

The Relationship Between Gadget Addiction Knowledge and the Duration of Electronic Gadget Use Among Adolescents in Junior High Schools in Surabaya

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Abstract—Gadget addiction remains prevalent in Indonesia. A study by Rahmawati [9] found that gadget addiction is prevalent among Indonesian adolescents. Gadget addiction is a collection of negative behaviors characterized by prolonged use of gadgets [8]. Gadget addiction can have numerous negative impacts, including physical health problems, mental health problems, social health issues, and more [5]. This study examines the correlation between duration of gadget use and level of knowledge about gadgets amongst junior high school students from three different junior high schools in Surabaya. This study was conducted by collecting data from junior high school students in Surabaya with questionnaires which are then analysed using SPSS to be used in this research. This study resulted in finding a weak (spearman's rho = 0.153) correlation between gadget addiction knowledge and the duration of electronic gadget use among adolescents. There is a significant but weak correlation between gadget addiction knowledge and the duration of electronic gadget use among adolescents, although there is much more factors internally and externally which needs to be studied further

Keywords— Addiction, Adolescent, Gadget addiction, Gadget addiction knowledge, Correlation, Good Health and Well-being.

I. INTRODUCTION

Electronic gadget usage is more prevalent in Indonesia today than ever. The ease of use and benefits of using electronic gadgets alongside the internet provides many benefits such as using electronic gadgets to speed up work process, online texts and calls for communication, using social media and video games for entertainment, et cetera [10].

Despite the many benefits from using electronic gadgets, the duration of using those electronic gadgets should be monitored responsibly. Many research indicates that people with excessive use of gadgets could possibly lead to one or several health effects physical and mental such as repetitive hand movement for prolonged periods of time causing repetitive strain injury, long duration of gadget use causing eye problems such as dryness and redness, overuse of electronic gadgets causing addiction and mental health, and more [10].

With how extensive the information about gadget addiction has spread especially over the internet, there is a possibility that teenagers have already known about gadget addiction and its

effects but chose to ignore that information. This can happen in cases where an individual already got addicted to gadgets.

According to the Indonesia-National Adolescent Mental Health Survey [4] in October 2022, about 15.5 million adolescent in Indonesia suffers one mental health problems in the last 12 months and about 2.45 million adolescent in Indonesia suffers from mental disorder in the last 12 months [4]. This number has significantly increased from what is reported by RISKESDAS in 2013 stating that approximately 1.7% of the total population in Indonesia suffered from mental disorders [3].

Many research has been conducted to study the effects of excessive gadget usage. However, very little research correlates gadget usage duration with the knowledge of the gadget user, especially with the knowledge regarding gadget addiction despite how prevalent gadget addiction issues are with adolescence in Indonesia nowadays with about 53.3% children 10-11 years old researched are addicted to gadget [9]. In a research conducted in 2021, 85% of students in a private high school in Surabaya suffer from moderate to high degree of gadget addiction [11].

There has been no recent research that correlates the knowledge of gadget users regarding mental health with their extended use of the gadget. Therefore, the aim of this study is to discover the correlation between knowledge of gadget addiction on the duration of gadget use specifically upon adolescence in Indonesia. By finding the correlation between knowledge and excessive gadget use we can use the information gathered to understand and attempt to prevent further gadget addiction among adolescents.

II. MATERIALS AND METHODS

This research is quantitative, cross-sectional research. The population for this research are students studying in 3 different junior high schools in Surabaya and the data is taken simultaneously between September and October 2025. Students with severe physical and/or mental illness are excluded from this research. Voluntary response sampling is used for this research utilizing written forms and google forms.

The independent variable for this research is how much knowledge does the subject have about gadget addiction which will be analysed alongside the duration of gadget used by the subjects. The instrument used to measure these variables are questionnaires made by the author which have been tested for reliability and validity. The research instrument this research will be using consists of demographic instrument, gadget usage instrument, and gadget addiction knowledge instrument.

The demographic instrument used consists of demographic questions for name, age, gender, and parents occupation, and parent’s earning, current illness, certain behavior including depression and anxiety using PHQ-9 and GAD-7 questionnaire respectively. Specifically PHQ-9 and GAD-7 have been translated from english to Indonesia using the machine translation and correction by a translator.

The gadget usage instrument will use a questionnaire with multiple choice questions to determine the type of gadget used by the respondents alongside the usage duration, there is also a gadget addiction questionnaire using SAS-SV. The gadget addiction knowledge questionnaire will be tested for reliability and validity. The Indonesian version of SAS-SV by Arthy [2]. is used for this research.

To measure gadget addiction knowledge, this research will use multiple choice questions. The questionnaire used for this research is made by the author based on findings from journals and other sources and face and content validated by psychiatrist Nining Febriyana, dr. Sp.KJ.Subsp.A.R.(K). The validity of this questionnaire is also measured with SPSS using pearson correlation which resulted in 8 questions out of 10 having pearson correlation coefficient above 0.5 which is deemed valid. The questionnaire has been tested for reliability using SPSS which resulted in the value of cronbach alpha coefficient of 0.72, where alpha cronbach coefficient >0.7 is already considered acceptable internal consistency. The respondents will receive 1 point if they answered the question correctly and receive 0 points for every question answered wrong or not answered.

III. RESULTS

In table 1, data from 185 respondents were collected from 3 different junior high schools in Surabaya explained before. The demographic questions include age, gender, parent’s job and earnings, ongoing severe illness, parenting style, gadget addicted family member, left alone at home, frequency of advertisement encounter, emotional state, online friends, and whether the respondents prefer games with or without gadgets.

Gadget usage duration is the dependent variable in this research. Gadget usage duration is measured in hours per day. However long the respondents have used their gadgets are categorised into 5 categories depending on how long the respondents use their gadgets. The categories are 0-1 hours per day, 1-2 hours per day, 2-4 hours per day, 4-6 hours per day, and 6<= hours per day.

Table 2 contains the gadget usage statistic within the respondents, this includes the number gadgets owned, gadget addiction severity, and duration of gadget use. The results are that most respondents, 63 respondents (34.05%), use their gadgets between 2-4 hours per day.

TABLE 1. Demographic statistics.

Age	Frequency	Percentage (%)
12	18	9.73
13	75	40.54
14	58	31.35
15	27	14.59
16	5	2.70
17	2	1.08
Gender	Frequency	Percentage (%)
Laki-laki	76	41.08
Perempuan	109	58.92
Father’s earnings	Frequency	Percentage (%)
> 4.960.000	74	40.00
≤ 4.960.000	111	60.00
Mother’s earnings	Frequency	Percentage (%)
> 4.960.000	38	20.54
≤ 4.960.000	147	79.46
Ongoing severe illness	Frequency	Percentage (%)
Yes	7	3.78
No	178	96.22
Parenting style	Frequency	Percentage (%)
Discipline	109	58.92
Relax	76	41.08
Have an gadget addicted family member	Frequency	Percentage (%)
Yes	62	33.51
No	123	66.49
Often left alone at home	Frequency	Percentage (%)
Yes	100	54.05
No	85	45.95
Frequency seeing ads about gadget	Frequency	Percentage (%)
Very rarely	18	9.73
Rarely	42	22.70
Moderately	62	33.51
Often	48	25.95
Very often	15	8.11
Depression	Frequency	Percentage (%)
Minimal	54	29.19
Light	73	39.46
Moderate	39	21.08
Severe	17	9.19
Very severe	2	1.08
Anxiety	Frequency	Percentage (%)
Light	56	30.27
Moderate	29	15.68
Severe	11	5.95
How many online friends	Frequency	Percentage (%)
None (0 friends)	30	16.22
Very few (1-5 friends)	68	36.76
Few (6-10 friends)	32	17.30
Many (11-15 friends)	21	11.35
Very many (More than 15 friends)	34	18.38
Games with/without gadget	Frequency	Percentage (%)
Games with gadget	124	67.03
Games without gadget	61	32.97

TABLE 2. Gadget usage statistics.

Gadgets owned	Frequency	Percentage (%)
1	40	21.62
2	90	48.65
3	43	23.24
4	11	5.95
5	1	0.54
Duration of gadget use	Frequency	Percentage (%)
0-1 hours per day	12	6.49
1-2 hours per day	42	22.70
2-4 hours per day	63	34.05
4-6 hours per day	36	19.46
≥ 6 hours per day	32	17.30

Gadget addiction knowledge is the independent variable in this research. Gadget addiction knowledge is measured using an 8 question questionnaire that has been validated and tested for reliability beforehand. The scores are then categorised into 3 categories which are “Poor” for scores 0-4, “Adequate” for scores 5-6 and “Good” for scores 7-8.

According to the data collected, the least amount per category is 28 (14.05%) respondents scored less than 5 points therefore categorized into “Poor” knowledge category, followed by 48 (25.95%) respondents scoring 5-6 falling into the “Adequate” knowledge category, and finally 111 (60%) respondents scoring more than 6 achieving the “Good” knowledge category as shown in table 3 below.

TABLE 3. Gadget addiction knowledge statistics.

Gadget addiction knowledge	Frequency	Percentage (%)
Poor	26	14.05
Adequate	48	25.95
Good	111	60.00

The correlation between gadget use duration and the gadget addiction knowledge is analysed using the spearman correlation. Using the spearman correlation, there is a weak correlation (spearman’s rho = 0.153) between the gadget use duration and the gadget addiction knowledge. The results are as shown in table 4 below.

TABLE 4. Gadget addiction knowledge and gadget usage duration

Gadget addiction Knowledge	Gadget usage duration (hour)					Total
	0-1	1-2	2-4	4-6	6 ≤	
Poor	2	8	7	5	4	26
	7.69%	30.77%	26.92%	19.23%	15.38%	100.00%
Adequate	6	13	17	3	9	48
	12.50%	27.08%	35.42%	6.25%	18.75%	100.00%
Good	4	21	39	28	19	111
	3.60%	18.92%	35.14%	25.23%	17.12%	100.00%
Total	12	42	63	36	32	185
	6.49%	22.70%	34.05%	19.46%	17.30%	100.00%
Spearman correlation coefficient (r _s) = 0.153						

IV. DISCUSSIONS

The results of this research show that individuals with “Poor” knowledge about gadget addiction have less time spent on gadgets compared to individuals with “Good” knowledge about gadget addiction. This may be accredited to several factors. Previously we have learned that there are many factors affecting individuals such as internal factors and external factors and this might be the answer to the question. For example, an individual with “Poor” gadget addiction knowledge could have less gadget use duration due to having strict parents limiting their gadget usage, the individuals themselves having a good habit such as exercising, the individual or their friends preferring more traditional games such as chess, or their social economy status limiting their use of gadgets. On the opposite end of the spectrum, the reason why individuals with “Good” knowledge of gadget addiction having more time on their gadgets may be attributed to factors similar to the previous, internal factors such as the individual feeling lonely so they use the phone for companionship, or external factors such as relaxed parenting causing the individual to use

their gadget unmonitored, the individual or their friends enjoying more online gaming, having the socioeconomic status to support gadget using lifestyle, and many more.

The results of this research show that there is a significant but weak correlation between the duration of gadget usage and the knowledge of gadget usage. This result is comparable to research done by Anggita [1] which resulted in finding a more significant correlation (-0.750) between gadget addiction and respondent’s knowledge, although the knowledge mentioned in Anggita’s research were the knowledge level of traditional games and not the gadget addiction knowledge which this research studies. Once again this result presented in this case might be produced by a number of factors. As previous research shows, there are several reasons that an individual is a risk factor to gadget addiction, such as internal factors, which are factors from the individual’s physical and psychological state. External factors situational factors that stem from the environment around an individual and social factors in which it comes from the population around the individual. Also demographic factors such as economical status or geography of an individual. [6].

Once again the results of this research is comparable to a research done by Mabaroh [7]. In which they measure the subject’s gadget addiction using SAS-SV and correlating the result with the subject’s GPA. Similarly to this research, this resulted in most subjects (90%) scoring more than 3.01 GPA while still knowing how to socialize and perform very well even with excessive gadget usage. This could be the result of the subjects of Mabaroh’s [7] research being more mature, university students, and knowing how to use gadgets efficiently to study which has led to the suggestion that using a gadget for many hours per day is now considered normal.

The author acknowledges the flaws of this paper includes a limited sample size, it being only junior high school students in Surabaya, among limited demographics so the results of this paper cannot be generalized. Secondly, this paper analyzes the correlation quantitatively so a qualitative answer cannot be done in this research. Thirdly, this factor only records the demographic but not analyzing the potential correlations between the demographics and the gadget use duration which could definitely impact the result.

V. CONCLUSION

Based on the results, there is a significant difference in gadget use duration amongst children with gadget addiction knowledge compared to children with less or no gadget addiction knowledge. Although there are several other factors that affect the amount of time an individual spends on gadgets such as age, gender, emotional status, economic status, current illness, and much more. So it may be concluded that there is a significant but weak correlation between gadget addiction knowledge and the duration of electronic gadget use among adolescents in junior high schools in Surabaya.

This topic may be further researched using different demographics of students, difference in age, research location, parental wealth, and more could lead to different results in gadget addiction knowledge or gadget usage duration. The gadget addiction knowledge questionnaire may be further

expanded by including more questions about gadget addiction knowledge or the demographic of the respondents. If possible, conduct a second test after the initial questionnaire with similar questions to measure the respondent's understanding.

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