWORDS: Anxiety, Depression, Gadgets, Stress, Students.

INTRODUCTION

The number of gadget (smartphone) users globally is increasing from year to year. Gadgets are a necessity for teenagers during the Covid-19 pandemic, where the teaching and learning process is carried out online. Information and learning activities can be done remotely using gadgets. Excessive use of gadgets harms adolescent development both emotionally and behaviorally. Gadget addiction can make it difficult for teenagers to socialize or interact with others, tend to close themselves off and have less concentration (Simanjuntak & Wulandari, 2022). Apart from being a tool to facilitate and assist humans in completing their work, gadgets can also cause behavioral deviations towards their users, especially among teenagers who are still mentally unstable and looking for their identity. Adolescents' behavior tends to experience significant changes after a long time, and they are accustomed to using gadgets (Arifin, 2015).

The influence of excessive use of gadgets can cause a person to experience mental disorders such as stress, anxiety, depression, low self-esteem, sleep disturbances, and body image. According to WHO, in 2019, one in eight people, or 970 million people worldwide, have mental disorders. In 2020, the number of people with anxiety and depression disorders increased significantly due to the COVID-19 pandemic. Preliminary estimates suggest 26% and 28% increases, respectively, for anxiety disorders and major depression in just one year. Indonesia has a prevalence of people with mental disorders of around one in five, meaning that around 20% of the population in Indonesia has the potential for mental disorders. Riset Kesehatan Dasar (2021) or states that more than 19 million people over 15 years experience mental and emotional disorders, and more than 12 million people over 15 experience depression. Depression can be one of the triggers for someone to experience internet addiction, it can also be the impact of it. People who are depressed usually often feel hopeless and the internet becomes an escape for the problems they face in the real world. The more frequent the intensity of people on the internet, the less activity and communication with people around them in real life will be affected. As a result of this behavior, a person tends to be at risk of experiencing mental disorders, including depression and suicide (Rini & Huriah, 2020).

Mental health challenges are a significant health problem faced by young people globally, especially during adolescence. Adolescence is a transition period for children to become adults, and they tend to have limited knowledge regarding maintaining their mental health. Social media is an integral part of everyday life. The impact of social media on adolescent health is a priority

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due to stimulant mental health problems. This study aims to analyze the relationship between the intensity of gadget use and depression, anxiety, and stress in students.

METHODS

This research is a type of analytic research with a cross-sectional design. This study's total number of respondents was 461 students from six public high schools in Metro City, Lampung, Indonesia using the multistage random sampling technique in February-March 2023. Using the Chi Square test, bivariate analysis was used to determine the relationship between variables in this study. The validated questionnaire is related to the gadget usage intensity questionnaire and the DASS-42 used in this study. Categorizing the intensity of gadget use uses the median value. If the score obtained by the respondent ≥ 65 is categorized as high intensity of gadget use, the score < 65 is categorized as low intensity of gadget use. The DASS-42 questionnaire consists of 42 items, of which 14 items measure the level of depression with a value of > 9 which is categorized as depression, 14 items measure anxiety with a value of > 10 which is categorized as anxiety and as many as 14 items measure the stress level of adolescents if the value is > 14 then it is categorized as stress. This study received a research approval certificate from the Research Ethics Committee of the Faculty of Medicine, University of Lampung, with number 628/UN26.18/PP.05.02.00/2023. Before conducting the research, the researcher explained the purpose of the research first and asked for approval from the students to become respondents.

RESULTS

1. Descriptive Analysis

Table 1. Characteristics of Respondents (n=461)

Variable	Frequency	Percentage (%)
Gender		
Male	188	40,78
Female	273	59,22
Class		
X	167	36,23
XI	147	31,67
XII	148	32,10
Gadget usage intensity		
Low	237	51,40
High	224	48,60
Depression		
No	320	69,40
Yes		
Mild Depression	62	14,90
Moderate Depression	58	13,94
Severe Depression	15	3,61
Very Severe Depression	6	1,44
Anxiety		
No	183	39,70
Yes		
Mild Anxiety	50	12,02
Moderate Anxiety	122	29,33
Severe Anxiety	65	15,63
Very Severe Anxiety	41	9,86
Stress		
No	307	66,60
Yes		

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Mild Stress	68	14,75
Moderate Stress	60	13,02
Severe Stress	18	3,90
Very Severe Stress	8	1,74

Based on Table 4.1, it can be explained that the majority of respondents were female (59.22), came from class X (36.23), used gadgets with low intensity (51.40%), experienced mild depression (14.9%), experienced anxiety moderate (29.33%), and as many as 14.75% of respondents experienced mild stress.

2. Bivariate Analysis

Table 2. Analysis of the relationship between the intensity of gadget use and depression, anxiety, and stress in students (n=461)

Variable		Depression		OR (95% *CI)*	p-value
		No	Yes		
		n (%)	n (%)		
Gadget usage intensity	Low	142 (59.9)	95 (40.1)	0.3 (0.39-0.59)	<0.001
	High	178 (79.4)	46 (20.6)		

Based on the table above, out of 237 respondents who used gadgets with low intensity, 95 (40.1%) people experienced depression, while out of 224 respondents who used gadgets with high intensity, 46 (20.6%) people experienced depression. The data analysis results showed a significant relationship between the intensity of gadget use and depression (p<0.001).

Table 3. Analysis of the relationship between the intensity of gadget use and student anxiety (n=461)

Variable		Anxiety		OR (95% *CI)*	p-value
		No	Yes		
		n (%)	n (%)		
Gadget usage intensity	Low	50 (21,09)	187 (78,9)	0.18 (0,12-0,28)	<0.001
	High	133(59,37)	91 (40,62)		

Based on the table above, out of 237 respondents who used gadgets with low intensity, 187 (78.9%) people experienced anxiety, while out of 224 respondents who used gadgets with high intensity, 91 (40.62%) people experienced anxiety. The data analysis results showed a significant relationship between the intensity of gadget use and anxiety (p<0.001).

Table 4. Analysis of the relationship between the intensity of using gadgets and stress on students (n=461)

Variable		Stress		OR (95% *CI)*	p-value
		No	Yes		
		n (%)	n (%)		
Gadget usage intensity	Low	230 (97)	7 (3)	0.62 (0.28-1.39)	<0.001
	High	77 (34)	147 (66)		

Based on the table above, out of the 237 respondents who used gadgets with low intensity, 7 (3%) experienced stress, while of the 224 respondents who used gadgets with high intensity, 147 (66%) experienced stress. The data analysis results showed a significant relationship between the intensity of gadget use and stress (p<0.001).

DISCUSSION

Health problems due to the use of gadgets include eye disorders, sleep disorders and nerves so that they often get dizzy (Sari & Prajayanti, 2017). he study found that respondents who used high-intensity gadgets were more likely to experience depression.

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In the analysis with chi-square results, it is proven that the intensity of using gadgets has a significant relationship with depression, (p-value <0.001).

When viewed from the characteristics of the respondents, it shows that the high intensity of using gadgets occurs in women. The results of this study were also supported by previous research which stated that as many as 28 or around 56% of female respondents had a high intensity of smartphone use. It might be because women prefer an item or product requiring a smartphone (Resti, 2015) Smartphone addiction can cause depression and anxiety in college students. Smartphone addiction causes students to concentrate less on lectures and lose much energy due to excessive use of smartphones (Demirci et al., 2015).

Research on the results of a systematic review conducted by Alhassan et al. (2018) stated that depression is consistently associated with smartphone use. One of the supporting factors for smartphone addiction is increased stress levels followed by low self-control ability in using smartphones as a starting point for addiction. The intensity of using gadgets has a significant relationship with depression and inadequate parental supervision, so when experiencing many demanding tasks students prefer to spend time playing gadgets. The various features available on gadgets make it easier for someone to access information about school assignments or other vital information so that students think gadgets must always be active. Excessive use of gadgets causes students to be unable to control and depend on users of internet-based technology.

Anxiety is a feeling disorder characterized by deep and continuous worry, but has not experienced disturbance in assessing reality, personality is still intact and behavior can be disturbed, but still within normal limits (Hawari, 2012). Family relationships can increase anxiety in students. This is directly proportional to smartphone addiction. Based on the description above, it is clear that the intensity of using gadgets has a significant relationship with anxiety. The more often students use gadgets in their daily lives, the higher the level of anxiety they have with gadgets. In this study, most respondents were women more prone to anxiety (Hawari, 2012).

Someone becomes dependent on smartphones more than before which will ultimately exacerbate the level of anxiety caused by smartphones, differences in brain function and hormones that women have are why women are more prone to experiencing anxiety disorders than men. Reproductive processes in women, such as menstruation, pregnancy, and menopause are also risk factors. When a woman is pregnant, the condition of being pregnant will increase the hormones estrogen and progesterone which in fact can increase the risk of brain disorders (Lape et al., 2021; Ramaita et al., 2019).

The problems shown are impatience when experiencing delays, easily irritated, getting angry over trivial things, irritability and fatigue due to anxiety. The anxiety arises because they cannot make calls, send messages, browse or contact other people (family and friends). Using gadgets without control will bring social problems to the surrounding environment. This condition will make someone withdraw from their social environment, triggering feelings of anxiety and loss if they are far from gadgets. Good self-control will make individuals manage the use of their gadgets to suit their needs and not overdo it. The analysis with the Chi-square test proves that the intensity of gadget use has a significant relationship with anxiety (p-value <0.001).

Stress is a disturbance in the body and mind caused by changes in demands and life (Muslim, 2015). Students will overcome loneliness by playing online and communicating with friends in cyberspace so that most of their time is spent using smartphones (Chusna, 2017). Stress is one of the most common types of mental health problems in society. Statistical analysis shows a significant relationship between the intensity of using gadgets and the stress experienced by SMAN students in Metro City with a positive correlation value, so the higher the intensity of using gadgets, the more severe the stress level will be. This is evident from several respondents in research with a high intensity of using gadgets and having stress levels with severe conditions. Many factors can cause an individual to experience stress. Several factors cause stress, including the environment with the habit of being unable to get away from gadgets, which can cause a person to communicate less with people around him and spend time with gadgets (Kountul et al., 2018; Soedarto, 2018). The analysis with chi-square proves that the intensity of using gadgets has a significant relationship with stress (p-value <0.001).

CONCLUSION

The intense use of gadgets is significantly related to depression, anxiety, and stress in students in this study, for schools to carry out outreach and education to students to be wiser in using gadgets and to follow up on respondents who experience health problems with depression, anxiety, and stress by coordinating with parents of students so that they can then receive treatment at health service

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facilities. Parents should pay more attention to their children using gadgets and be able to accompany their children who have mental health problems to psychologists or psychiatrists in health care facilities.

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