

Regulation of the use of gadgets during the Covid-19 pandemic is needed to prevent emotional problems in children

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ABSTRACT

Background: The number of children's use of gadgets during the COVID-19 pandemic has increased due to the quarantine policy by the government so that it has an impact on children's emotional problems. **Objective:** To determine the relationship between the use of gadgets during the COVID-19 pandemic on children's emotional problems based on the duration of use and ownership of gadgets. **Methods:** This study used an observational analytic design with a cross sectional method. The research instrument used an online questionnaire. The sampling method used is simple random sampling. The independent variable is the duration of gadget use and gadget ownership, while the dependent variable is the child's emotional problem. The duration of gadget use is categorized into less than 2 hours and more than 2 hours per day. Ownership of gadgets is categorized as self-owned and not. Emotional problems were categorized by severity (none, mild, severe). Data analysis with Mann Whitney test using SPSS 25. **Results:** The number of respondents was 116 children, 13 men (9,56%), and 123 women (91,44%), aged 6-12 years 13 people (9,56%) and 13-18 years old 123 people (91,44%), have their own gadget 2 people (1,5%) and do not have a gadget 134 people (98,5%), the duration of using gadgets is less than 2 hours per day 28 people (20,6%) and more than 2 hours per day 108 people (79,4%). Based on the Mann Whitney test, there is a relationship between the duration of using gadgets and the level of children's emotional problems ($p = 0,017$), while gadget ownership is not associated with children's emotional problems ($p = 0,431$). **Conclusion:** Regulation is needed to limit the duration of gadget use during the COVID-19 pandemic to prevent children's emotional problems.

Keywords: duration, ownership of gadgets, emosion, children.

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Introduction

COVID-19 is an infectious disease caused by a newly discovered type of coronavirus. This virus is a new virus with a previously unknown disease before the outbreak in Wuhan, China in December 2019. The COVID-19 virus is easily spread mainly through droplets or secretions from the nose when an infected person coughs or sneezes. The spread of the virus is very fast and spread globally so it is categorized as a pandemic. This has caused the government to make preventive efforts by implementing physical distancing or keeping a distance between individuals and avoiding activities that cause crowds. As a result of this physical distancing, almost all community activities must be carried out in their respective homes or called Work From Home (WFH). Community activities in question such as work, study, and worship. The implementation of WFH causes the use of gadgets to increase significantly because most people tend to carry out community activities online through gadgets.

Gadget users are evenly distributed at all ages, starting from the elderly to children. During the COVID-19 pandemic, children are required to do school work at home through gadgets. According to the American Academy of Pediatrics, children have a screen time limit or screen time. This is enforced so that the development of children, both growth and emotional development of children is not disturbed. According to Novitasari's research (2016), it is stated that the use of gadgets by underage children is more

fun than playing outside the home. This is due to the various game applications found on children's gadgets that attract children's attention more than other activities such as doing activities at home with family or playing traditional games with their peers [1]. According to Imron's research (2018), the use of gadgets in children has a positive and negative impact on child development. The positive impact is that children can make decisions and set strategies faster, while the negative impact of using gadgets is that children are more individual and have less care about their surroundings, and the ability to convey emotions is not good [2].

Wacks and Weinstein (2021) suggest that excessive use of smartphone gadgets can be addictive to negative emotional forms in children such as stress, anxiety to loneliness [3]. Moreover, almost all children are more often at home during the COVID-19 pandemic. Most likely the children have more interaction activities using gadgets than the recommended duration. According to literature review research by Fischer-Grote, Kothgassner and Felnhöfer (2019), several risk factors trigger excessive use of smartphone gadgets in children and adolescents, including age, gender, duration of use, usage patterns, family environment, and environment. school [4]. These factors can be the reason for the need for restrictions and parental assistance to access gadget media through the regulation of children's activities in the use of gadgets in the form of usage restrictions.

Previous studies such as the Imron R study in 2018, more focused on children's social and emotional problems, and the distribution of questionnaires was conducted centered on parents of preschool children in Lampung [5]. In Wacks and Weinstein's (2021) research, they examined the consequences of excessive smartphone use not only in children and adolescents but also in young adults [3], and this was done without considering the state of the COVID-19 pandemic. This study focuses more on the duration of use and ownership of gadgets on emotional problems in children during quarantine due to the COVID-19 pandemic. If there is a relationship between the variables studied, a regulation is needed that regulates the use of gadgets to prevent emotional problems in children.

Method

This research was conducted with an analytical observational design with a cross-sectional approach to determine the relationship between the duration and possession of gadgets on children's emotional problems. This research was conducted in several regions in Indonesia from July 2020 to January 2022. Using simple random sampling. The criteria for acceptance are parents who have children aged 6-18 years, are willing to fill out the questionnaire completely, and have and use gadgets. While the exclusion criteria were parents with children who had emotional problems before the COVID-19 pandemic or congenital mental disorders (Children with Special Needs). The independent variable is the duration of gadget use and gadget ownership, while the dependent variable is the child's emotional problem. The duration of gadget use is categorized into less than 2 hours and more than 2 hours per day. Ownership of gadgets is categorized as self-ownership and not. To identify emotional problems in children using the online Strengths and Difficulties Questionnaire (SDQ). This questionnaire consists of 25 questions that identify 5 psychiatric problems in children, namely emotional problems, conduct, hyperactivity, peer relationships, and prosocial behavior [6,7]. However, we only used 5 specific questions that identify emotional problems in children and we tested the reliability and validity. The questions are: 1. When not using gadgets, my child feels headache (dizzy); 2. When not using gadgets, my child is easily afraid; 3. My child becomes irritable when told to stop using gadgets; 4. My child feels a lot of anxiety or worry when not holding the gadget; 5. My child feels a lot of anxiety or worry when not holding the gadget. Based on the reliability and validity test, the 5 questions on the questionnaire were valid ($p > 0.05$) and the reliability was very good (Cronbach's Alpha=0.915). The scoring system on the SDQ is based on "never" (score 0), "sometimes true" (score 1), and "always right" (score 2), then categorized based on the severity of emotional problems to <3 =no emotional problems in children; 4-6=there are emotional problems, and 7-10=there are severe emotional problems. The data collected were analyzed by using the Mann-Whitney test with a significance of $p < 0.05$ and using SPSS 25. This study has been approved by the Research Ethics Committee of Medical Faculty of Brawijaya University Malang with No. 113/EC/KEPK/06/2020.

Result

This research was conducted online in several regions in Indonesia with some respondents who filled out online questionnaires totaling 269 people with the following distribution, West Java province being the origin of the most respondents (18.58%), East Java province (11.52%), Central Java (9.29%), and outside Java (11.1%). Complete data were 136 people (50.56%), with the characteristics of research subjects based on age and gender, 13 men (9.56%), and 123 women (91.44%), aged 6-12 years 13 people (9.56%) and 13-18 years 123 people (91.44%), 2 people have their gadget (1.5%) and don't have a gadget 134 people (98.5%), duration of use gadgets less than 2 hours per day 28 people (20.6%) and more than 2 hours per day 108 people (79.4%). There was a tendency to use gadgets for more than 2 hours per day at most at the age of 15-18 years by 103 people (75.73%) and at a duration of fewer than 2 hours per day at the age of 7-15 years as many as 7 people (5.15%). Based on the Mann-Whitney test, there is a relationship between the duration of using gadgets with children's emotional problems ($p = 0.017$), while gadget ownership is not associated with children's emotional problems ($p = 0.431$) (Table 1).

Table 1. The relationship between the duration of gadget use and ownership of gadgets with children's emotional problems.

Ownership of gadgets with children's emotional problems.					
Severity children's emotional problems					p
	No (<3)	Mild (4-7)	Severe (8-10)	Total (%)	
The duration of gadget use					
≤ 2 hours/day	26 (19.11%)	2 (1.47%)	0	28 (20.59%)	0.017*
> 2 hours/day	77 (56.61%)	26 (19.11)	5 (3.68%)	108 (79.41%)	
Total (%)	103 (75.73%)	28 (20.59%)	5 (3.68%)	136 (100%)	
Ownership of Gadget					
Self-ownership	102 (75%)	27 (19.85%)	5 (3.68%)	134 (98.52%)	0.431
Do not have gadget	1 (0.73%)	1 (0.73%)	0	2 (1.47%)	
Total (%)	103 (75.73%)	28 (20.59%)	5 (3.68%)	136 (100%)	

*significance $p < 0.05$ (Mann-Whitney Test)

Discussion

Based on the results of the analysis conducted in this study, it was concluded that there was a relationship between the duration of gadget use and the level of children's emotional problems. This is supported by research by Allen, M, S and Vella, S, A (2015) that the more children's screen time increases, the more children's emotional symptoms increase [8]. In addition, according to Twenge's research, JM (2018) explains that high use of gadgets affects children's ability to control emotions such as being unable to calm down, being too defiant, having difficulty mingling, inability to complete tasks, having low curiosity, and difficulty socializing with friends [9]. Another study also states that emotional problems tend to be experienced by children who have screen time of more than 60 minutes than children who have screen time of fewer than 60 minutes [10]. The research of Wu, et al (2017) also explains that screen time duration > 2 hours significantly increases behavioral problems in children [11]. The American Academy of Pediatrics (2016) suggests that

excessive screen time causes sensory overload so children find it difficult to focus and drain their energy which often leads to anger issues and explosive behavior in children. In addition, the characteristics and behavior of children's emotions are also influenced by the media they consume. This can also cause some problems in children such as poor emotional regulation of children, social delays in children's emotions, and poor temperament of children [12]. According to Oswald, T, K et al (2020) differences in the use of screen activities and the age level of children also cause differences in the resulting emotional problems. For example, the use of gadgets at the age of 4 years affects the emotional development of children at the age of 6 years. Children aged 14 years who have excessive screen time can increase psychological problems. In the 5-7 year age group, it was reported that the higher TV screen time in children there was relationship with conduct problems (behavioral problems) but there was no relationship when using electronic games. Meanwhile, in the 10-18 year age group, it was found that high screen time on computers and the internet was associated with emotional problems and peer relationship problems [13].

Ownership of gadgets can lead to a lack of control over the use of gadgets, moreover, the ownership of gadgets is owned by children and without strict supervision from parents with the possibility of addiction. Addiction caused by using gadgets cannot be separated from applications that attract children's attention [1,14]. According to Fischer-Grote, Kothgassner and Felnhofer (2019), several risk factors for gadget addiction consist of gender, age, duration of use, school, family factors, social networks, and personality. In the risk factors for gender and age, women aged 13-20 years were found to have a relationship with the problematic use of smartphone gadgets. While the risk factor for the duration of use, the higher the frequency of using gadgets, the duration of using gadgets in a day, and habitual use of gadgets, have a relationship with the problematic use of smartphone gadgets. The risk factor for the category of usage patterns, namely the use of gadgets for social internet services, has a predictive risk of addiction to gadgets followed by use by teenagers who use these services more often, such as chatting or other communication. Playing electronic games is also a risk factor for gadget addiction in the category of gadget use patterns because children use gadgets more often to achieve certain targets in the game. In the risk factors for family parenting, the role of parents is the key regarding the presence or absence of gadget addiction. Parental neglect of the use of children's gadgets has a significant relationship with gadget addiction in children. Social networks can be a risk factor for gadget addiction if users have many relationships, close relationships between users, and social engagement. Based on the results of this study, it is explained that there is no correlation between gadget ownership and children's emotional level, this can also occur because of the proper regulation by parents on gadget ownership [15].

Conclusion

Based on the results of this study, it can be stated that there is a relationship between the duration of using gadgets and the level of emotional problems in children. Children with a duration of using gadgets for more than 2

hours have greater emotional problems than children with a duration of using gadgets for less than 2 hours per day. There is no relationship between gadget ownership in children and the level of emotional problems in children. Therefore, regulations are needed to limit the duration of gadget use during the COVID-19 pandemic to prevent children's emotional problems.

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