

THE IMPACT OF SMARTPHONE USAGE IN ADOLESCENTS 15-24 YEARS OLD IN JABODETABEK REGION

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ABSTRACT

Youth and technology in the millennial era are inseparable. The need for technology makes smartphones the main needs that cannot be separated from the daily lives of youth. The use of smartphones has many benefits but not a few of its users experience addiction. Addiction on smartphones has different characteristics compared to other types of addiction. The aim of this study was to determine the description of smartphone addiction and the impact of physical, mental and sosial health in adolescents aged 10-24 years in Jabodetabek area. The research methodology used cross-sectional study with online survey of 118 respondents and focus on the characteristics of respondents, average usage time, time spent playing smartphones when they wake up, the purpose of using smartphones, the most frequently applications used, the impact of smartphone use. The results showed that almost half of the respondents experienced smartphone addiction at a moderate level (40.7%) and there were 16.9% who experienced severe addiction. The effects of smartphone addiction include problems with mild anxiety (45.8%) and complaints of hands, neck and eyes. Most complaints were on eye health problems such as watery eyes (73.7%), itching (70.3%) and blurred vision (66.1%). In addition, other complaints that many feel are in the hands such as tingling (67.8%) and wrist pain (31.4%). Excessive smartphone use has been shown to have an impact on physical health. For this reason, further research is needed to find out other health impacts both physically, mentally and sosially.

Keywords: Smartphone Addiction, Addiction, Musculoskeletal Disorder

ABSTRAK

Remaja dan teknologi di era milenial ini menjadi hal yang tak terpisahkan. Kebutuhan akan teknologi menjadikan smartphone sebagai kebutuhan utama yang tidak lepas dari keseharian remaja. Penggunaan smartphone memiliki banyak manfaat namun tidak sedikit dari penggunaanya yang mengalami adiksi. Adiksi pada smartphone memiliki karakteristik yang berbeda dibandingkan dengan jenis adiksi lainnya. Tujuan dari penelitian ini adalah untuk mengetahui gambaran adiksi smartphone dan dampak kesehatan fisik, mental dan kesehatan sosial pada remaja usia 10-24 tahun di wilayah Jabodetabek. Metodologi penelitian yang digunakan adalah metode cross sectional dengan menggunakan online survey pada 118 responden tentang karakteristik responden, rata-rata waktu penggunaan, waktu yang dihabiskan untuk bermain smartphone saat bangun tidur, tujuan penggunaan smartphone, aplikasi yang paling sering digunakan, dampak penggunaan smartphone.

Hasil penelitian menunjukkan bahwa hampir separuh responden mengalami adiksi smartphone pada tingkat sedang (40,7%) dan terdapat 16,9% yang mengalami adiksi berat. Dampak dari adiksi smartphone diantaranya masalah anxiety ringan (45,8%) dan keluhan pada tangan, leher, dan mata. Keluhan terbanyak berada pada masalah kesehatan mata seperti mata berair (73,7%), terasa gatal (70,3%) dan pandangan buram (66,1%). Selain itu keluhan lain yang banyak dirasakan berada pada tangan seperti kemutan (67,8%) dan sakit pada pergelangan tangan (31,4%). Penggunaan smartphone yang berlebihan terbukti berdampak pada kesehatan fisik. Untuk itu, diperlukan penelitian lebih lanjut untuk mengetahui dampak kesehatan lainnya baik fisik, mental dan sosial.

Kata kunci: Adiksi Smartphone, Adiksi, Musculoskeletal Disorder

INTRODUCTION

Accelerating the development of a country is not separated from the presence of digital technology that is currently developing rapidly. Digital Report 2016

notes that Indonesia is the 30th sequence of 232 countries that always use internet. The average Internet usage that is accessed through a laptop or desktop in Indonesia is 4.7 hours per day, while access via mobile device as much as 3.5 hours per day. The use

of social media in Indonesia also occupy a fairly high sequence of 27 from 232 countries that always use social media with an average of 2.9 hours per day. Indonesia currently has 88.1 million or 34% of active Internet users with primary use for social media as much as 79%. (Martinez, 2016).

The use of internet especially through mobile device or smartphone can essentially help the community to be able to utilize the technology better. The rise of this internet usage makes the community dependent on technology in its daily life searching for reference, inspiration, entertainment to use in everyday life such as to order public transport, shopping, eating and many other activities are present to complement the needs of each community. This internet usage becomes a basic necessity so it will eventually have a positive and negative impact. One of the negative impacts that are not directly realized is the addiction to smartphones and not only to the social life, but also the health impact.

The addiction is defined as a condition for a person to give labor impact on physical and psychological health or to social life and an unbearable desire to do something repeatedly. Addiction can be interpreted as a state of being considered to initiate a constant desire to obtain a particular object and proceed constantly through that object as well as a constant state of wanting something (Karagün, E., Ekiz, Z.D., Sarper Kahveci, M, 2018).

According to A. Gurcan, S. Ozhan, R. Uslu in (Karagün, E., Ekiz, Z.D., Sarper Kahveci, M, 2018), the addiction to digital technology aimed at the loss of control over the excessive use of technology and the use of unlimited technology can cause serious adverse impacts for someone. Addiction to the internet and technology is defined as a state in which a person cannot eliminate it when a person cannot reach a technological product that causes a person to be in

addiction. As a consequence of addiction to technology should really be considered and consider as the causes of the addiction such as impaired attention, hyperactivity, obesity, depression, and loneliness (Karagün, E., Ekiz, Z.D., Sarper Kahveci, M, 2018).

This situation occurs in many children and adolescents where adolescents experience physical and psychological problems when not using the technology. According to Hanafi, Siste, Wiguna, DKK (2019), in his research conducted in 185 medical students stated that labour behavior such as temperamenyal attitude has an association with the use of smartphones (OR 2,035, 95% CI 1.119-3.701). This study shows that addiction to technology through smartphones has similarities to other types of behavioral addiction (Hanafi Enjeline, Siste Kristiana, Wiguna Tjhin, Kusumadewi Irmia, 2019).

This situation makes the youth who are the successor generation of the nation to be vulnerable to the health of both physical, psychological and social environments. Accelerated development of a country is not separated from the role of productive age especially teenagers. Currently, Indonesia is currently experiencing a demographic bonus that makes young people a potential group in advancing a country. Accelerating the development of a country can be improved through good resources and technology. Investing in a productive age group especially teenagers is very promising. Population census of 2010 records that there are 65 million teenagers in Indonesia, which means 28% of the total 238 million Indonesians are teenagers. Teenagers are more living in the urban area (28%) Compared to rural areas (24%). (UNFPA, 2014). The purpose of the study is to analyse smartphone addiction that impacts physical, mental and social health in adolescents aged 15-24 years in the Jabodetabek region.

METHODS

This research is a descriptive study with cross sectional research design. The population used in this research is all ages 15-24 years old who are in the Jabodetabek area, while the samples in this study are all aged 15-24 year old who fill out an online survey questionnaire related to the addiction and meet the criteria for inclusion and exclusion with the number of respondents as many as 118 respondents. The time of research and retrieval of data conducted in April-May 2019.

Variables used include the characteristics of respondents such as age, level of education, gender, bedtime), but also there are other supporting variables such as monthly money purchase, the cost of purchasing Internet quota and the amount of quota Spent for 1 month, residence, average usage time, time spent on playing smartphone while waking up, the purpose of smartphone usage, most used applications, impact of smartphone use.

Data and information that has been obtained through online surveys will then be analyzed using the analysis using univariate analysis by using computer application. Univariate analysis was conducted on this study to calculate the frequency distribution of each of the variables studied. The Data that has been analyzed will be presented in the form of tables or images and is narrated to facilitate the delivery of information about the research results.

Table 2. Supporting variables Overview

Variable	Mean	Median	SD	Minimum	Maximum
Bedtime	6.69	6	1.84	2	18
Monthly Snack Money	997.881	900.000	580906.8	150.000	3.000.000
Internet Quota Fee	82110	67500	59175.93	25.000	500.000
Internet Quota (1 month)	16.27	14.50	10.77	2	50
Long use of smartphone (hours)	10.2	10	4.25	2	22
Long-wearing HP morning (minutes)	19.40	15	16.03	0	60

RESULT

The results of the univariate analysis of the majority of respondents is 83.9% of the age range respondents ranging from 15-24 years and the average age of respondents is 20 years and the most age group is 20-24 years old. That is a number of 82.2%. The most educational background is the educational background of DIV/S1 as much as 50.8%. An overview of the respondent's characteristics are drawn in the following Table 1:

Table 1. Overview of respondents characteristics

Variable	Amount	%
Gender		
1. Males	19	16.1
2. Female	99	83.9
Age		
1. 15-19 year	21	17,8
2. 20-24 year	97	82,2
Last Education		
1. SMA	46	39
2. DIII	12	10,2
3. DIV/S1	60	50,8

In this research, there were several other supporting variables depicting the characteristics of respondents associated with smartphone use as to whether the use of a smartphone affects the time of the respondent's sleep, then the money Monthly, credit and internet purchase spending, quota spent on the internet, frequent providers used by teenagers, and average smartphone usage time Table 1.

In Table 2 it appears that the average respondent has sufficient sleep time. In addition to that, the table is also the average monthly spending money of Rp. 997.881,- which means the average daily money of teenagers from 15-24 years of age ranges from 30,000-40,000,-. This monthly allowance also reflects the quota used within 1 month. The average usage of Internet quota is 16, 67GB with an average length of smartphone usage in a day of 10.22 hours and long usage immediately after waking up for 19.40 minutes.

In figure 1 related to the use of the provider indicates that the provider is widely used for teenagers aged 15-24 years in the Jabodetabek region. The most widely used Provider is Tri (36%) XL 20% and Simpati as much as 19%. The Provider Tri and XL are rated cheaper by teenagers and Simpati is judged better in terms of signal strength.

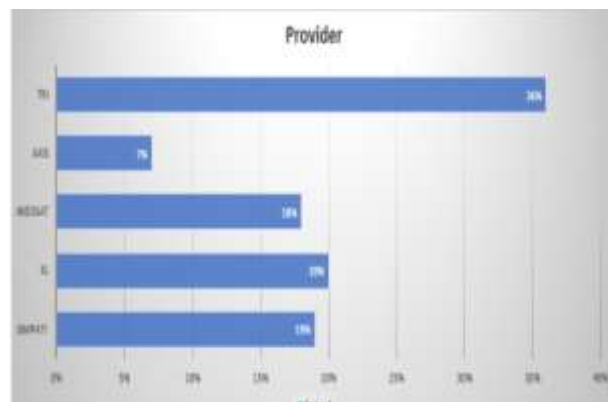


Figure 1. Distribution of provider usage

This research is also an image that each teenager has varying habits in using smartphones. Most uses are used to use WhatsApps (93.2%), the second highest use is to play online games that are as much as 76.3% and the third highest use is Instagram (71.2%). A picture of the smartphone application is drawn in the following image 2:



Figure 2. Smartphone Application Usage

After seeing smartphone usage habits, researchers learn more about the existing smartphone addiction in teenagers aged 15-24 years. The image of the smartphone is listed as follows:

Table 3. Smartphone addiction in teens aged 15-24 years

Smartphone Addiction	Amount	%
1. Never	31	26,3
2. Light weight	19	16,1
3. Moderate	48	40,7
4. Weight	99	16,9

In Table 3, it was shown that nearly half of the respondents had smartphone addiction at moderate levels (40.7%) And there were 16.9% of severe addiction. From 118 respondents there were 26.3% who did not experience the smartphone's addiction. This smartphone's addiction affects several problems both mentally, socially and in health. The problems that arise include the following:

Table 4. Anxiety category in adolescents aged 15-24 years

<i>Anxiety Type</i>	Amount	%
1. Light weight	54	45,8
2. Moderate	34	28,8
3. Weight	30	25,4

Table 5. Anxiety in adolescents aged 15-24 years

Statement	Amount	%
I feel uncomfortable without access information from the phone	37	31,4
I was annoyed if I couldn't see the information from my phone when I wanted to see it	40	33,9
Running out of phone battery makes me panic	29	24,6
Running out of internet quota made me panic	37	31,4
When I can not check the phone, I have a feeling to immediately/always check it	27	22,9
I feel anxious not able to communicate quickly with family/friends	50	42,4
I'm worried my family and friends can't contact	64	54,2
I'm worried that I can't accept messages and calls	27	22,9
I am afraid of intensive communication with family and friends will be destroyed	24	20,3
I died in style because I could not check the notification on my phone	56	47,5
I die of style because I don't know how to do	25	21,2
I can not concentrate well in the classroom when using a smartphone	26	22
I have experience of blurred views when using excessive smartphones	21	17,8
I feel a mild headache when using excessive smartphones	45	38,1
I feel pain in my wrist when using my smartphone	36	30,5
I feel comfortable using a smartphone	53	44,9
I feel confident when using a smartphone	44	37,3
I can remove or reduce stress using a smartphone	26	22
I can't afford to survive without a smartphone	16	13,6
I feel impatient when I don't grip a smartphone	24	20,3
I feel annoyed if anyone bothered me using a smartphone	39	33,1
I feel sick or sad once like losing a friend when not getting using a smartphone	11	9,3

One of the mental health problems that arise on this study focuses on anxiety, fear, worry and anxiety. Many teenagers experience a sense of anxiety due to smartphone use. Half of the respondents had mild anxiety problems (45.8%).

A sense of concern (anxiety) from the use of this smartphone has an impact on adolescent mental or psychological health. Not a few teenagers are annoyed/irritated if

anyone is annoying using a smartphone (33.1%), then panic if the quota is exhausted (31.4%), upset if not able to access information (33.9%), anxiety can not contact family and friends (54.2%), then feeling awkward because they can not check the notification on the phone (47.5%) to a sense of not being able to survive without smartphones and other complaints.

This can have an impact on the problem of confidence and social development of adolescents in the future. Fear of not being able to keep pace with the latest developments in social media and anxiety fear of losing social identity in cyberspace will affect the social life of teenagers. The descriptions of different types of anxiety experienced by adolescents can be seen in Table 5 below.

Table 6. Social life in teens aged 15-24 years

Social life	Amount	%
1. Never	57	48,3
2. Light weight	46	39
3. Moderate	14	11,9
4. Weight	1	0,8

Many teenagers are unaware that smartphone addiction has an impact on social life. In

Table 6, there were 48% of respondents who had no impact on the use of smartphones on their social life, but there were 11.9% and 0.8% who had problems in his social life. The impact of social life that appears on each teenager will certainly differ depending on the use of smartphones from each individual. The impact on this teen's social life has a mild to severe impact such as feeling closer to a friend in cyberspace, always checking the smartphone not to leave information and prefer to talk to friends on social media. In addition many teenagers also rely on smartphones for various things ranging from sharing what they feel, find the way, the media to relieve stress so that smartphones become a means for adolescents to depend in running all Including using a smartphone when driving is shot in Table 7 below:

Table 7. Social impact on adolescents aged 15-24 years

Statement	Amount	%
I'm uncomfortable with not being able to know the latest on social media and other online information	24	20,3
I'm worried that I can not check Whatapps, line, or other social media	56	47,5
I felt my relationship with friends I knew via smartphones closer than my friends around me	25	21,2
I feel sick or sad once like losing a friend when not getting using a smartphone	12	10,2
I feel friends on social media that I know through my smartphone more understand me than with my friends	11	9,3
I always check my smartphone to prevent you from missing out on information on my social media		
I always check social media every waking sleep	49	41,5
I prefer to talk to a friend I know on social media compared to a friend around me or my family		
I would rather be searching or browsing than ask information to others	28	23,7
I said that I too much/often use a smartphone	24	20,3
I always open social media while learning	22	18,6
I always lay sambal opening social media	42	35,6
I always do my activities while using sosmed	23	19,5

Statement	Amount	%
I often open a smartphone when driving a car or a motorcycle to discuss WhatsApp/Line/telegram/other social media or picking up telephone	8	6,8

In addition to the anxiety and social impacts that arise in adolescents, there are also a number of addiction symptoms that affect physical health. Table 8, showed that many teenagers experiencing various complaints ranging from complaints on the hands, neck, and eyes. The most complaints

are on eye health issues such as watery eyes (73.7%), itching (70.3%) and blurred vision (66.1%). In addition, other complaints that are widely perceived to be on hand such as tingling (67.8%) and pain in the wrist (31.4%).

Table 8. Health impacts on adolescents aged 15-24 years

Health impacts	Amount	%
Headaches	67	56,8
Wrist pain When using HP	37	31,4
Waking from sleep from pain in the wrist	20	16,9
Tingling when/after using HP	80	67,8
Tingling or numbness after moving the hand	21	17,8
Neck pain	31	26,3
Watery eyes	87	73,7
Eye feeling tense	58	49,2
Painful eyes	66	55,9
Itchy eyes	83	70,3
Red-Eye	49	41,5
Blurred vision	78	66,1
Double Vision	64	54,2

DISCUSSION

The use of smartphones has a positive and negative impact. According to WHO, health is defined as a matter of physical, mental and social health so that if viewed from the definition it is image that excessive use of smartphones can affect mental health, social and health.

To find out more about the impact of smartphone usage, researchers are focusing on the types of applications commonly used by teenagers aged 15-24 years. The results of

this research illustrate that chat applications such as WhatsApp (91.2%) become an excellent app that becomes a major necessity of all smartphones. In addition to chat applications, online gaming applications (76.3%) and social media (71.2%) Like Instagram also become the main application needs.

This is in line with the research conducted in Pakistan in children aged 5-16 years where the most frequently used application is chat application ie WhatsApp and followed by the application of online

games, music, videos and movies and cameras (Tariq, Tariq, Hussain, & Shahid, 2018).

In addition to the impact on anxiety, there are still other impacts such as self-esteem and other mental health that impact social interactions or social health in adolescents. One of the problems that often arise is to prefer to talk to friends on social media compared to the environment (41.5%), then the proximity of friends on social media is better compared to the surrounding environment (21.2%) even to the extent of feeling anxiety and worry when does not have an existence in cyberspace. The existence of this virtual world can have an impact on adolescent self-esteem where teenagers should indirectly follow the developments on social media.

The thing that arises later is a matter of verbal violence where this type of emotional violence can cause fear of humiliation or demeaning. This will have an impact on social interactions and the usage of smartphone continuously improves stress especially in mental health and adolescent social interactions (Yun, Shim, & Jeong, 2019).

The current smartphone is equipped with a touch screen that provides convenience for its users. The use of touch screens continuously and repetitive activities due to addiction can negatively impact the hand and cause musculoskeletal disorders. The results showed that there were some symptoms of musculoskeletal disorders in which there were 31.4% of teenagers who had pain in the wrist when using HP even had awakened from sleep due to illness in wrist as much as 16.9%. In addition there are 67.8% that feel tingling when or after HP even have experienced numbness as much as 17.8%. In addition to the upper hand or extremities, there are adolescents who have suffered a neck pain of 26.3%.

Systematic review results related to these musculoskeletal symptoms indicate that the use of touch screen on another smartphone or portable device has a potential effect on physical health including the symptoms of musculoskeletal disorders. Systematic This review also shows that smartphone use can increase musculoskeletal stress on the neck compared to using a desktop computer and increase the stress on the wrist while using a smartphone Compared to using the phone keypad (Toh, Coenen, Howie, & Straker, 2017).

The use of smartphone activities carried out for a long time or continuous activities will cause problems in muscles, joints and ligaments. In addition, eye health problems as well as other health problems such as mental and social can also affect the lives of teenagers.

CONCLUSION

It can be concluded that smartphone addiction is a new addiction that can have an impact on physical, mental and social health. Mental health problems become the most prominent to be resolved. It is suggested that the government and all related cross sectors to pay more attention to the problem of smartphone addiction as one form of addiction that needs to be alert.

Family participation, community and government should pay more attention to adolescents who experience smartphone addiction. They should increase public space and opportunity for teens to have more interaction in the real world. Another way, is to develop various programs to minimize addiction of smartphones. To find out the extent of the impact of smartphone addiction on health, further research is needed to describe in detail any variables which have a direct impact on smartphone addiction.

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