

## Smartphones addiction and mental-emotional disorders among adolescents : A cross sectional study

Eriyono Budi Wijoyo\*, Rafiqah  
Fadhilah, Annisaa Fitrah Umara 

Department of Nursing, Faculty of Health  
Science, Universitas Muhammadiyah  
Tangerang, Indonesia

Corresponding Author: Eriyono Budi Wijoyo  
Email: [eriyonobudi@gmail.com](mailto:eriyonobudi@gmail.com)

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### Abstract

**Background:** A smartphone is a communication tool designed to be used for a variety of applications. Excessive usage of smartphones can cause addiction, especially in adolescents. Because of this, adolescents can experience emotional-mental disorders caused by smartphone addiction.

**Objective:** This study aimed to examine the relationship between smartphone addiction and emotional-mental disorders.

**Methods:** This study had a quantitative research using a cross sectional study design. Smartphone addiction was measured using the Smartphone Addiction Scale-Short Version (SAS-SV) instrument, while mental emotional disorder was measured using the Self Reporting Questionnaire (SRQ) instrument. The sample size of this study was 103 adolescents. Samples were taken by simple random sampling and analyzed by chi-square.

**Results:** The results of this study show that there is a relationship between smartphone addiction and emotional and mental disorders in adolescents with p-value 0.02.

**Conclusion:** More support is needed from various parties to prevent adolescents from experiencing smartphone addiction and subsequently experiencing mental and emotional disorders.

**Keywords:** adolescents; mental-emotional disorder; smartphones addiction

### INTRODUCTION

Advances in technology and information in the form of online media are currently increasing rapidly. Smartphones are products used for both communication and entertainment. The number of internet users in the world is 5.6 billion, with the most users living in Asia, with 2.9 billion ([Internet World Stats, 2022a](#)). There are also 6.8 billion mobile internet users in the world and in Indonesia, there are 212 million internet users ([Internet World Stats, 2022a; 2022b](#)). Smartphones these days are easy to find and almost every class in society has access to them.

Smartphones circulate amongst children and early adolescents, late adolescents, and adults. Apart from this, it is not unusual for many smartphone manufacturers to deliberately target children and ([Mrazek et al., 2021; Setiadi et al., 2019a](#)). Adolescence is a dynamic phase of development

characterized by rapid changes and emerging problems in an individual's life. These changes may include changes in a person's physical, behavioral, cognitive, biological, and mental emotions ([Murhadi & Kurniawati, 2019; Özdemir et al., 2016](#)). Problems that often occur in adolescents can include: social issues, emotional problems, physical aspects and interpersonal family, school, and peer groups factors ([Mrazek et al., 2021; Senekal et al., 2022](#)). Adolescents will experience many changes, one of which is mental-emotional problems.

Adolescent mental-emotional problems include emotional symptoms, behavioral problems, hyperactivity, anxiety, bullying, relationship problems with peers and social behaviors ([Devita, 2020; Febriana, 2017; Iskandar et al., 2021; Rizkiah et al., 2020; Syakurah et al., 2021](#)). Mental and emotional changes need to be anticipated in order

to maintain mental health in adolescents. Approximately 450 million people are suffering from mental and behavioral disorders worldwide. The prevalence of mental-emotional disorders in the Indonesian population based on at least six symptoms experienced from 20 Self Reporting Questionnaire (SRQ) questions is around 9.8% or around 26 million out of 267 million people in Indonesia who live with "mental, emotional disorders" or mental health conditions. Further analysis shows that the prevalence of emotional and mental disorders in Indonesian students is 7.7% (The Ministry of Health, 2018). Meanwhile, 14% of adolescents in Banten Province experience mental-emotional disorders at the age of over 15 years (The Ministry of Health, 2019). It is clear that mental and emotional disorders can be experienced by adolescents.

Adolescents go through a variety of different emotional and mental developments as they transition to adulthood. Mental-emotional disorder is a condition where a person experiences psychological distress or psychological changes that occur in certain circumstances and often they can recover as before. If these issues are not handled correctly, it can harm the psychosocial development of adolescents (Malfasari et al., 2020; Senekal et al., 2022). Mental and emotional problems are a condition experienced by individuals characterized by emotional changes and will develop into pathology if provided further treatment (Gonçalves et al., 2020). Emotional and mental development in adolescents can be seen from the emergence of emotional instability, of feelings of anxiety, feelings of depression, becoming overexcited, often fantasizing and being plagued by illusions that are not real (Dhamayanti et al., 2018; Pandia et al., 2021; Ulag et al., 2022). So families need to be careful of the environment to prevent teenagers from getting worse mental and emotional disorders.

Based on the results of a preliminary study through interviews undertaken in junior high schools, 5 out of 10 adolescents experience smartphone addiction due to the presence of a social media selection that attracts them to interact in cyberspace, such as Instagram, Facebook, Twitter, YouTube, and others

that will occupy them for long periods. They forget the time when playing on their smartphones, sometimes forgetting mealtimes and using their smartphones until late at night. Even if someone interferes and their smartphone is taken away or restricted due to excessive use, they will react with anger, annoyance, emotion, crying, and not acceptance. Based on the evidence described above, the researcher conducted research titled "Relationship of Smartphone Addiction to Mental Emotionalism in Adolescents". This research aimed to determine whether there is a relationship between smartphone addiction and emotional mentality in adolescents.

#### METHOD

This research used a quantitative with a descriptive-analytic design using a cross-sectional design. This study used this design to determine whether there was a "relationship between smartphone addiction and emotional mentality in adolescents". The total population was 139 students, with a total sample of 103 students. The inclusion criteria was being a member of 8<sup>th</sup> grade at Teluknaga Junior High School and using a smartphone while exclusion criteria was students with communication problems and students who were sick. Sampling in this study used simple random sampling. Researchers collected data using an application form that could be accessed online which contains the Smartphone Addiction Scale-Short Version (SAS-SV) questionnaire (Arthy et al., 2019) and the Self Reporting Questionnaire (SRQ)-20 questionnaire (WHO, 1994). The bivariate analysis technique that was used to analyze the research data was the chi-square analysis test. This research has passed the ethical clearance with the Ethical Number: 045/PE/KE/FKK-UMJ/V111/2020.

#### RESULT

Table 1 shows the demographic makeup of the respondents, namely 13 years of age, were 43 respondents (41.7%), the frequency of respondents based on the gender of the 103 respondents obtained the majority results, namely women, as many as 57 respondents (55.3%).

**Table 1. Frequency distribution of characteristic age, gender, addiction level, and mental-emotional disorder indication level (n= 103)**

Characteristic	Total (n)	Percentage (%)
<b>Age</b>		
12 years old	35	34.0
13 years old	43	41.7
14 years old	25	24.3
<b>Gender</b>		
Female	57	55.3
Male	46	44.7
<b>Addiction level</b>		
High	65	63.1
Low	38	36.9
<b>Indication level</b>		
Indication level high	63	61.2
Indication level low	40	38.8

Table 1 also shows that the frequency distribution of respondents based on the level of smartphone addiction from 103 respondents. The results obtained showed most students had high addiction levels of 65 respondents (63.1%). T distribution of

the frequency of respondents based on the emotional and mental level of the 103 respondents who had the most levels indicating high emotional disturbances, as many as 63 respondents (61.2%).

**Table 2. Analysis Chi-Square test between Addiction Smartphone and Mental-Emotional Disorder among Adolescence**

Addiction Smartphone	Mental-Emotional Disorder				Total	P-Value	
	Indication level high		Indication level low				
	N	%	N	%			
Level high of addiction	34	33.0	31	30.1	65	63.1	0,02
Level low of addiction	29	28.2	9	8.7	38	36.9	
Total	63	61.2	40	38.8	103	100	

Table 2 shows that out of 103 respondents, there are 34 adolescents (33.0%) who had a high level of smartphone addiction indicated having a high level of emotional mental disorders. Meanwhile, there were 31 adolescents (30.1%) who had a high level of smartphone addiction but were indicated to have a low level of mental emotional disorders.

Table 2 also shows that there are 29 teenagers (28.2%) who have a low level of smartphone addiction, but are indicated to have a high level of mental emotional disorders.

The results of statistical tests using the Non-Parametric Chi-Square test obtained a p-value of 0.02 <0.05, which means that Ha is accepted. So it was determined there was a relationship between

smartphone addiction and emotional mentality in adolescents.

**DISCUSSION**

The results of the study show that the majority of respondents (41.7%) are 13 years old. The age of 13 years is included in the early adolescent category (11-13 years), early adolescents physically experience various changes. In the early adolescent stage it has the characteristics of being able to develop new thoughts, easily attracted to an item, and easily attracted to the opposite sex (Sarwono, 2018). In addition, at this stage adolescents form stronger and more complex friendships, determine their individual identities, require privacy and pay increased attention to their appearance and body because of the changes that occur during puberty.

Adolescence is a time of transition from childhood to adulthood during which significant changes occur across multiple domains, including emotional experience (Bailen et al., 2019).

The majority of the respondents' were female (55.3%). Adolescents have higher emotional intensity than adults (Bailen et al., 2019). Even though they are at the same stage of development, the emotions of boys and girls are different. Various studies have shown that female adolescents have a higher emotional intensity than male adolescents (Bailen et al., 2019). The results of a previous study found that there were significant differences between gender, the time of daily smartphone use, and the purpose of using smartphones between the at-risk groups and the non-at risk groups (Fatkuriyah & Sun-Mi, 2021). In this study, the majority of smartphone addiction rates are high (63.1%) and emotional and mental levels are high (61.2%).

The results of this study indicate that there is a relationship between smartphone addiction and emotional mentality. With the Chi-Square statistical test results, the P-Value = 0.02 means that the P-Value  $\leq$  0.05. The results of statistical tests have found that adolescents with a high level of smartphone addiction are more prone to emotional and mental indications compared to adolescents with a low level of smartphone addiction. The results of this study reflect the research conducted by Dhamayanti et al. (2019), who found that there were 31 adolescents or 17% experiencing mental, and emotional disorders out of 178 adolescents. The results were also reinforced by other research, which states that adolescents are more likely to experience smartphone addiction compared to young adults (Mawarpury et al., 2020). Adolescents are still searching for identity and developing their character, so they are still mentally and emotionally unstable.

Excessive smartphone usage is classified as an addiction as cited by Ting & Chen (2020) who revealed that someone is said to be addicted if they spend more than 7 hours per day using a smartphone. Adolescents who experience smartphone addiction can spend hours upon hours playing on their smartphone. Adolescents are more likely to spend time with smartphones than they are interacting with friends and family (Fischer-Grote et al., 2019; Gonçalves et al., 2020). The average

smartphone usage per day is around 3 hours and 15 minutes. Meanwhile, 1 in 5 people spend more than 4.5 hours per day on their smartphone (Howarth, 2023). Besides that, the use of smartphones also unknowingly distracts adolescents from 204 hours of homework that should be done (Mrazek et al., 2021; Yoon & Yun, 2021). Excessive use of smartphones will have an impact on several aspects of an adolescent's life.

Excessive use of smartphones can have physical, psychological, and social impacts on adolescents. One of the physical problems is problems with the eyes, head, and hands (Sekarrini, 2020). Several problems can arise due to uncontrolled smartphone use, such as impaired vision, hearing loss, poor sleep quality, reduced empathy, depression problems in adolescents, self-esteem, social support problems, anxiety problems and emotional and mental disorders (Abi-Jaoude et al., 2020; Amalia & Hamid, 2020; Hasanah et al., 2020; Setiadi et al., 2019b). So there needs to be special handling done to prevent the emergence of problems related to smartphone addiction.

Smartphone addiction in adolescents has a number of risk factors including environmental factors, psychological factors, and social factors. Environmental factors include parenting environment, family functionality, positive relationships between children and parents and permissive parenting (Amalia & Hamid, 2020; Ting & Chen, 2020). Psychological factors include pre-morbid conditions in adolescents such as social anxiety disorder, technology stuttering, loneliness, low self-esteem and high anxiety and also can have an impact on excessive smartphone use (Aulia, 2019; Wacks & Weinstein, 2021). Furthermore, the social environment an adolescent interacts within also affects smartphone usage. Communication with peers, lack of peer social support, feelings of loneliness, withdrawal and social isolation are predictors of excessive smartphone use (Lapierre & Zhao, 2021; Liu et al., 2022; Song & Kim, 2022). If an adolescent is not fulfilled by offline communication, then the adolescent will continue to rely on online communication to fulfil the need for satisfaction in social relations with other people.

Excessive online communication in adolescent social relationships can cause dissatisfaction with in-person relationships. This can impact adolescents'

mental and emotional health (Dhamayanti et al., 2019; Kunnen et al., 2019; Özdemir et al., 2016; Setiawan & Winarti, 2021). The emotional mentality of adolescents can cause them to become anxious, have low self-esteem and cause aggressive behaviour (Hasanah et al., 2020; Juliani & Wulandari, 2022; Setiadi et al., 2019b). In addition, an emotional mentality in adolescents can interfere with the process of their psychosocial growth and development. Subsequently it requires further treatment and prevention so that it does not get worse. Therefore, family and peer support is essential so adolescents use smartphones less frequently for shorter durations. Based on the data above, it can be concluded that there is a relationship between smartphone addiction and emotional mentality in adolescents. It has been found that adolescents with a high level of smartphone addiction are more prone to mental and emotional problems. One of the main impacts of smartphone addiction is on adolescents' mental and emotional state. Nursing implications related to the results of this study are that this study can be used as an evidence-based resource in providing mental emotional health assistance for adolescents.

### CONCLUSION

According to research, addiction to smartphones is related to adolescent mental and emotional disorder. Therefore, there should be a time limit on using smartphones, and studies into the variables that lead to adolescent smartphone addiction need to be further examined. There also needs to be support from various parties to prevent adolescents from experiencing smartphone addiction, so they have less likelihood of experiencing mental and emotional disorders.

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