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THE RELATIONSHIP BETWEEN GADGET ADDICTION AND INTEREST IN STUDYING AND SLEEP QUALITY IN SCHOOL CHILDREN

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Original Research

ABSTRACT

Introduction: *Excessive use of gadgets in children can lead to addiction and the bad impact can influence students' interest in studying and sleep quality because students will experience dependence and explore more of the other applications of gadgets. This research aims to analyze the relationship between gadget addiction interest in learning and sleep quality in school children.* ***Methods:*** *The research method is quantitative and uses a cross-sectional approach. The sample of this study was 83 children in 6th-grade elementary school at SD Muhammadiyah 21. Gadget addiction was measured with a modified questionnaire consisting of 30 favorable items, which were then altered and tried out into 21 questions, consisting of 14 favorable items and 7 unfavorable items with a Cronbach's alpha reliability test result of 0.880. Interest in learning is measured with a questionnaire consisting of 4 answer items and sleep quality is measured with a sleep quality questionnaire (SQQ). Research data analysis used the Spearman rho correlation test.* ***Results:*** *There is a relationship between gadget addiction and interest in learning (p=0.000; (r) = 0.902) and there is a relationship between gadget addiction and sleep quality (p=0.000; (r) = 0.843).****Conclusions:*** *So, it can be concluded that there is a significant relationship between gadget addiction and students' interest in learning and sleep quality. So, teachers should have a good relationship with students' parents to control the intensity of students' gadget addiction and foster students' motivation to learn and get enough sleep.*

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INTRODUCTION

The use of gadgets has become a necessity in entering the industrial revolution (Hjetland et al., 2021). Nowadays it is not strange to see elementary school-age children using gadgets. Excessive use of gadgets in children can lead to addiction. The bad impact is that it can have an impact on students' interest in learning and sleep quality because students will become dependent and explore other applications on gadgets (Lane et al., 2021; Sumen & Evgin, 2021). Gadget addiction has a big influence on children, giving rise to laziness in studying. Gadget users continue to increase until now, as evidenced by the number of smartphone users increasing from 3.2 billion users in 2019 and increasing to 3.9 billion in 2022. Meanwhile, Indonesia shows that 370.1 million people will use smartphones in 2022. This number has increased by 13 million or 3.6% from the same period in the previous year (Rashid et al., 2021). A survey from the Ministry of Communication and Information found data that elementary school students had a percentage of gadget users of 40.87% and were dominated by those aged 9-12 years, as a result, children showed a decline in concentration and interest in learning.

The impact of information technology has caused students' awareness of reading books to be very lacking or even lost. They are more interested in electronic media because it offers more interesting features (Acikgoz et al., 2022; Krisnana et al., 2022). Meanwhile, the majority of respondents who used low-intensity gadget use had good sleep quality (89.6%), while a small number of respondents who used low-intensity gadget use but had poor sleep quality (10.3%). Apart from that, the majority of respondents who used a high intensity of gadget use had poor sleep quality (87.5%) (Zhang et al., 2022). Based on the results of interviews conducted with students in Surabaya, they said that social media (WhatsApp, Instagram, YouTube, and TikTok) are applications that are frequently accessed with a gadget usage duration of more than 2 hours. As a result, they say that looking at gadgets is more fun than studying

or reading books. Parents also say that children sleep late because they play with gadgets.

Based on a survey by the Indonesian Child Protection Commission around 71.3% of school-aged children have gadgets or play with their gadgets for relatively long periods of the day, and 55%, among other things, spend their time playing on their cell phones using online games, also offline. Children who have been given gadgets generally use their gadgets to play games both offline and online, watch streaming videos on the YouTube platform or similar platforms and 80% of school-age children already have social media such as WhatsApp, Facebook, and Instagram, all of which are platforms. Easily provide news that is less filtered between right and wrong, as a result resulting in children thinking inappropriately for their age and being able to imitate things they watch on their gadgets, both movements and speech (Ghosh et al., 2021; Handayani et al., 2021).

The impact of gadget addiction on interest in learning results in decreased concentration when studying, when studying children become unfocused and only remember using gadgets, for example, children remember playing gadget games as if they were like characters in the game. Then children become lazy about writing and reading, this is caused by gadget addiction, for example when children open a video on the YouTube application children tend to just look at the picture without having to write what they are looking for (Wahyuningtyas et al., 2022). if we look closely, the majority of elementary school children still cannot differentiate and digest whether something is good or bad in front of them. So excessive gadget addiction in elementary school children can affect children and their interest in learning (Suherman et al., 2021).

Students who use gadgets late at night can report the impact of a lack of focus and sleepiness during learning time. The American Academy of Pediatrics, a forum that handles the problems of students and school-aged children in America, states that school-aged children need a relatively short amount of sleep (Munawar & Nisfah, 2020). Based on a lot of research, school-age children who don't get enough sleep will experience various negative things, including being prone to accidents, physical health problems, memory and learning problems, being at high risk of obesity, and mental health problems. Lack of individual ability to control when using gadgets causes poor sleep quality. The fun of using gadgets makes the feeling of drowsiness disappear (Anggita et al., 2023). As a result, children have reduced sleep time, hindered learning patterns, become sleepy during class, are slow in activities at school, have difficulty concentrating, and have an impact on the child's ability in the teaching and learning process (Akhtar et al., 2023; Othman, 2020).

The long-term impact is that students become isolated and isolated because they are addicted to gadgets and spend their time playing with gadgets. Apart from that, eye health is disturbed by staring at a gadget screen for too long, which causes the eyes to become tired and there is a risk of developing nearsightedness (Mabaroh & Sugianti, 2021). So far, teachers and parents have an important role in addressing children's use of gadgets. The teacher guides children to use gadgets to search for news, mentions the functions of applications on gadgets, and reduces their use when studying. Parents play a role in implementing several rules for children when using gadgets, conveying insight about the content of gadgets so that children use them according to their needs and limiting the use of gadgets at home. The hope is that monitoring gadget use will improve children's interest in learning and sleep quality (Pachiyappan et al., 2021). This research aim of this research is to analyze the relationship between gadget addiction interest in learning and sleep quality in school children.

MATERIALS AND METHODS

The research design used in this study was quantitative with a cross-sectional approach in sixth-grade elementary school children. The research has received a health research ethics certificate from the Faculty of Medicine, Universitas Muhammadiyah Surabaya with ethical certificate number 28.11/II.3.A.U/F/FIK/2022. The sample in this research was 83 Grade 6 elementary school students at Surabaya. In this case, the sample and population are the same. The sampling technique is the process of selecting a portion of the population that can represent the existing population. The sampling technique used in this research was total sampling. The independent variable in this research is gadget addiction and the dependent variables in this research are interest in learning and sleep quality. The measuring instrument used to measure gadget addiction uses a measuring instrument that has been modified and tried out by research by Nurdiani (2018) from researcher Zahrani (2021) based on the addiction aspect of Griffiths (Terry, Szabo, and Griffiths, 2020). The measuring instrument addiction aspects consisted of 30 Favorable items, which were then modified and tried out into 21 questions, consisting of 14 favorable items and 7 unfavorable items with a Cronbach's alpha reliability test result of 0.880. Interpretation of the results obtained is <42: Low, 42-63: Medium, >63: High. The research interest in

learning questionnaire consists of 4 answer items, namely Always = 4, Often = 3, Sometimes = 2, and Never 1. Interpretation of the results obtained is the highest score of> 38, the average score of 14-38, and the lowest score of <14. The Sleep Quality Questionnaire in this study was adopted from the Sleep Quality Questionnaire (SQQ) which consists of six components: daytime dysfunction, recovery after sleep, insomnia, difficulty waking up, sleep satisfaction, and difficulty maintaining sleep. Of the 28 questions, the scores for each question will be added up to get a total score with a range of 7-28. If the score obtained = 25 then the respondent's sleep quality is good and if the score obtained is <25 then the sleep quality is poor. Research data analysis used the Spearman rho correlation test.

RESULTS

Table 1. Characteristics Respondent based on Gender, Age, Gadget Addiction, Studying Intention, and Sleep Quality at School Children 2022 (n=83).

Characteristics	Category	n	%
Gender	Man	46	55.4
	Woman	37	44.6
	Total	**83**	**100**
Age	11 years old	7	8.4
	12 years old	59	71.1
	13 years old	17	20.5
Gadget Addiction	Low	5	6.0
	Medium	18	21.7
	High	60	72.3
	Total	**83**	**100**
Studying intention	Low	58	69.9
	Medium	20	24.1
	High	5	6.0
	Total	**83**	**100**
Sleep Quality	Good	13	15.7
	Bad	70	84.3
	Total	**83**	**100**

From a total of 83 respondents, 46 children (55.4%) were male with the majority age being 12 years, 59 children (71.1%) and 60 (72.3%) students had a gadget addiction in the category high, 58 (69.9%) students had low interest in learning and 70 students (84.3%) had poor sleep quality (Table 1).

Table 2. Relationship between Gadget Addiction and Elementary School Children's Interest in Learning (n=83).

Gadget addiction intensity	Studying Intention					
	Low		Medium		High	
	n	%	n	%	n	%
Low	0	0.0	0	0.0	5	6.0
Medium	0	0.0	16	19.3	0	0.0
High	58	69.9	4	4.8	0	0.0
Uji Spearman *rho* p= 0.000; p <0.05; r=0.902						

Table 2 shows an overview of the relationship between gadget addiction and respondents' interest in learning. The table shows that the highest number of relationships between gadget addiction and interest in learning is 58 (69.9%) with a high level of gadget addiction and a high level of interest in learning. The high level of gadget addiction shows that the majority of students have a low interest in learning. The Spearman's rho statistical test value obtained a significant degree of 0.000 and correlation strength (r) = 0.902, indicating the degree of correlation is one way and the correlation is close to perfect. This shows that there is a significant relationship between gadget addiction and interest in learning in elementary school students.

Table 3. Relationship between Gadget Addiction and Sleep Quality of elementary school children (n=83).

Gadget Addiction Intensity	Sleep Quality			
	Low		Medium	
	n	%	n	%
Low	5	6.0	0	0.0
Medium	1	1.2	15	18.1
High	6	7.2	56	67.5

Uji *Spearman rho* p = 0.000; p <0.05; r =0.403

Table 3 shows an overview of the relationship between gadget addiction and sleep quality among respondents. The table shows that the highest number of relationships between gadget addiction and sleep quality is 6 (7.2%) with a high level of gadget addiction and a level of poor sleep quality of 56 (67.5). The high level of gadget addiction shows that the majority of students have poor sleep quality. The Spearman rho statistical test value obtained a p-value of 0.000 and correlation strength (r) = 0.843. Based on this value, because the p-value is <0.05, it can be concluded that there is a relationship between gadget addiction and sleep quality in elementary school students.

DISCUSSION

The addiction level of male students was much higher than female students in this study. These differences may be related to the use and purpose of using the gadget. Gadget addiction is associated with gender, men tend to use online games and search for information, while women tend to chat, send messages, and search for information. So, as more functions are used, the level of use is greater. This can trigger addiction to using gadgets. Apart from that, children who have been given gadgets are usually used to play games both offline and online, watch streaming videos on the YouTube platform or similar platforms and 80% of school-age children already have social media such as WhatsApp, Facebook, and Instagram, all of which are platforms. It also easily provides information that is less filtered between right and wrong, thus making children think inappropriately for their age and can imitate things they watch on their gadgets, both movements and speech.

This is in line with the results of this research, as many as 14 students used gadgets with social media. Gadgets contain various applications that have become friends with children. The gadget also contains destructive games and is within reach of very easy and fast access within seconds. Excessive use of gadgets (addiction), especially to bad content such as violence, games, or films, is believed to negatively influence children's behavior, children's abilities and even permanently damage the brain (Anissa et al., 2024). Using gadgets can provide many benefits to society, especially elementary school-age children. This shows that gadgets have high mobility in daily activities. Someone who uses a smartphone can find information from any part of the world, so someone must be smart in using their smartphone because this information can contain positive and negative things, therefore we as users need to filter the information we get (Surat et al., 2021).

Most of their interest in learning is in the low category, this is in line with research conducted which shows that students' interest in learning is in the low category (53.66%). Other research also showed that as many as 53.66% of students had low interest in learning, and as many as 14.63% of students had very low interest in learning. There are several factors in interest in learning, one of which is motivation (Rashid et al., 2021). A person's interest will be higher if accompanied by motivation. There is a desire for interest in learning that arises from oneself which can develop and give rise to a high interest in learning. So, it can be concluded that learning motivation is a change in behavior in students who are studying with supporting elements that come from internal and external encouragement. In this case, parents, especially mothers, are the first and main place of learning for their children (Suherman et al., 2021). The way parents educate their children by simply providing enough material to provide whatever facilities the child needs by current developments is not the right thing, because children will be more easily influenced or even carried away by current developments. Therefore, good control in the family is very necessary to support the child's learning process (Hjetland et al., 2021). Encouragement given by parents is very important so that children are enthusiastic about learning.

Based on the results of this research, it can be seen from Table 4.5 that of the total 83 respondents, the sleep quality in this study was mostly 84.3% in the poor category and. 15.7% in the good category. It can be seen in Table 4.5 that the majority of respondents were in the bad category, amounting to 70 respondents. Sleep quality is known that the majority of respondents who had poor sleep quality were 179 respondents (80.6%) and those who had good sleep quality were *43* respondents (19.4%). Sleep quality is known that as many as 8 people (15.4%) had good sleep quality and as many as 44 people (84.6%) had poor sleep quality. With a total of 54 respondents. Several indicators that can be seen from the quality of teenagers' sleep include the duration or length of sleep, whether there are any disturbances during sleep, for example suddenly waking up and having difficulty falling back asleep (Acikgoz et al., 2022; Hjetland et al., 2021). If a child's sleep quality continues to decline, gradually the child's daily activities will be affected. Your child may have difficulty

concentrating, be more irritable, unable to focus or experience other obstacles. That is why sleep disorders arise because it makes it difficult for children to sleep (Sumen & Evgin, 2021).

The results of the research showed that as many as 83 respondents showed that the majority had a high level *of* gadget addiction with a low interest in learning as many as 58 students (69.9%). There is a relationship between gadget addiction and interest in learning. This has been tested using the Spearman rho test. According to the correlation table above, the correlation is close to perfect and one way, in this sense if gadget addiction increases then interest in learning will decrease (Lane et al., 2021). In line with the theory that frequent use of gadgets can have an impact on student activities, especially in the learning process. Students are more enthusiastic about playing with gadgets with various interesting applications on offer rather than studying. The use of gadgets is due to the demands of current trends which require them to be active in the world of the internet or social media, therefore during class hours, they also often use gadgets to cover up boredom due to long class hours (Tokiya et al., 2020). This causes some of the material explained by the teacher to no longer be absorbed well because students are no longer able to concentrate on the lesson in progress, which can have an impact on student's academic grades, and students rarely communicate with their friends because they are more engrossed in their gadgets (Zhang et al., 2022).

Apart from that, the aim of using gadgets is to follow current trends and lifestyles and is supported by research results showing the characteristics of gadget addiction in respondents such as considering gadgets to be the most important thing and not being able to control the use of gadgets is a situation that easily occurs in children, because school-age children are at the transitional age from childhood to adolescence which still requires control from parents. The impact of gadget addiction on interest in learning is a decrease in concentration when studying, when studying children become unfocused and only remember gadgets, for example, children remember gadget games as if they were like characters in the game (Handayani et al., 2021). Then children become lazy about writing and reading, this is caused by gadget addiction, for example when children open a video on the YouTube application children tend to just see the picture without having to write what they are looking for. If we look closely, the majority of elementary school children still cannot differentiate and digest whether something is good or bad in front of them. So excessive use of gadgets by elementary school children can affect children and their interest in learning. Researchers concluded that the factor in low interest in learning is not only gadgets but other factors that cause learning difficulties, namely the existence of playmates who are currently being replaced by gadgets (Wahyuningtyas et al., 2022).

The research results show that there is a relationship between gadget addiction and sleep quality. A total of 83 respondents showed that the majority had a high level of gadget addiction with 56 students (67.5%) having poor sleep quality. It has been tested using the chi-square test according to the correlation table above. The correlation is close to perfect and one way, in this sense, if gadget addiction increases, sleep quality will become worse. In line with research, excessive gadget addiction has a higher risk of experiencing sleep disorders and affects a person's sleep quality (Suherman et al., 2021). The use of gadgets during bedtime can lead to poor sleep quality, decreased sleep efficiency, and longer sleep duration. Lack of individual ability to control the time they use gadgets results in poor sleep quality. The fun of using gadgets makes drowsiness disappear. So children have reduced sleep time, disrupt learning patterns, become sleepy during class, are slow in school activities, have difficulty concentrating, and have an impact on children's abilities in the teaching and learning process (Munawar & Nisfah, 2020). Good sleep quality can be seen in Table 4.5 which was found by only 15% of respondents. A person's sleep quality is said to be good if they do not show signs of sleep deprivation and do not experience problems sleeping.

CONCLUSIONS

The category of student gadget addiction is in the high category and has an impact on low interest in learning and poor sleep quality. The existence of a relationship between gadget addiction and students' interest in learning shows a one-way correlation and the correlation is close to perfect, as well as gadget addiction is related to students' sleep quality. Parents need to monitor their children's use of gadgets, educate children on content that can improve their development, or divert children's desire to play with gadgets in other ways, for example playing or studying with their peers. Institutions Provide information to schools and students regarding the intensity of gadget use which can affect students' interest in learning and sleep quality.

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