

Rapid Communication

Characteristics of Excessive Cellular Phone Use in Korean Adolescents

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Abstract

The objective of this study was to evaluate the possible psychological problems related to excessive cellular phone use in adolescents. Results from 595 participants showed that the potentially excessive user group had a tendency to identify themselves with their cellular phones and to have difficulties in controlling usage. They expressed more depressive symptoms, higher interpersonal anxiety, and lower self-esteem. A positive correlation was also observed between excessive cellular phone use and Internet addiction.

Introduction

APPROXIMATELY 95% of all nations have mobile phone networks, and it is a necessity of modern life.¹ An estimated 88% of the total population use cellular phones in South Korea. Possible psychological and behavioral issues related to the advent of cellular phones have been reported, including a failure to pay monthly bills and theft of new phone models.² Bianchi reported that excessive users experience difficulty with controlling the time spent on cellular phones and with being distracted by phones. Furthermore, excessive users had low self-esteem and tended to be extraverted.² Based on previous reports and our own clinical experiences, we sought to explore the psychological and behavioral characteristics of excessive cell phone use and related behaviors.

Methods

Twelve hundred students were recruited from a technical high school; 595 participants (male = 552; female = 43) were included in the final analysis. Male dominance in participants was to be expected given that the high school was a technical high school. The response rate including noncellular phone users was 49.6%, and mean age was 15.9 ± 0.8 .

Basic demographic data and cellular phone usage patterns were included. An Excessive Cellular Phone Use Survey (ECPUS) consisted of 20 questions developed by the authors' clinical experience and hypothesis was applied. The survey

included control difficulty, a persistent need for connection with others, and specific communication patterns via cellular phone. Internal reliability assessed by Cronbach's alpha was 0.87. Beck Depression Inventory (BDI),³ Toronto Alexithymia Scale (TAS-20),⁴ Interactional Anxiousness Scale,⁵ Rosenberg Self-Esteem Scale,⁶ and Young's Internet Addiction Scale (IAS)⁷ were applied in the survey to assess psychopathology.

Because the ECPUS was not validated as a diagnostic tool, we selected two groups by ECPUS score: the upper 30% of respondents (excessive user group) and the lowest 30% (comparison group). We examined the differences between the two using unpaired independent *t* tests. Pearson's partial correlation between the ECPUS with IAS was computed, controlling for sex and age.

Results

The mean score of ECPUS was 42.2 ± 12.8 . The mean ECPUS score of the suspected excessive user group ($n = 197$) was 56.0 ± 9.2 , and the comparison group ($n = 207$) was 28.8 ± 3.9 . The excessive user group showed a shorter interval than the comparison group (36.2 ± 43.4 vs. 50.3 ± 100.2 ; $df = 404$, $F = 12.4$, $p = 0.07$). The excessive user group paid a higher monthly charge than the comparison group ($44,424 \pm 22,669$ vs. $33,754 \pm 18,356$ KW; $df = 404$, $F = 15.7$, $p < 0.001$), saved more contact lists (100.1 ± 67.3 vs. 71.6 ± 63.0 ; $df = 404$, $F = 3.47$, $p < 0.001$), sent more text messages

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daily (39.4 ± 36.6 vs. 26.2 ± 29.1 per a day; $df = 404$, $F = 12.0$, $p < 0.001$), and received more text messages daily (40.9 ± 39.3 vs. 28.0 ± 32.3 per a day; $df = 404$, $F = 8.9$, $p < 0.001$) than the comparison group. Both groups reported that sending and receiving text messages were the most popular purposes for which they used their cellular phones.

The excessive user group experienced more depressive symptoms than the comparison group did (12.3 ± 8.4 vs. 7.3 ± 6.6 ; $df = 404$, $F = 14.6$, $p < 0.001$). They experience more difficulty in expression of emotion (49.8 ± 8.7 vs. 43.4 ± 7.8 ; $df = 404$, $F = 3.95$, $p < 0.001$), reported higher interpersonal anxiety (41.3 ± 9.4 vs. 37.4 ± 3.7 $df = 404$, $F = 12.95$, $p < 0.001$), and had lower self-esteem (32.7 ± 6.8 vs. 35.2 ± 6.0 ; $df = 404$, $F = 1.29$, $p < 0.001$) than the comparison group. The excessive user group had a higher score on the IAS than did the comparison group (42.7 ± 15.3 vs. 34.4 ± 12.1 ; $df = 404$, $F = 14.2$, $p < 0.001$). The severity of Internet addiction was positively correlated with excessive cellular phone usage (Pearson's coeff $r = 0.27$, $p < 0.001$).

Discussion

Participants in the excessive user group were strongly attached to their cellular phone, perhaps because it served as a strong part of their identity or as their main communication method. Frequent changing of ringtones and unnecessary use of a cellular phone are signs of an individual's psychological identification with their phone and an effort to appear distinct from others. Among usage patterns, sending and receiving text messages was the most popular use of the cellular phone in both groups. Adolescents believed that it enabled them to make broader and deeper friendships and that it felt more comfortable than face-to-face interaction.⁸

The excessive user group was more depressive and alexithymic (had difficulty expressing their emotion) and had higher interpersonal anxiety and lower self-esteem than the comparison group. Although the range of difficulties did not reach the clinical level, we can assume that interpersonal sensitivity may play an important role in generating depressive mood.⁹ Failure of successful interpersonal relationships could negatively affect self-esteem and cause a depressed mood. Lower self-esteem has consistently been linked to addictive behavior. The patterns of Internet addiction in adolescents were similar.⁷ In the relationship with Internet addiction, psychological dependence on one's cellular phone may be associated with Internet addiction through a similar mechanism.⁷ However, this hypothesis needs further exploration.

In light of the above evidence, it is hard to declare that excessive cellular phone usage constitutes a new form of behavioral addiction. However, it was associated with psycho-

logical distress and reflected distinctive emotional attachment and communication patterns in adolescents. Therefore, although these research results are preliminary, we hope the ECPUS can be a useful tool to screen for excessive usage of cellular phones and interpersonal sensitivity in adolescents.

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Disclosure Statement

The authors have no conflict of interest.

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