Smartphone Addiction and Empathy among Nursing Students

HyeSun Jeong1, YangSook Lee1
1 Kongju National University 56 Gongji Daehak-Ro Gongju-Si Chungcheongnam-Do 314-701 Republic of Korea

Abstract. This study was conducted to identify influencing factors on smartphone addiction in nursing students. Results shows that, influencing factors on the nursing students’ smartphone addiction were reading quantity, the number of friends, the number of groups involved, academic achievement, average daily hours of smartphone use, and personal distress among the empathy, and the explanatory power of these variables was 17.4%. The findings of this study suggest that in order to guide nursing students’ right use of smartphone, it is necessary to assess their empathy level and use the results as basic data and to regulate particularly the level of personal distress of empathy.

Keywords: Nursing students, Smartphone, Addiction, Empathy

1 Introduction

A smartphone allows access to online information sources anywhere, can be used for spending free time, and enables building relationships in the cyber space. These advantages of a smartphone attract more and more people to use smartphones. In particular, the excessive use of smartphones may cause a diseased condition, i.e. smartphone addiction, that a user cannot control his/her smartphone use. Existing studies show that smartphone addiction is more serious in the young generation that has a higher ratio and relatively more hours of smartphone use. College students in adulthood are expected to have more control over smartphone use compared to elementary, meddle, and high school students, but the rate of smartphone addiction among college students turned out to be fairly high at 24.8-27.8%

In this context, higher level of smartphone addiction had a greater negative impact on academic achievement, school life, mental health, communication between parents and children, and personal relationship due to lower sociality. Thus, smartphone addiction should not be deemed a personal problem, and active guidance on smartphone use is needed.

A previous study on influencing factors of smartphone addiction pointed out that students who are female, who spend more hours on smartphone use, and who have a higher empathy level had higher scores for smartphone addiction. This is especially significant to nursing students, because most of nursing students are female, younger generation that uses smartphone a lot, and have a higher empathy level compared to general adults; in other words, the characteristics of nursing students
accord with the influencing factors of smartphone addiction. The measured rates of smartphone addiction among nursing students were 21.1-33.1%\cite{7}\cite{8}\cite{9}, which were similar to or higher than the addiction rate of other college students.

Empathy is an important factor that helps understanding human psychological state as well as building interpersonal relationship \cite{10}, and thus greater magnitude of empathy is favored in the field of nursing in which effective communication and therapeutic relationship with patients are needed. However, there is a correlation between empathy and smartphone addiction among college students\cite{5}, and if the same results are obtained among nursing students in future research, it needs to be studied how to mitigate smartphone addiction in the field of nursing where empathy is emphasized. In addition, empathy could be subdivided into cognitive empathy and affective empathy \cite{11}, and these two subcategories were uniquely different in terms of their influence on interpersonal relationship and human beings \cite{12}. Smartphone addiction has been problematic in the young generation in general, and the goal of this research is to investigate the level of smartphone addiction among nursing students. This study also aims to understand the respective influence of cognitive empathy and affective empathy on smartphone addiction.

2 Method

A questionnaire survey was conducted September through December in 2014, and 598 nursing students voluntarily participated in this survey. Empathy was measured using the Korean version of IRI(Interpersonal Reactivity Index)\cite{6} developed by Davis (1980) \cite{11}, which has 28 questions on a five-point scale. Smartphone addiction was examined by using The Korean Smartphone Addiction Proneness Scale for Youth and Adult was developed by the National Information Society Agency(2011) \cite{12}, and for this study, the adult type was used to assess smartphone addiction

3 Results

3.1 Smartphone addiction in nursing students

493 students (82.5%) were in the normal user group, while 105 students (17.5%) were considered to be addicted to a smartphone, including 69 students (11.5%) in the potential risk group and 36 students (6.0%) in the high risk group (Table 1).

<table>
<thead>
<tr>
<th>Category</th>
<th>Score</th>
<th>N(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3.2 Influencing factors on smartphone addiction among nursing students

The influencing factors of smartphone addiction among nursing students were reading quantity ($\beta = -0.080, t = -2.055, p = 0.040$), number of friends ($\beta = 0.094, t = 2.428, p = 0.016$), number of groups involved ($\beta = -0.077, t = -2.013, p = 0.045$), academic achievement ($\beta = -0.078, t = -2.048, p = 0.041$), average daily hours of smartphone use ($\beta = 0.209, t = 5.393, p < 0.001$), and personal distress that is a subcategory of empathy ($\beta = 0.262, t = 6.515, p < 0.001$), the explanatory power of these influencing variables were $17.4\% (F = 15.216, p < 0.001, R^2 = 0.174)$ (Table 2).

### Table 2. Influencing factor on smartphone addiction among nursing students (N=598)

<table>
<thead>
<tr>
<th>Variable</th>
<th>$\beta$</th>
<th>T(p)</th>
<th>R$^2$</th>
<th>F(p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>6.558</td>
<td>6.558(&lt;.001)</td>
<td>.174</td>
<td>15.216(&lt;.001)</td>
</tr>
<tr>
<td>Reading quantity</td>
<td>-0.080</td>
<td>-2.055(.040)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of friends</td>
<td>0.094</td>
<td>2.428(.016)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of groups involved</td>
<td>-0.77</td>
<td>-2.013(.045)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Academic achievement</td>
<td>-0.078</td>
<td>-2.048(.041)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average daily hours</td>
<td>0.209</td>
<td>5.393(&lt;.001)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>of smartphone use</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal distress</td>
<td>0.262</td>
<td>6.515(&lt;.001)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4 Discussion

Among the 598 nursing students who responded to the questionnaire survey used in this research, 17.5% of the respondents were addicted to their smartphones. This results of a smartphone addiction ratio is lower than other research that stated 24.8-27.8% of smartphone addiction among general college students [1][2] and 21.1-33.1% of smartphone addiction among nursing students [7][8][9].

Based on the results of this study, smartphone addiction among nursing students has a negative correlation with reading quantity, number of groups involved, and academic achievement; on the contrary, nursing students’ smartphone addiction was positively correlated with the number of friends and the level of personal distress. 88.6% of the respondents were female that are regarded to spend more time on using a smartphone, and it is in line with the results of the existing studies that stated more
time of smartphone use as well as a higher score of addiction when having more friends because of the increased amount of communication by using text messaging applications [4][5]. Also, it would be natural that reading quantity and participation in group activities are reduced as longer time is spent on the smartphone use, and thus, it negatively affects academic achievement and school life.

In this study, the empathy level of the respondents was higher than that of general people, and personal distress that is included in affective empathy turned out to be an influencing factor of smartphone addiction. Personal distress refers to a degree of pain that a person experiences when he/she sees another person having pain[6]. Han (2013) [5] explained that a female with a higher level of personal distress tends to be more vulnerable to smartphone addiction because females have a higher level of empathy and put more emphasis on relationship; this makes females spend more time using a smartphone while being immersed in other people’s emotional states when they interact with others via smartphone. However, it is also reported that a higher level of empathy involves a higher level of compassion fatigue [14][15]. In other words, a person with a higher empathy level experiences compassion fatigue [14] that is secondary traumatic stress and is similar to post traumatic stress syndrome. Based on the results of this study, it could be inferred that a person with higher affective empathy has higher empathy with others’ painful emotion, and this would lead to a higher degree of secondary psychological discomfort. Therefore, the higher personal distress, the higher ability to share others’ pain; however, this simultaneously has a negative effect on one’s psychological well-being who has a higher level of empathy[14][15]. It is also worth to note that the experience of secondary psychological discomfort due to empathy might make relationships developed through smartphones less uncomfortable compared to direct relationships in reality, and as a result, use of smartphones could increase. Thus it is required to develop a mitigation measure for nursing students who have a higher level of personal distress. Future research is needed to find the specific relation between personal distress and smartphone use.

References