Overview of Smartphone Addiction Levels among College Students

Luana N. Achmad [a*], Fransiskus Harf Poluan [b] and Louise Kartika Indah [c]

[a] *Department of Psychiatry, Faculty of Medicine, Universitas Kristen Indonesia, Indonesia.*
[b] *Department of Ear Nose and Throat, Faculty of Medicine, Universitas Kristen Indonesia, Jakarta, Indonesia.*
[c] *Department of Medical Community, Faculty of Medicine, Universitas Kristen Indonesia, Jakarta, Indonesia.*

Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

Original Research Article

ABSTRACT

Aims: determine the level of smartphone addiction in students of the Faculty of Medicine, Indonesian Christian University, class of 2022
Place and Duration of Study: The research was conducted in November 2022 at the Faculty of Medicine, Christian University of Indonesia.
Methodology: This study is a descriptive study, with a sample of 164 Faculty of Medicine, Indonesian Christian University students. The research instrument used a questionnaire containing questions about the Smartphone Addiction Scale and questions about how disruptive and affected the daily activities of students were caused by smartphones. The data processing collected through questionnaires was then analyzed using the IBM SPSS program and the Microsoft Office Excel program.

_____

Corresponding author: Email: luana.natingkaseh@uki.ac.id;

Results: The results of this study indicate that out of 164 samples, 85 students experienced smartphone addiction with a percentage of 51.8%. Of the 85 people, the largest percentage were female students with a total of 56 people (65.9%) and the remaining 29 were male (34.1%)

Conclusion: It was concluded that most of the medical students at the Indonesian Christian University were addicted to smartphones, where the largest percentage were female students with several reasons stated, namely: the Covid pandemic which requires online learning, and also the desire to get entertainment because learning is quite draining on the mind.

1. INTRODUCTION

Technology is a very important part of people's lives today because everyone currently uses technology, especially students, to facilitate various daily activities and one of the technologies that is developing very rapidly today is communication technology (Ngafifi, 2019). Various discoveries and innovations not only as a means of communication but also as a tool for accessing the internet and even storing data and in communication technology have brought society into a new era (Ngafifi, 2019, Cholik, 2021). In this digital era, it is an era of very rapid development of communication technology, in helping to change life, especially millennials, changing the way of thinking and lifestyle, because of the impact of technology created by smartphones (Krismajayanti and Darma, 2021). The use of smartphones as a learning medium is very good, but without any limitations on smartphone use, students can be more flexible in using them because they are learning tools, but in pandemic conditions like today, many activities must be carried out via smartphone media, including learning activities using smartphones can cause addiction (Krismajayanti and Darma, 2021, Maknuni, 2020).

Smartphone addiction is a maladaptive behavior because smartphone use causes disturbances. Characteristics of smartphone addiction include orienting relationships to the virtual world, such as the feeling that friendships gained through smartphones are closer than real-life friends, experiencing an uncontrollable sense of loss when smartphones are not available, and constantly checking smartphones (Mawarpury et al., 2020, Daeng et al., 2017).

Using smartphones as a learning medium is very good, but without restrictions on smartphone use allows students to use smartphones more flexibly based on using smartphones as a learning tool. The development of digital technology, especially the development of communication tools or what are often called smartphones, has a double effect, namely many risks, such as depression, less efficient learning time, less social activity, focus on tasks, and increased dissatisfaction. Unrestricted smartphone use can interfere with users, known as nomophobia or the fear of not being able to stay away from smartphones (Putra et al., 2023).

Addiction is any activity, substance, object, or behavior that becomes the main focus of a person's life, prevents the person from doing other activities optimally, and can even cause physical, mental, or social harm to the person or others. The hobby of using smartphones can hurt students' lives, both in terms of health, academics, social, and family (Putra et al., 2023). Smartphone addicts are more likely to have mental development problems, such as instability of physical problems such as emotional problems, difficulty concentrating, depression, anger, and impaired vision and hearing, obesity, body imbalance, and an underdeveloped brain. In terms of academics, smartphone addiction can have a significant negative impact on academic performance due to greater disruption in class and when using smartphones for homework and problems related to time management skills (Kamaruddin et al., 2023). In terms of social matters, given that students are more likely to communicate using text messages via smartphones, excessive smartphone use plays a role in the small number of face-to-face interactions that occur. Even smartphone use can affect the quality of face-to-face interactions with others because many people still use smartphones when talking to others (Wilmer et al., 2018).

The results of the study on students of the Yarsi medical faculty in the 2020 intake from a total of 143 students studied showed that 119 (83.2%) students tested positive for smartphone addiction and 24 (16.8%) students were not addicted to smartphones (Sugito et al., 2022). The results of the study conducted at Sam Ratulangi University

in Manado, from 160 respondents, the results showed that 117 (73%) respondents were addicted to smartphones and 43 (27%) were not addicted to smartphones. Researchers are interested in conducting this study because most male and female students cannot be separated from smartphones in their daily lives. Therefore, researchers are interested in seeing a picture of the level of smartphone addiction in medical faculty students in the 2022 intake (Thomas et al., 2019).

2. MATERIALS AND METHODS

2.1 Research Design

This study is a descriptive study to determine the level of smartphone addiction in students of the Faculty of Medicine, Class of 2022. The approach used in this research design is cross-sectional where data collection is carried out only once for each respondent (Putra et al., 2021, Cecere et al., 2014).

2.2 Research Location and Time

2.2.1 Research location

The location data collection was carried out at the Faculty of Medicine, Christian University of Indonesia.

2.2.2 Research time

The research time was carried out in November 2022.

2.3 Research Population and Sample

2.3.1 Research population

The population of this study was students of the Faculty of Medicine, Christian University of Indonesia, Class of 2022.

2.3.2 Research sample

The sample of this study was students of the Faculty of Medicine, Christian University of Indonesia, Class of 2022, totaling 164 people who were determined by the sampling technique, namely purposive sampling who filled out the questionnaire (Hatimah and Hamid, 2023, Langley and Hutt, 2022).

2.4 Research Criteria

2.4.1 Inclusion criteria

- Students of the Faculty of Medicine, Christian University of Indonesia, Class of 2022

- Willing to fill out the research questionnaire.
- Smartphone Users.

2.4.2 Exclusion criteria

- Did not fill out the Questionnaire
- Canceled as a respondent
- Did not use a Smartphone

2.5 Data Collection Techniques

The data collection method used is primary data collected using an online questionnaire using the Google Form service. The questionnaire was distributed via the LINE and WhatsApp applications to UKI Medical Faculty Students Class of 2022.

2.6 Data Collection Instrument

The instrument in this study was a questionnaire containing questions according to the variables studied, namely using the Smartphone Addiction Scale questions and questions about how disruptive and how affected daily activities are caused by smartphones. The questionnaire is also equipped with a letter of request for participation as a respondent from the researcher as well as an explanation of the purpose of the study and how to fill out the questionnaire (Griffiths, 2018, Mulyati and Frieda, 2018).

2.7 Data Processing

The processing of data collected through the questionnaire used the IBM SPSS program and the Microsoft Office Excel program.

3. RESULTS AND DISCUSSION

3.1 Research Results

This research was conducted at the Faculty of Medicine, Indonesian Christian University, Class of 2022 in November 2022. The research data was obtained through online filling by students at the research location. This research involved 164 students as research respondents (Sugito et al., 2022, Agusta, 2016).

The discussion should not repeat the results, but provide a detailed interpretation of data. This should interpret the significance of the findings of the work. Citations should be given in support of the findings. The results and discussion part can

also be described as separate, if appropriate (Cain and Malcom, 2019).

The table above shows that the majority of respondents in this study were female and the majority were 18 years old.

The table above shows that the majority of respondents in this study experienced smartphone addiction with a prevalence of 51.8%.

The table above shows that the majority of respondents in this study were aged 18 years and over who were addicted to smartphones and that more women were addicted than men.

The smartphone revolution has brought many benefits, especially with the advent of the internet. In addition to phone calls and text messages, many other useful applications can be easily installed on smartphones (Zhong et al., 2020). Smartphones are widely used in providing health services, especially from the perspective of medical students, smartphones allow students to access information easily and quickly (Billieux et al., 2007). Despite all the benefits, there is a growing concern about the potential negative effects of excessive smartphone use on the psychology and behavior of individuals, namely addiction. Addiction can be defined as a phenomenon that manifests with tolerance, withdrawal symptoms, and dependence, and is accompanied by social problems. One of the most common definitions for smartphone addiction refers to dependence, excessive and uncontrolled smartphone use (Ithnain et al., 2018). Smartphone addiction has many harmful effects because it interferes with the quality of life, including reducing productivity, sleep patterns, physical activity, and behavior of affected individuals (Kwon et al., 2013).

Table 1. Characteristics of Research Respondents

Variable	Frequency	Percentage ($%)
Gender		
Male	44	26.8
Female	120	73.2
Age		
16 year	1	0.6
17 year	24	14.8
18 year	101	61.6
19 year	30	18.3
20 year	8	4.9
Total	164	100

Table 2. Description of smartphone addiction in research respondents

Variable	Frequency	Percentage ($%)
Smartphone Addiction		
No	79	48.2
Yes	85	51.8
Total	164	100

Table 3. Smartphone addiction overview by respondents' gender and age

Variable	Frequency	Percentage ($%)
Gender		
Male	29	34.1
Female	56	65.9
Age		
16 year	0	0
17 year	17	20.0
18 year	52	61.2
19 year	13	15.3
20 year	3	3.5
Total	85	100

The instrument used to measure smartphone addiction in this study was the smartphone addiction scale questionnaire, which is used to measure the smartphone addiction scale consisting of 6 factors and 33 items with a six-point Likert scale (1: "strongly disagree" and 6: "strongly agree") based on self-reporting. The six factors are disruption of daily life, positive anticipation, withdrawal, cyber-oriented relationships, excessive use, and tolerance. At the development stage, the results of the internal consistency test (Cronbach's alpha) were 0.967 (Amna et al., 2020). The results of this study indicate that the majority of students at the Faculty of Medicine, Christian University of Indonesia are addicted to smartphones with a prevalence of 51.8%. These results are in line with a study conducted in 2020 at Syiah Kuala University. The study with a cross-sectional design involving 346 students aimed to determine the tendency of smartphone addiction in students. One of the results of the study found that the majority of students were addicted to smartphones with a percentage of 51.73% (Tri et al., 2020). Similar results were also reported in 2020 in Bandung City (Rumapea et al., 2023). The study with a cross-sectional design involving 187 students aimed to determine the relationship between loneliness and smartphone addiction in students from out of town in Bandung City. One of the results of the study found that the majority of students experienced moderate smartphone addiction with a percentage of 67.9% (Thomas et al., 2019).

It is well known that smartphones are popular because they play an important role in modern society, including communication, payment, and online entertainment, resulting in increased smartphone usage (Yang et al., 2020). In recent years, due to the pandemic, smartphones have become an important entertainment tool for students participating in outdoor activities. Along with the increasing demand for online courses, smartphones have emerged as a significant learning tool (Song et al., 2023). There are many factors associated with smartphone addiction and it is often difficult to include all of them in a single study. At the same time, there are certain differences between previous studies, making it difficult to apply the results of literature studies to clinical practice. Previous studies reported that male gender, urban residence, and poor sleep quality were risk factors for smartphone addiction in medical students. In contrast, good self-esteem and harmonious family relationships were protective factors. The incidence of smartphone addiction in male medical students was higher than in females because men were more obsessed with mobile games (Song et al., 2023).

Medical students from large and small cities have earlier access to smartphones, higher smartphone prevalence, and greater dependence on smartphones in daily life. At the same time, smartphones are an important way for students to engage in social interactions, but smartphones provide medical students with convenient and novel information to achieve global connections, thereby increasing the smartphone addiction rate of urban medical students (Song et al., 2023). The frequency and duration of smartphone use are important indicators for evaluating smartphone addiction. Medical students who use smartphones for a long time may increase their dependence on smartphones, indulge in smartphone use, waste a lot of time, and endanger learning and daily life. Medical students with poor sleep quality have difficulty sleeping at night and may use smartphones to kill time, thereby increasing the frequency of smartphone use, prolonging smartphone use, and causing addiction (Song et al., 2023).

Low self-esteem in medical students is generally caused by poor academic performance. Instead, they spend time using smartphones for entertainment, which lowers their grades and creates a vicious circle of disinterest in learning and smartphone addiction (Desouky and Abu-Zaid, 2020). The stability or harmony of family relationships has a significant effect on each person's addictive behavior. Parental conflict in marriage can directly result in individual psychological problems and unhappiness in family relationships. This can create a stable and negative evaluation system, which can lead to adaptive problems such as loneliness and low self-esteem. As a result, they turn to virtual friends on their smartphones for emotional support to meet their psychological needs, leading to smartphone addiction (Song et al., 2023).

In this study, the results showed that women were more likely than men to be addicted to smartphones, in contrast to the study by Song et al. which found that men were more likely than women. However, the difference is that the number of respondents in this study was not comparable between women and men. It was found that at the age of 18 years, the largest percentage of smartphone addiction was found,

but there were influencing factors, namely the number of respondents who were 18 years old, amounting to 101 respondents out of 164 respondents. This study has several limitations. First, this study did not identify the characteristics of the research subjects. Second, this study did not identify various factors that influence smartphone addiction in medical students and did not identify its impact. Third, because of the uneven distribution of gender and age of respondents. This is because this study is a descriptive study that does not aim to identify these two parameters.

4. CONCLUSION

The results of this study's characteristics showed that most respondents were female and aged 18 years. From the results of the study, it was found that the majority of students of the Faculty of Medicine, Christian University of Indonesia were addicted to smartphones. Female gender and age 18 years had the highest number of smartphone addictions. Still, several factors influenced the results of this study, namely the uneven distribution of respondents in gender and age.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

ACKNOWLEDGEMENTS

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

Agusta, D. (2016). Risk factors for addiction to using smartphones in students at SMK Negeri 1 Kalasan Yogyakarta. *Guidance and Counseling E-Journal, 3*(5), 86-96.

Amna, Z., Faradina, S., & Mufida, R. (2020, August). Overview of smartphone addiction tendency in college students. *Jurnal Psikologi Unsyah, 3*(2), 101.

Billieux, J., Van der Linden, M., d'Acremont, M., Ceschi, G., & Zermatten, A. (2007). Does impulsivity relate to perceived dependence on and actual use of the mobile phone? *Applied Cognitive Psychology, 21*(4), 527-537.

Cain, J., & Malcom, D. R. (2019, September). An assessment of pharmacy students' psychological attachment to smartphones at two colleges of pharmacy. *American Journal of Pharmaceutical Education, 83*(7), 7136.

Cecere, G., Corrocher, N., & Batalgia, R. D. (2014). Innovation and competition in the smartphone industry: Is there a dominant design? *Telecommunication Policy*.

Cholik, C. A. (2021). The development of information and communication technology / ICT in various fields. *Journal of the Faculty of Engineering, 2*(2), 39-46.

Daeng, I. T. M., Mewengkang, N. N., & Kalesaran, E. R. (2017). The use of smartphones to support lecture activities by students of the Faculty of Social and Political Sciences, Unsrat Manado. *E-Journal "Acta Diurnal", 6*(1), 1-15.

Desouky, D. E. S., & Abu-Zaid, H. (2020). Mobile phone use pattern and addiction with depression and anxiety. *Eastern Mediterranean Health Journal, 26*(6), 692-699.

Griffiths, M. (2018). Diagnosis and management of video game addiction. *Directions in Addiction Treatment & Prevention, 12*(3), 27-42.

Hatimah, N. A., & Hamid, A. N. (2023). Providing education about addiction in a psychological perspective through webinar activities: How to deal with addiction? *Community Service Journal, 1*(2), 9-13.

Ithnain, N., Ghazali, S. E., & Jaafar, N. (2018). Relationship between smartphone addiction with anxiety and depression among undergraduate students in Malaysia. *International Journal of Health Sciences and Research, 8*(1), 163-171.

Kamaruddin, I., Leuwol, F. S., Putra, R. P., Aina, M., Suwarma, D. M., & Zulfikhar, R. (2023). The impact of gadget use on mental health and student learning motivation at school. *Journal on Education, 6*(1), 307-316.

Krismajayanti, P. A., & Darma, G. S. (2021). Exploration of millennial loyalty to the Apple brand. Prestige or needs? *Prestige Or Needs?, 18*(2), 32-44.

Kwon, M., Kim, D. J., Cho, H., & Yang, S. (2013, December 31). The Smartphone Addiction Scale: Development and validation of a

short version for adolescents. *PLoS ONE, 8*(12).

Langley, B. D., & Hutt, A. (2022). Digital addiction and sleep. *International Journal of Environmental Research and Public Health*, 1-19.

Maknuni, J. (2020). The influence of smartphone learning media on student learning in the era of the COVID-19 pandemic. *Indonesian Education Administration and Leadership Journal, 2*(2), 94-106.

Mawarpury, M., Maulina, S., Faradina, S., & Afriani. (2020). The tendency of smartphone addiction in terms of gender and age. *Psikoislamedia Journal of Psychology, 5*(1), 24-37.

Mulyati, T., & Frieda, N. R. H. (2018, October). Smartphone addiction reviewed from self-control and gender in Mardisiswa High School students Semarang. *Empathy Journal, 7*(4), 152-161.

Ngafifi, M. (2019). Technological progress and human lifestyle in a socio-cultural perspective. *Journal of Educational Development: Foundations and Applications, 2*(1), 33-47.

Putra, A. A., Wahyuni, I. W., & Ajriyah, A. (2021). The effect of mobile phone use on elementary school students. *Al-Hikmah: Journal of Religion and Science, 18*(1), 79-89.

Putra, M. A. R., Kesiman, M. W., & Darmawiguna, G. M. (2023). Development of android-based learning media for computer systems subjects in class X of SMKN 1 Manggis. *Journal Name, 12*(1), 17-25.

Rumapea, A., Sinurat, S., & Barus, S. T. (2023, April 24). The relationship between self-control and smartphone addiction in students. *Jurnal Ilmiah Permas, 13*(3), 879-886.

Song, A., Song, G., Wang, H., Niu, Q., Yin, G., Chen, H., et al. (2023). *American Journal of Translational Research, 15*(5), 2985.

Sugito, R. A., Donanti, E., & Mahmud, A. (2022). The relationship between smartphone addiction and eye fatigue in medical students of Yarsi University, batch 2020 and its review according to Islam. *Junior Medical Journal, 1*(4), 504-511.

Sugito, R. A., Donanti, E., & Mahmud, A. (2022). The relationship between smartphone addiction and eye fatigue in medical faculty students of Yarsi University class of 2020 and its review according to Islam. *Junior Medical Journal, 1*(4), 504-511.

Thomas, N. G., Kandou, G. D., & Langi, F. L. (2019, July 12). The relationship between anxiety and smartphone addiction in students of the Faculty of Public Health, Sam Ratulangi University, Manado. *KESMAS: Journal of Public Health, Sam Ratulangi University, 8*(2).

Thomas, N. G., Kandou, G. D., & Langi, F. L. (2019, July 12). The relationship between anxiety and smartphone addiction in students of the Faculty of Public Health, Sam Ratulangi University, Manado. *KESMAS: Journal of Public Health, Sam Ratulangi University, 8*(2).

Tri, A., Putri, N., Tagunu, J., & Diantina, F. P. (2020, August 25). Relationship of loneliness with smartphone addiction in (internative) college students in Bandung City. *Prosiding Psikologi, 6*(2), 620.

Wilmer, H. H., Sherman, L. E., & Chen, J. M. (2018). Smartphones and cognition: A review of research exploring the link between mobile technology habits and cognitive function. *Psychology, 8*, 1-16.

Yang, X., Wang, P., & Hu, P. (2020, December 1). Trait procrastination and mobile phone addiction among Chinese college students: A moderated mediation model of stress and gender. *Frontiers in Psychology, 11*, 614660.

Zhong, Y., Ma, H., Liang, Y. F., Liao, C. J., Zhang, C. C., & Jiang, W. J. (2020). Prevalence of smartphone addiction among Asian medical students: A meta-analysis of multinational observational studies. *International Journal of Social Psychiatry.*

Peer-review history:
The peer review history for this paper can be accessed here:
https://pr.sdiarticle5.com/review-history/133614