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The Factors Related to the Smartphone Addiction of Undergraduate Students

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ABSTRACT

Background/Objectives: College students have a potential for addiction of smartphone. This study was to ascertain the influence of perceived stress and motivation for using a smartphone on the smartphone addiction for them.

Method/Statistical Analysis: The participants were 339 students who enrolled at S University in Korea. The smartphone addiction scale (15 items) developed by Kim et al., perceived stress scale (14 items) developed by Cohen et al. and the motivation scale (24 items) for using a smartphone developed by Kang were measured. SPSS/WIN 22.0 was used to analyze hierarchical multiple regression, Person correlation coefficients, one-way ANOVA, Scheffe test and independent sample t-test.

Findings: Gender (t=-4.15, $p< .001$), academic achievement (F=9.34, $p< .001$) and smartphone use time per day (F=6.56, $p< .001$) were significant differences in smartphone addiction. The smartphone addiction was a significant correlation with perceived stress (r=.366, $p< .001$), social interaction (r=0.119, $p=.029$), entertainment (r=0.330, $p<.001$) and passing time (r=0.226, $p<.001$) in motivation for using smartphone. Hierarchical multiple regression analysis indicated that perceived stress (β=0.284), entertainment (β=0.241) and passing time (β=0.158) in the motivation for using smartphone were identified as significant factors of smartphone addiction for college student, after adjusting for gender, academic achievement.

Improvements/Applications: The prevention of smartphone addiction for college students requires not only diminishing perceived stress but also examining a motivation for using a smartphone and gender difference in using a smartphone.

Keywords: *College student, Smartphone, Addiction, Perceived stress, Motivation.*

Introduction

According to the report from the National Information Society Agency, the rate of smartphone overdependence increased from 16.2% in 2015 to 18.6% in 2017. 3.6% of adolescents, 2.8% of adults were a high-risk group for the smartphone [1]. The smartphone use rate of the twenties including college student is 99.7%, it shows more use rate than other age groups [2]. Excessive smartphone use for young adults may encounter many problems such as the difficulty of school life [3,4], depression [5,6], sleep disturbance [7,8], psychological distress [8,9] and smartphone addiction [10]. Studies [3,5,8,9,10] have demonstrated that social-environmental and psychological factors are related to smartphone addiction. Smartphone addiction was closely related to stress and smartphone over user tends to experience more stress [11]. In particular, the college student has various kinds of stress such as academic stress and job stress and they lead to smartphone addiction [5,6,9,11]. Recently, it was reported that diverse motivations for using smartphone lead to smartphone addiction [12]. It has shown that information seeking, convenience, social interaction, entertainment, and passing time of motivation for using smartphone were related to smartphone addiction [12,13].

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It is important to understand using motivation which reflects characteristics in the smartphone to prevent smartphone addiction. This study is to identify the relation between perceived stress, the motivation for using a smartphone and smartphone addiction and to determine factors connected with smartphone addiction and to provide basic data for preventing smartphone addiction of college students.

Research Method

Design and Participants: A cross-sectional descriptive survey was performed to verify factors influencing smartphone addiction of college students. The participants used for the study consisted 339 university students from one university in J. city. Questionnaires were distributed to 350 students, of which 339 questionnaires were returned (Response rate of 96.8 %).

Research instrument

Smartphone Addiction: Smartphone addiction scale developed by Kim et al. [14] was used to measure the smartphone addiction of college students. It is composed of 15 items with a 4-point Likert scale and overall scores range from 15 to 60. A higher total score means a more addictive use of a smartphone. The total score of smartphone addiction is categorized as follows: College students with under a total of 39 points of smartphone addiction belong to a general group, a total score from 40 to 43 points of smartphone addiction means a potential risk group and a total of 44 points or more of smartphone addiction correspond to a high-risk group. The reliability of internal consistency was .88 by Cronbach's alpha coefficient

Perceived Stress: Perceived stress scale developed by Cohen et al. [15] was used to measure the perceived stress. It is composed of a 5-point Likert scale with 14 items and overall scores range from 14 to 70. A higher total score means higher perceived stress. The reliability of internal consistency was .75 by Cronbach's alpha coefficient.

Motivation for Using a Smartphone: The motivation of using smartphone consisting of 24 items developed by Kang [16] was used to measure the smartphone usage motivation. It is sorted by 5 subcategories which consist of information seeking, convenience, social interaction, entertainment, passing time. This subcategory score ranges from 1 to 7 and the Cronbach's alpha reliability coefficient was .92.

Data Analysis

The SPSS/WIN 22.0 was used to analyze data. General characteristics, smartphone addiction, perceive stress and motivation for using a smartphone were analyzed using descriptive statistics. Independent sample t-test and one-way ANOVA were used to measure the difference of smartphone addiction according to the general characteristics. The relationships between smartphone addiction, perceived stress, and motivation for using a smartphone were calculated using Person correlation coefficients. The related factors of smartphone addiction were analyzed using hierarchical multiple regression.

Results and Discussion

As recorded in table 1, the age distribution of participants (N=339) was from 18 to 28years (mean 21.47; SD1.86). There were 142 males (42.0%) and 196 females (58.0%). Gender (t=-4.15, $p< .001$), academic achievement (F=9.34, $p< .001$) and smartphone use time per day (F=6.56, $p< .001$) were significant differences in smartphone addiction. The results of previous studies [17,18,19] reported that female students had more addictive to a smartphone than male students and they frequently use a smartphone to maintain their social relationship. The earlier studies [4,20] showed that the students with smartphone addiction have low grades and may encounter difficulty with academic performance. Smartphone addiction was a significant difference by daily smartphone using time. This means that who had longer time using a smartphone, would be more likely to be higher smartphone addiction. Bian et al. [10] reported that the higher levels of smartphone addiction, the longer daily using time of smartphone.

Table 1: Smartphone addiction based on the characteristics of the participants (N = 339)

Variables	Categories	N(%)	M(SD)	t or F	Post hoc
Gender†	Male	142(42.0)	31.80(6.94)	-4.15***	
	Female	196(58.0)	34.94(6.79)		

Conted…

Age(years)	≤19	56(16.5)	35.17(7.10)	1.86	
	20-23	232(68.4)	33.46(6.69)		
	≥24	51(15.0)	32.72(8.15)		
Grade	1st	52(15.3)	35.36(6.73)	2.36	
	2nd	70(20.6)	34.48(6.21)		
	3rd	123(36.3)	32.59(6.02)		
	4th	94(27.7)	33.40(8.59)		
Major††	Humanities & social sciences [a]	162(47.8)	33.70(7.39)	1.98	
	Natural science [b]	89(26.3)	32.53(6.75)		
	Health & medical sciences[c]	76(22.4)	34.69(6.31)		
	Physical education & art	12(3.5)	34.00(7.48)		
Residence type†	Dormitory etc.	294(87.0)	33.82(7.15)	1.27	
	One's house	44(13.0)	32.38(5.97)		
Academic achievement	Good [a]	191(56.3)	32.29(6.92)	9.34***	ab, c
	Moderate [b]	113(33.3)	34.91(6.76)		
	Poor [c]	71(20.9)	34.08(7.65)		
Economic status	Good	83(24.5)	32.74(7.48)	0.90	
	Moderate	185(54.6)	33.85(6.52)		
	Poor	71(20.9)	34.08(7.65)		
Duration of using smartphone (month)	<60	64(18.9)	33.28(7.09)	0.20	
	60-120	232(68.4)	33.63(7.10)		
	>120	43(12.7)	34.16(6.49)		
Daily smartphone using time (minute)	<120 [a]	30(8.8)_	29.43(6.80)	6.56***	a c, d
	120-300 [b]	172(50.7)	33.12(6.70)		
	301-600 [c]	86(25.4)	34.90(7.27)		
	>600 [d]	51(15.0)	35.66(6.58)		

Note: † :No response was excluded; ††:Physical education & art was excluded from ANOVA analysis.

*** p<.001

Such as shown in table 2, the perceived stress (r=.366, p< .001), social interaction (r=0.119, p=.029), entertainment (r=0.330, p<.001) and passing time (r=0.226, p<.001) in motivation for using smartphone were significant correlation with smartphone addiction. In this study, smartphone addiction was positively associated with perceived stress. This result corresponds to other studies [11,18, 21] that smartphone addiction of college students showed increased levels of perceived stress and was closely related to stress. It is causing college students a great deal of stress because they should be designing lives. Thus, identifying students with having a high level of perceived stress and providing them with appropriate services may help them to prevent a smartphone addiction. In this research, the motivation for using a smartphone was identified as a significantly related factor to smartphone addiction among college students. It is consistent with the result of Kang [16] and Choi [22] which reported that entertainment oriented type, relationship oriented type and time pass of motivation for using smartphone were significantly correlated with smartphone addiction. Lee [23] suggested that motivation for using a smartphone is directly connected with frequency in use and prolonged time for a smartphone.

Table 2: Correlation between perceived stress, motivation of using a smartphone and smartphone addiction (N = 339)

	Smartphone Addiction	Perceived Stress	Motivation of Using a Smartphone
Smartphone addiction	1		
Perceived stress	.366***	1	
Motivation of using a smartphone	.220***	-.013	1
Information seeking	.012	-.074	
Convenience	.051	-.048	
Social interaction	.119*	-.075	
Entertainment	.330***	.113*	
Passing time	.226***	-.014	

*: p< .05, ***: *p*< .001

As appeared in table 3, the factors influencing the smartphone addiction were analyzed by using a hierarchical multiple regression analysis. In Model 1, the smartphone addiction was significantly influenced by gender (β=0.183), academic achievement (β=0.149～0.163). In Model 2, perceived stress (β=0.284), entertainment (β=0.241) and passing time (β=0.158) in the motivation for using a smartphone, gender (β=0.102), academic achievement (β=0.100～0.107) were significant predictors of smartphone addiction. These five factors explained 24.3% of the variance in the smartphone addiction. The general F score of multiple regression in Model 2 was significant (F=11.828, *p*<.001). Perceived stress was found to be the most effective factors of smartphone addiction. The results of prior studies [11,18,21] reported that college students who experience more stress are immersed in a smartphone to get away from their stressful situation and it leads to smartphone addiction. In motivation for using a smartphone, entertainment and passing time were identified as significantly influencing factors to smartphone addiction. It indicates that motivation to pursue entertainment through smartphone would like to increase the risk of collegians' smartphone addiction. Also, using a smartphone as a source of spending time might be accompanied by a reduced their sense of volitional control and induces them to use smartphone constantly. It is consistent with the result of Park and Shin [12,16,22] which reported that entertainment and passing the time of motivation for using smartphone make an impact on the overuse of the smartphone. Recently, advanced researches [12,13] showed that diverse motivations of using a smartphone-related to smartphone addiction. To prevent smartphone addiction early, it is necessary to check the motivation of using a smartphone, which reflects the unique characteristics of the smartphone of students.

Table 3: Predictors on the smartphone addiction (N = 339)

Variables	Model I		Model II	
	β	t	β	t
Constant		49.20***		2.20*
Gender	.183	3.42***	.102	2.06*
Academic achievement (moderate)	.149	2.79**	.107	2.15*
Academic achievement (poor)	.163	2.94**	.100	1.96*
Perceived stress			.284	5.64***
Entertainment in the motivation of using a smartphone			.241	4.23***
Passing time in the motivation of using a smartphone			.158	2.31*
	R^2=.074, F=7.69***		R^2=.243, F=11.82***	

Note: Dummy variable: Gender (0: male, 1: female)

*: *p*< .05, **: *p*< .001, ***: *p*< .001

Conclusion

This study is an attempt to make an offer a basic data for making strategies to check the smartphone addiction among college students by examining the relationship of smartphone addiction with perceived stress and motivation for using a smartphone and identifying factors related with smartphone addiction. This study showed that perceived stress and entertainment, passing time in the motivation of using a smartphone are significant influencing factors of smartphone addiction for college students. These findings suggest that preventing smartphone addiction among collegian requires not only diminishing perceived stress but also examining a motivation for using a smartphone. Also, it needs to identify that gender differences in using smartphone such as smartphone activities.

Ethical Clearance: Not required

Source of Funding: Self

Conflict of Interest: Nil

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