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The Relationship between Smartphone Addiction and Interpersonal Communication among Preclinical Students at the School of Medicine and Health Sciences, Atma Jaya Catholic University

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Abstract

Introduction: The high number of smartphone usage throughout the world, including in Indonesia, can increase the likelihood of someone experiencing smartphone dependency. One impact of smartphone addiction is the decline in face-to-face interpersonal communication.

Methods: The design of this study was analytic descriptive with a cross-sectional approach involving preclinical students at the School of Medicine and Health Sciences, Atma Jaya Catholic University of Indonesia, who met the inclusion and exclusion criteria. Data was collected using the Smartphone Addiction Scale Short Version (SAS-SV) and the interpersonal communication scale questionnaire.

Results: From a total of 135 respondents, it was found that there was a significant relationship between smartphone addiction and interpersonal communication, with a p-value of 0.029 (<0.05).

Conclusions: Smartphone addiction has a significant influence on interpersonal communication.

Keywords: smartphone - smartphone addiction - interpersonal communication

INTRODUCTION

Interpersonal communication plays an important role in social and emotional development of an individual.[1] Lack of communication can cause conflicts and leads to stress. There are five aspects that affect the effectiveness of interpersonal communication, namely openness, empathy, supportiveness, positiveness, and equality.[2] In addition, several other factors can also affect the level of interpersonal communication, one of which is the condition of smartphone addiction.

The number of active smartphone users in Indonesia is increasing every year. Based on KOMINFO data, in 2018, there were 100 million Indonesians who actively use

smartphones.[3] Excessive use of smartphones can cause dependency and impact the quality of one's interpersonal communication. Smartphone addiction causes changes in the pattern of social relations in modern society, resulting in individuals more interested in using smartphones than interacting directly and building relationships with their environment.[4]

MATERIAL AND METHODS

Study Design

This research is an analytic study with cross-sectional study design. This study was carried out in October 2019.

Subject

The respondents of this study were preclinical students at the School of Medicine and Health Sciences, Atma Jaya Catholic University of Indonesia, who were randomly selected. The inclusion criteria in this study were active students at the School of Medicine and Health Sciences, Atma Jaya Catholic University of Indonesia, from the class of 2016, 2017, and 2018 who used smartphones, while the exclusion criteria were respondents who met the inclusion criteria but refused to participate.

Data Collection

Data was collected through a questionnaire in the form of a structured questionnaire based on the variables studied. The research questionnaire includes an introduction to the study and informed consent as evidence of the respondent's consent to participate in this study. Subsequently, the characteristics of smartphone usage were assessed using two measurements, namely the measurement of smartphone addiction using the Smartphone Addiction Scale Short Version (SAS-SV) questionnaire created by Kwon et al.[5] and the measurement of interpersonal communication scale using the interpersonal communication scale that Putri[6] arranged. The statistical significance of the data in this study was assessed using the chi-squared test.

Smartphone Addiction Scale Short Version (SAS-SV)

SAS-SV is a measuring tool in the form of a self-reporting questionnaire consisting of 10 questions with a 1-6 likert scale (1: "strongly disagree" and 6: "strongly agree"). Male respondents were declared smartphone addicted if the total score was more than or equal to 31, while female respondents were smartphone addicted if the total score was more than or equal to 33.

Interpersonal Communication Scale

The interpersonal communication scale used in this study was developed by Putri[6] based on the effectiveness aspects of interpersonal communication according to DeVito.[3] This

scale is a self-reporting questionnaire consisting of 36 questions with a 1-4 likert scale (1: "strongly disagree" and 4: "strongly agree"). Scoring is reversed for unfavorable questions. (bgmn skoring dan klasifikasi, bila ada)

Statistical analysis

To assess the internal consistency of both questionnaires, Cronbach's alpha coefficient was computed. The data were analyzed with a chi-square test using Statistical Package for the Social Sciences (SPSS) program. The level of significance was $p<0.05$ in this study.

RESULTS

The SAS-SV and interpersonal communication scale were declared valid and reliable with Cronbach's alpha of 0.911 and 0.922, respectively. There were 135 respondents consisting of 44 male students and 91 female students. The majority of respondents in this study were in the age group of ≥ 20 years. A total of 55 students (40.8%) used smartphones for a relatively long duration (5-6 hours 59 minutes/day). Nearly half of the respondents used smartphones to open social networking websites, totaling 56 students (41.5%). Based on the dominant senses involved when using a smartphone, as many as 119 students (88.1%) were dominantly involved in the sense of sight. There are 58 students (43%) who experience smartphone addiction. Meanwhile, there were 12 students (8.9%) who had very high levels of interpersonal communication, 93 students (68.9%) with high levels of interpersonal communication, and 30 students (22.2%) with moderate levels of interpersonal communication.

Table 1. Prevalence of Smartphone Addiction Based on Gender

Gender	Smartphone Addiction		Total (%)	P
	Yes	No		
Male	22 (50%)	22 (50%)	44 (100%)	0.251
Female	36 (39.6%)	55 (60.4%)	91 (100%)	

The relationship between gender and smartphone addiction can be seen in Table 1. It can be seen that students who experience smartphone addiction consist of 22 male students and 36 female students. The chi-square analysis test concluded no relationship between gender and smartphone addiction ($p = 0.251$).

As can be seen in Table 2, most respondents with smartphone addiction use smartphones for a relatively long duration (5-6 hours 59 minutes/day). The chi-square analysis found a p-value of 0.628 (> 0.05), indicating no relationship between the duration of smartphone usage and smartphone addiction.

Table 3 shows the prevalence of smartphone addiction based on the most common activities performed while using a smartphone. The most frequent activity undertaken by respondents with smartphone addiction is to open a social networking website with a p-value of 0.343 (> 0.05), which means the two variables were not statistically related.

Duration of Smartphone Usage	Smartphone Addiction		Total (%)	P
	Yes	No		
1 – 2 hour 59 min./ day	4 (30.8%)	9 (69.2%)	13 (100%)	0.628
3 – 4 hour 59 min./ day	16 (50%)	16 (50%)	32 (100%)	
5 – 6 hour 59 min./ day	22 (40%)	33 (60%)	55 (100%)	
≥ 7 hour/ hari	16 (45.7%)	19 (54.3%)	35 (100%)	

The Most Common Activity of Smartphone Use	Smartphone Addiction		Total (%)	P
	Yes	No		
Opening social websites	26 (46.4%)	30 (53.6%)	56 (100%)	0.343
Online communication	20 (40%)	30 (60%)	50 (100%)	
Communication through telephone/ messages	1 (33.3%)	2 (66.7%)	3 (100%)	
Playing online games	3 (23.1%)	10 (76.9%)	13 (100%)	
Listening to music	8 (61.5%)	5 (38.5%)	13 (100%)	

Table 2. Prevalence of Smartphone Addiction Based on Smartphone Usage Duration

Table 3. Prevalence of Smartphone Addiction Based on the Most Common Activity of Smartphone Use

From the total of 43% of respondents who experience smartphone addiction, 36.3% predominantly involve the sense of sight when using a smartphone, and 6.7% predominantly use the sense of hearing, this can be seen in Table 4. The chi-square test obtained a p-value of 0.253 (> 0.05), meaning there is no significant relationship between the dominant senses involved when using a smartphone and smartphone addiction.

The prevalence and relationship between gender and level of interpersonal

communication are shown in Table 5. The majority of female respondents have a high level of interpersonal communication, as many as 67 students. However, the chi-square test found no significant relationship between gender and level of interpersonal

Dominant Senses Involved when Using a Smartphone	Smartphone Addiction		Total (%)	P
	Yes	No		
Sense of Sight	49 (41.2%)	70 (58.8%)	119 (100%)	0.253
Sense of Hearing	9 (56.3%)	7 (43.7%)	16 (100%)	

Table 4. Prevalence of Smartphone Addiction Based on Dominant Senses Involved when Using a Smartphone

Table 5. Prevalence of Interpersonal Communication Based on Gender

Gender	Interpersonal Communication			Total (%)	P
	Very High	High	Moderate		
Male	6 (13.7%)	26 (59%)	12 (27.3%)	44 (100%)	0.191
Female	6 (6.6%)	67 (73.6%)	18 (19.8%)	91 (100%)	

communication with a p-value of 0.191 (> 0.05).

The relationship between smartphone addiction and interpersonal communication is depicted in Table 6. Of 58 respondents with smartphone addiction, 18 have moderate interpersonal communication. Based on the statistical analysis using the chi-square method, the p-value obtained was 0.029 (<0.05), indicating a significant relationship between smartphone addiction and interpersonal communication.

Table 6. Relationship Between Smartphone Addiction and Interpersonal Communication

Smartphone Addiction	Interpersonal Communication	Total (%)	P

	Very High	High	Moderate		
Yes	2 (3.5%)	38 (65.5%)	18 (31%)	58 (100%)	0.029
No	10 (13%)	55 (71.4%)	12 (15.6%)	77 (100%)	

DISCUSSION

Based on the results of this study, there is no relationship between gender and smartphone addiction, where a p-value of 0.251 (> 0.05) was obtained. These results are in accordance with the research conducted by Chen et al.[8] on medical students in China, who stated that the level of smartphone addiction was higher in male respondents, and no significant relationship was found between gender and smartphone addiction.

In this study, it was found that there is no significant relationship between the duration of smartphone usage with smartphone addiction, with a p-value of 0.628 (> 0.05). This result is different from research conducted by Kim et al.[9] in Korea in 2015, where it was stated that there was a significant relationship between usage times and smartphone addiction. The difference observed may be due to the difference in scales used in measuring the level of smartphone addiction. Kim et al.[9] used the Smartphone Addiction Proneness Scale (SAPS) questionnaire, while in this study, the Smartphone Addiction Scale Short Version (SAS-SV) questionnaire was used as the measurement scale.

As many as 41.5% of respondents chose to open a social website as the most common activity when using a smartphone, followed by online communication, playing online games, listening to music, and communication via telephone/SMS. These results are consistent with research by Pearson and Hussain[10] where the majority of respondents of their study used smartphones to open social networking websites, followed by online communication in second place. From the chi-square test results, it can be concluded that there is no meaningful relationship between the most frequent activities of smartphone usage and smartphone addiction. This finding contradicts the study of Salehan and Negahban[11], which stated that the activities carried out while using a smartphone, one of which is a social networking web, are predictors of smartphone addiction.

Based on the senses involved when using a smartphone, 116 respondents (88.1%) were dominantly involved in the sense of sight, and 16 respondents (11.9%) were more involved

in the sense of hearing. In the group dominantly using the sense of sight, the number of respondents with smartphone addiction is less than those without a smartphone addiction, whereas in the group dominantly involving the sense of hearing, the number of respondents with smartphone addiction is higher. This is not in line with the expectations of authors in which in the group that dominantly using the sense of sight, the number of smartphone addiction should be higher than the non-addicted, while in the group that is dominantly using the sense of hearing, the number of respondents without smartphone addiction should be higher than those who are addicted. However, the author cannot explain the relationship between these two variables due to the lack of articles that discuss these topics. Gender did not have a significant relationship with the level of interpersonal communication; the p-value obtained from the chi-square test was 0.19 (> 0.05). This is in agreement with research conducted by Hasani et al.[12] in Iran in 2015, which also stated that there was no meaningful relationship between the two variables.

There is a significant relationship between smartphone addiction and interpersonal communication, with a p-value of 0.029 (> 0.05). From the total of 30 respondents with moderate interpersonal communication levels, 18 of them experienced smartphone addiction. In addition, the number of respondents with high and very high interpersonal communication levels was higher in students who experienced no smartphone addiction. Several things can cause this meaningful relationship, one of which is a change in the pattern of social relations in modern society, where individuals are more interested in using smartphones than having to interact directly and build relationships with their environment.[7] Excessive use of smartphones can cause dependence and have an impact on the quality of one's interpersonal communication. Social interaction which is one of the natural rewards, has begun to be replaced in the individuals who experienced smartphone addiction. [13]

CONCLUSIONS

Based on the results of the study, as many as 43% of respondents experienced smartphone addiction. Most respondents (68.9%) have a high level of interpersonal communication. From the total of 43% respondents with smartphone addiction, the majority (65.5%) have a high level of interpersonal communication, and only 31% have a moderate level of interpersonal communication. It was concluded that smartphone addiction significantly affected respondents' interpersonal communication levels. Additional studies are needed to know other factors influencing interpersonal

communication, especially in a broader community.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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