Avoidant attachment and smartphone addiction in college students: The mediating effects of anxiety and self-esteem

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ABSTRACT

This study examined the structural relationship between avoidant attachment, self-esteem, anxiety, and smartphone addiction in college students. We hypothesized that avoidant attachment would predict smartphone addiction, and that this relationship would be mediated by self-esteem and anxiety. Structural equation modeling (SEM) was used to test the indirect relationship between avoidant attachment and smartphone addiction through anxiety and self-esteem. Participants were 313 college students at a large-sized private university in Korea. Participants responded to an attachment, anxiety, and smartphone addiction questionnaire. The paths between avoidant attachment and self-esteem, self-esteem and anxiety, self-esteem and smartphone addiction, and anxiety and smartphone addiction were statistically significant. However, in contrast to our expectations, neither avoidant attachment nor avoidant attachment-smartphone addiction pathways were significant. The association between avoidant attachment and smartphone addiction was fully mediated by anxiety and self-esteem. We suggest that avoidant attachment may lead to low self-esteem and anxiety, which in turn may lead to smartphone addiction.

1. Introduction

Smartphones have become indispensable in our lives. The number of smartphone users has steadily increased each year, now reaching over 2.4 billion worldwide. Korea is one of the most prolific countries in the world in terms of smartphone usage. Specifically, Korea has the record for the highest rate of smartphone usage rate. In 2015 Korea had a smartphone penetration rate of 88% (Poushter, 2016), and in 2014 the number of smartphone users exceeded 40 million. Smartphone penetration in Korea is more than twice the world average (43%), and it is significantly higher than in Australia, Israel, and the USA. Even more surprising is that Korea's smartphone penetration rate was only 0.7% in 2007; thus, this rapid change has taken place within a period of less than 10 years.

Concerns about smartphone overuse and addiction are increasing. However, it is still unclear how smartphone addiction should be assessed, and what diagnostic criteria should be used to

determine whether someone is "addicted". Researchers (D. I. Kim et al., 2012; K. Kim, Byun, & Im, 2016; Lanaj, Johnson, & Barnes, 2014; Lin et al., 2014) have discussed several important aspects relating to the concept of smartphone addiction. It has been noted that some commonalities exist with other forms of addiction, such as a preoccupation with the desired substance or object (in this case, the smartphone), negative effects on everyday life, and withdrawal symptoms. Thus, smartphone addiction may be considered a form of technological addiction (Lin et al., 2014). Notably, smartphone addiction has several similar aspects to "Internet Gaming Disorder," thought to be a form of behavioral addiction. According to the fifth revision of the Diagnostic and Statistical Manual of Mental Disorders, behavioral addiction involves compulsive behavior(s), functional impairment, withdrawal, tolerance, and so on (American Psychiatric Association, 2013). Compared to currently recognized forms of behavioral addiction, clarification in relation to the concept of smartphone addiction is required. This is complicated, in part, due to the ease and acceptability of smartphone use in everyday life. Although research is developing in this field, it is not yet known what frequency or duration of smartphone use should be considered problematic, nor the precise nature of the impact on daily life required for this to be

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considered pathological behavior in line with the diagnosis of other clinical disorders. To answer these questions, further specific measures and assessments need to be developed in this emerging field of research.

In Korea, the National Information Society Agency (NIA) conducted regular surveys in a high-risk group with a strong tendency to be to addicted smartphone use and a potential-risk group. The Smartphone Addiction Proneness Scale for Adults (APS-A) was used for screening smartphone addiction. It consists of 15 items, each assessed on a four-point Likert scale, and provides four factors, specifically, virtual life orientation, tolerance, withdrawal, and disturbance of adaptive function. In this study, a cutoff for the total score on the APS-A was used to differentiate between high- and potential-risk users. The percentage of high-risk users aged 3–69 years who needed counseling and treatment in 2016 was 2.5%, and the potential-risk group was reported to represent 15.3% of all users. Importantly, over 30% adolescents were reported to be at high-risk for smartphone addiction (National Information Society Agency, 2017).

The situation in other countries is similar. In the USA, the average smartphone user spent an hour longer on their smartphone in 2016 than in 2012. In Brazil, the average usage time is nearly 5 h per day. People are increasingly able to do more things with smartphones, such as web surfing, SNS (Social Network Services), and watching TV. Therefore, people spend more time on smartphones in general. According to research, the addictive use of smartphones, including internet surfing and online games, has a wide range of negative effects on mental health, self-regulation, interpersonal relationships, as well as daily life (Elhai, Levine, Dvorak, & Hall, 2017; Engelberg & Sjöberg, 2004; Gökçearslan, Mumcu, Haşlaman, & Çevik, 2016).

Linked to this rapid increase in smartphone usage, research has recently flourished in efforts to understand more about smartphone use (Bianchi & Phillips, 2005; Demirci, Akgönül, & Akpinar, 2015; Elhai et al., 2017), the development of addiction measures (D. I. Kim et al., 2012; K. Kim, Byun, & Im, 2016; Lin et al., 2014), the examination of addiction prevention and related treatment programs (Ha & Son, 2016; Jeong, Yu, & Nam, 2014; C. W. Lim & Jung, 2016), and finally, causes and effects (Choi & Seo, 2015; Hormes, Kearns, & Timko, 2014; Koh & E. H. Kim, 2017). Furthermore, it is interesting that smartphone addiction varies by age and that this has been consistently reported in studies (Ju & Cho, 2015; M. H. Lim & Kim, 2014; Yu, Lee, & Yang, 2015). Specifically, the proportions of overdependent users in their teenage years (31.6%) and 20s (24.2%) are overwhelmingly higher than that of people in their 30s (14.5%), 40s (10.7%), and 50s (5.3%) (Kwon, Nam, & Seo, 2015). Media reporting by Cable News Network in the USA indicates that half of teens think they are addicted to their smartphones (Wallace, 2016). These results are the basis of the interest in the prevention and treatment of smartphone addiction, mainly among children and adolescents.

Despite the high rate of smartphone addiction, there has not been sufficient research conducted about this phenomenon among young adults. Presumably, this is related to the social consensus that adults usually have to control their own lives, including the use of smartphones. More discretion and less control make young adult college students vulnerable, and they are representative of an increasing trend in smartphone users and an at-risk segment of the adult population (Kwon et al., 2015).

Thus, there is a need to investigate the causes of vulnerability to smartphone addiction among college students entering early adulthood. The present study aimed to contribute insight into the psychological mechanisms of smartphone addiction by exploring the potential relationship between attachment, depression, anxiety, and smartphone addiction for young adults.

1.1. Attachment as the starting point for understanding smartphone addiction

Attachment is an important psychological trait that is strongly associated with addiction. Attachment theory was originally developed by Bowlby (1969), in which he stated that attachment could be thought of as how secure or insecure a person feels in their relationships. Attachment theory holds that it is the relationship between the infant and the primary caregiver that is crucial to the development of secure attachment and the later development of the ability to form secure and healthy interpersonal relationships. Attachment developed during infant and childhood also affects many aspects of life afterward and can be categorized into secure attachment and insecure attachment.

Flores (2004) focused on the effect of insecure attachment on addiction. He advocated that the underlying mechanism of addiction can be attributed to an attachment disorder. As such, people are not able to satisfy their instinctive desires for stability and intimacy if they do not experience emotional stability and intimacy through a stable source of affection. This can lead to psychological discomfort. If this persists, being overwhelmed by unpleasant emotions will increase the likelihood of becoming obsessed with an addiction object or behavior (e.g., alcohol, drugs, sex, gambling, shopping, etc.). Addiction refers to obsessively pursuing an object of intoxication in order to compensate for the intimacy and bondage that cannot be obtained from attachment (Flores, 2004). Many studies have shown that insecure attachment is closely related to multiple types of addiction, including drug and internet addiction (Kassel, Wardle, & Roberts, 2007; S. Shin, N. Kim, & E. Y. Jang, 2011). Results from studies on young Korean adolescents and college students have shown that insecure attachment leads to smartphone addiction (Choi & Seo, 2015; H. Kim & E. Kim, 2016; Yeo, Kang, & Kim, 2014).

Insecure attachment can be understood as two dimensions of attachment anxiety and attachment avoidance (Mikulincer, Shaver, & Pereg, 2003). Attachment anxiety is characterized by the fear of being lonely (Brennan, Clark, & Shaver, 1998). Those with a higher level of attachment anxiety are more immersed in the relationship because they are afraid to be left alone and abandoned. In order to ensure that they are loved, they demand excessive attention and love from the others. These characteristics are related to being more obsessed with contacting peers with mobile phones (H. Jang & Chae, 2006). On the other hand, attachment avoidance is characterized by the fear of rejection (Fraley & Brumbaugh, 2007). It is argued that the stronger the avoidance of attachment in an individual, the more uncomfortable it is for them to familiarize themselves with others, and the more likely they are to avoid others.

The differences between the two types of insecure attachment should be also observed online as well as in off-line relationships. Individuals with a high attachment anxiety are more likely to spend more time on Facebook, use it when they feel negative affect, and show concern over how others perceive them. Individuals high in attachment avoidance use Facebook less often, are less likely to be open about their Facebook profile, and less likely to hold a positive attitude about Facebook (Oldmeadow, Quinn, & Kowert, 2013). However, anxious attachment, a type of insecure attachment, has been consistently investigated in terms of its effect on smartphone addiction attachment (H. Kim, & E. Kim, 2016; Yeo et al., 2014), whereas the other type, avoidant attachment, has been rarely studied (E. Y. Kim, Cho, & E. J. Kim, 2017).

What is the relationship between the two types of attachment on smartphone addiction? Until now, the results of research on avoidance attachment are still inconsistent, while many studies have shown that anxiety attachment is closely related to smartphone addiction. Findings include a direct negative effect on