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Research Paper

Differences in smartphone addiction between male and female adolescents

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ABSTRACT

Background: Smartphone use among adolescents has increased sharply worldwide, with adolescents representing one of the largest user groups. While smartphones offer benefits such as communication, entertainment, and access to information, excessive use has been linked to smartphone addiction, a behavioral attachment pattern associated with sleep disturbance, anxiety, aggression, and impaired daily functioning. Prior research suggests gender-based differences in smartphone use patterns, but findings on whether these translate into differences in addiction severity remain inconsistent.
Objective: To examine whether smartphone addiction differs between male and female adolescents residing in South Jakarta, Indonesia.
Methods: A non-experimental, differential research design was used. Participants were 100 adolescents (50 male, 50 female) aged 10–24 years, recruited via quota sampling from universities and schools in South Jakarta. Smartphone addiction was assessed using the validated Smartphone Addiction Scale (SAS), comprising six dimensions: daily-life disturbance, positive anticipation, withdrawal, cyberspace-oriented relationship, overuse, and tolerance. Group differences were analyzed using an independent-samples t-test in JASP (version 0.16.0).
Results: Female adolescents reported significantly higher overall smartphone addiction scores ($M = 141.06$, $SD = 25.42$) than male adolescents ($M = 113.94$, $SD = 21.52$), $t(98) = 5.758$, $p < .001$. Females scored significantly higher on all six SAS dimensions (all $p < .001$). Duration of smartphone use was positively associated with addiction severity, $F = 2.798$, $p < .05$, with adolescents using smartphones for more than five hours daily reporting the highest scores. Communication was the most common purpose of use across both genders.
Conclusion: Female adolescents in South Jakarta exhibit significantly higher smartphone addiction than male adolescents, across all measured dimensions. Findings support the development of gender-sensitive prevention and intervention strategies targeting excessive smartphone use. Generalizability is

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limited by the use of quota/convenience sampling; future studies should employ random sampling to strengthen external validity.

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1. INTRODUCTION

Nowadays, the most indispensable part in our daily life is a smartphone [1]. Smartphone users are increasing every year. It was found in 2019, there was an increase in smartphone users in the world of about 5.6% from the previous year to produce a figure of 3.2 billion. Japan alone already controls 27% of the total users worldwide, and China is still at the top of the list for the number of smartphone users [2]. Its use in recent years has also grown very rapidly. What was originally just for contacting other individuals who are separated by distance, now even makes information as close as being in the palm of your hand. Helping to reduce stress and anxiety through various entertaining features and facilitate communication makes smartphones an item that has many benefits and brings various conveniences [3]. These benefits can certainly be felt by every individual of various ages, considering that these needs are needed by everyone.

[4] Revealed the results of their survey regarding the position of the age group of smartphone users in the world, especially in Turkey, the most users are occupied by the teenage group. It should be noted beforehand that adolescents are individuals who are in the process of transitioning from children to adulthood. The characteristics of adolescents themselves according to BKKBN are those who are not married and are aged 10-24 years [5]. At that age, a survey also conducted in 2013 found that 80% of smartphone users in Indonesia are teenagers Deloitte, as cited in [6]. Through these findings, it can be seen that teenagers spend the most time using smartphones. One trigger can be seen from age. Namely at that age, most of the adolescence are still in education and need smartphones as a medium to find information and find entertainment. Like the research of [7] on adolescence in Yogyakarta, that 121 respondents used their smartphones to play social media and games. In addition, smartphones are also used as a tool for them to communicate and expand relationships. This is in line with [4] who state that smartphones are believed to shape adolescence' identities and make it easier for them to find friends and carry out various social activities. Found that smartphone addiction in adolescents in South Tangerang was classified as moderate, and no differences were found between male and female adolescents.

From the socialization process carried out in adolescents, it turns out that there are differences between male and female adolescents. This is influenced by the emotional aspects that exist in each gender. Based on previous research by [8], men tend to choose activities outside the home, while women prefer activities inside the home because for them the home is a warm and comfortable place. These activities in the house are often filled by adolescence to use their smartphones, both to access information to entertain themselves.

Unfortunately, there are not only positive effects that smartphones bring to people's lives, but also negative ones. In addition to reducing stress, it turns out that the use of smartphones can also reduce sleep quality, thereby increasing anxiety, aggression, and disrupting the user's ability to focus [9]. This excessive use of smartphones leads these adolescene to smartphone addiction. Smartphone addiction is defined as a behavior of attachment to a smartphone that causes social problems, such as difficulty in carrying out daily activities to withdraw, and can also cause impulse disorders in a person [10]. This will encourage

adolescence to focus on the screen they are facing and tend to ignore their surroundings in the real world. Especially for those who spend more time at home.

Related to the explanation above, it is suspected that female adolescents have a higher tendency of smartphone addiction than male adolescents. Apart from the fact that the socialization carried out by female adolescents focuses more on their smartphones, this is also in line with research in Semarang which resulted that women have a higher average value of smartphone addiction compared to men [11].

Researchers highlight smartphone addiction behavior that occurs in adolescents in South Jakarta, Indonesia. One of the causes is related to smartphone ownership in South Jakarta. The survey results from Charta Politika Indonesia took samples conducted in three electoral districts (Dapil) for the 2019 Legislative General Election in Jakarta. Dapil, I cover East Jakarta, Dapil II covers Central Jakarta and South Jakarta, and Dapil III covers West Jakarta, North Jakarta, and Thousand Islands. It is noted that Jakarta Dapil II has the highest percentage, namely Central Jakarta and South Jakarta, seen from individuals who own smartphones, which is 85.5%, and followed by Jakarta Dapil III with a percentage of 83.5% [12]. The next fact that supports the behavior of smartphone addiction in adolescents in South Jakarta is research which reveals that the area in Indonesia that is the highest area in accessing the internet is in Jakarta, where South Jakarta is one of the cities with the highest percentage in accessing the internet and using smartphones [13]. This certainly opens up great opportunities for smartphone addiction behavior in adolescents in South Jakarta. Moreover, through previous research it has been found that there is indeed smartphone addiction behavior in adolescents in this area, as many as 88 out of 207 respondents [13].

Based on explanation above, the researchers propose a research question, "Are there differences in smartphone addiction behavior between male and female adolescents?".

2. RELATED WORK

Smartphone addiction is defined as a behavior that shows an attachment between a smartphone and an individual [10]. This attachment then triggers social problems, ranging from facing difficulties in daily activities and withdrawing from the environment to causing impulse disorders [10]. In addition, based on this definition, it can be seen that smartphone addiction makes it difficult for individuals to regulate their impulses to use smartphones and often ignore the surrounding environment because they focus on their smartphones.

There are six dimensions of the smartphone addiction, namely daily-life disturbance, positive anticipation, withdrawal, cyberspace-oriented relationship, overuse, and tolerance [10]. The daily-life disturbance dimension describes individuals who have difficulty completing work, difficulty concentrating, dizziness or blurred vision, pain in the wrists or back of the neck, and sleep disturbances. The positive anticipation dimension describes individuals who feel happy in relieving their stress by using smartphones and feel empty if there is no smartphone. The withdrawal dimension describes individuals who always feel restless if there is no smartphone, never stop using a smartphone, and become irritated if disturbed when they use a smartphone. The cyberspace-oriented relationship dimension describes individuals who feel that relationships with their friends obtained through smartphones are more intimate than with their friends in the real world. The overuse dimension describes individuals who use smartphones uncontrollably, always carry chargers, and prefer to find information via smartphones rather than asking for help from others. The tolerance dimension describes individuals who always try to control smartphone use but always fail to do so.

Smartphone addiction has negative consequences on adolesecent [14]. Smartphone addiction has a significant impact on daily life, as many as 75% of individuals say they sleep with their smartphones [15]. In addition, smartphones have other impacts such as low sleep quality, anxiety, depression, problems with concentration, and physical pain felt in the neck and wrists as cited in [3]. Adolescents in Turkey who have high smartphone addiction tend to have poor sleep quality [1].

3. METHODOLOGY

The strategy used in this research is a non-experimental strategy with differential research design. This strategy is carried out by comparing groups that already exist and are separated based on the characteristics of the participants [16]. In this case, it is by comparing smartphone addiction behavior in male and female adolescents in South Jakarta. Participants were 100 teenagers (50 females and 50 males) who live in South Jakarta, aged 10-24 years, and are teenagers who own or use smartphones. The method used to take participants was quota sampling by distributing online questionnaires to male and female adolescents at various universities and schools in South Jakarta, Indonesia. This study used an instrument in the form of the Smartphone Addiction Scale (SAS) [10]. Researchers used independent samples t-test to be able to see differences in smartphone addiction behavior between male and female adolescents in South Jakarta. Data calculation using JASP 0.16.0 software.

4. RESULTS AND DISCUSSION

Participants were 100 adolescents (50 males and 50 females) living in South Jakarta, Indonesia, aged between 10 - 24 years old (M = 18.57, SD = 3.163). Most of them were university students (66%). Table 1 presents the duration of use and purpose of smartphone use by gender. The duration of smartphone use was equally dominated for more than 5 hours. Based on the usage, participants most often used smartphones to communicate with a total of 49 participants.

Table 1. Frequency of Duration and Purpose of Smartphone usage Based on Gender (N=100)

Variables	Females (n=50)	Males(n=50)	Total
Duration of smartphone usage			
< 1 hours	1 (2.0%)	1 (2.0%)	2 (2.0%)
1-3 hours	1 (2.0%)	6 (12.0%)	7 (7.0%)
3-5 hours	12 (24.0%)	11 (22.0%)	23 (23.0%)
> 5 hours	36 (72.0%)	32 (64.0%)	68 (68.0%)
Purpose of smartphone usage			
Studying	4 (8.0%)	5 (10.0%)	9 (9/0%)
Communication	24 (48.0%)	25 (50.0%)	49 (49.0%)
Entertainment	17 (34.0%)	14 (28.0%)	31 (31.0%)
Information seeking	5 (10.0%)	6 (12.0%)	11 (11.0%)

Table 2 shows there is a significant difference on smartphone addiction between females (M = 141.60, SD, 25.422) and males (M = 113.940, SD = 21.518), t (98) = 5.758, p < .001.

Table 2. Independent Sample T-Test of Smartphone Addiction

Variables	Females		Males		
	M	SD	M	SD	t
Smartphone addiction	141.060	25.422	113.940	21.518	5.758***
Dimension					
Daily-life disturbance	21.820	5.317	16.980	4.578	4.878***
Positive anticipation	31.600	5.584	24.240	5.069	6.901***
Withdrawal	25.060	5.419	21.140	5.182	3.697***
Cyberspace-oriented relationship	27.460	6.535	22.620	4.772	4.230***
Overuse	16.920	2.996	14.520	3.196	3.874***
Tolerance	13.320	2.889	10.340	2.608	5.415***

Table 3 shows that the longer the smartphone use, the higher the smartphone addiction, $F = 2.798$, $p < .05$.

Table 3. Descriptive Statistics of Duration of Smartphone Usage

Duration	n	M	SD
< 1 hour	2	110.500	47.376
1-3 hours	7	110.286	22.134
3-5 hours	23	119.435	18.188
> 5 hours	68	132.500	28.504

This study found that there are differences in smartphone addiction behavior between female and male adolescents in South Jakarta. This is in line with the results of research by [11] that the average value of smartphone addiction in female adolescents higher than male adolescents. The same thing also happened in this study, namely the mean of the total smartphone addiction score in female adolescents was higher than male adolescents. Based on domicile, South Jakarta, it shows high results in smartphone addiction behavior. This results inline with the research of [13] that South Jakarta shows smartphone ownership accompanied by high usage. This high smartphone ownership can be seen through a survey conducted by Charta Politika Indonesia that South Jakarta, which is included in the Jakarta II electoral district, has the highest percentage of smartphone ownership, namely 85.5% [12]. The sub-district that also plays an important role in this case is Pesanggrahan Sub-district. Through this research, it was also found that the most participants came from this sub-district, namely 33 participants consisting of 14 men and 19 women. One of the supporters is the fact that Pesanggrahan District ranks second as the sub-district with the highest population in South Jakarta City. The researchers found that male and female adolescents have a tendency towards the Positive Anticipation (PA) dimension. This dimension indicates that the use of smartphones is used to relieve stress and a sense of emptiness if someone is not using it [10]. In addition, researchers also found the fact that the dimension that received the least score in both male and female adolescents was Tolerance (TO). According to, this dimension shows the tendency of participants to fail in their efforts to reduce the use of smartphones in life. This does not really show a relationship through the researcher's findings through the data generated, namely the lowest use of smartphones is used for studying, which was chosen by 9 participants (4 female and 5 male adolescents). This means that the teenagers' minimal failure to control their smartphone use as the dimension with the smallest score is not related to the fact that their smartphones are rarely used for studying.

5. CONCLUSION

Smartphone addiction is a behavior of addiction towards smartphones, where this can complicate a person's life because of the social problems caused. Based on the results, this study concluded that there are differences in smartphone addiction behavior between male and female adolescents in South Jakarta. This difference showed that female adolescents have higher Smartphone Addiction Scale (SAS) scores than male adolescents. These findings are in line with the researcher's previous assumption that there are differences in smartphone addiction behavior between male and female adolescents in South Jakarta.

Nevertheless, this study has some limitations. One of them is the limited generalization of the research results. This is because the study only used convenience sampling. The suggestion for future research is to be able to take samples using random sampling so that the results can be generalized.

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Author Contributions Statement

Name of Author	C	M	So	Va	Fo	I	R	D	O	E	Vi	Su	P	Fu
Amalia Hanna Bahagianti Sajidah	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
Irnawati Jayanti	✓	✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	✓
Namira Rahman	✓		✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
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C : **C**onceptualization
M : **M**ethodology
So : **So**ftware
Va : **Va**lidation
Fo : **Fo**rmal analysis
I : **I**nvestigation
R : **R**esources
D : **D**ata Curation
O : Writing - **O**riginal Draft
E : Writing - Review & **E**diting
Vi : **Vi**sualization
Su : **Su**pervision
P : **P**roject administration
Fu : **Fu**nding acquisition

Conflict of Interest Statement

The authors declare that there are no conflicts of interest regarding the publication of this paper.

Informed Consent

All participants were informed about the purpose of the study, and their voluntary consent was obtained prior to data collection.

Ethical Approval

Not Applicable.

Data Availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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