

# THE RELATIONSHIP BETWEEN CELLULAR PHONE ADDICTION AND SELF-ESTEEM OF ELEMENTARY SCHOOL STUDENTS IN HIGHLY MOBILE ENVIRONMENT

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## ABSTRACT

The purpose of this study was to investigate the cellular phone addiction status and the relationship between cellular phone addiction and self-esteem of elementary school students in today's highly mobile environment. The study participants were 1,173 upper grade elementary school students in Chungnam province. Data were collected by a self-administered questionnaire from November 5 to 26, 2012. Collected data were analyzed using the IBM SPSS 20.0 program with descriptive statistics, Pearson's correlation coefficient, independent t-test, one-way ANOVA and Scheffe test. The level of the cellular phone addiction in upper grade elementary school students was generally low but high risk students also existed. In addition, a negative correlation was observed between self-esteem and cellular phone addiction in upper grade elementary school students. These results suggest that various interventions to prevent and manage the cellular phone addiction should be provided for elementary school students in today's highly mobile environment and interventions for high risk students of cellular phone addiction should be provided urgently. In addition, inclusion of interventions to increase the self-esteem of upper grade elementary school students in those interventions should be also needed.

**Keywords:** *Cellular Phone, Addiction, Self-Esteem, Elementary School, Mobile Environment*

## 1. INTRODUCTION

The Cellular phone is a versatile and accessible device [1]. It is very attractive especially for young people, but whose use involves a risk of maladaptive or problematic use such as abuse, addictive behavior [1, 2, 3]. In recent day, cellular phones are seen as essential in maintaining social relationships [4, 5], and many young people cannot envision and existence without cellular phones [6, 21]. This dependence on cellular phone coincides with the emergence of the Smart phone [6].

The number of cellular phone holders among the upper grade elementary school students is increasing. In 2016, 77% of upper grade elementary school students have a cellular phone and 68.2% of them have a smart phone in South Korea, which was 4.7% (cellular phone) and 8.9% (smart phone) higher than that of the previous year [7]. These data imply that cellular phone enables addictive behavior in upper grade elementary school students, and the risk of cellular phone addiction in elementary school students, especially in upper grade, is emerging as a serious social problem [8, 9].

Addictive behavior defined by the user's progressive exclusion of other activities, causing physical, mental, and social damage [10], and loss of control over the behavior is an essential element of any addiction [6]. Therefore, cellular phone addiction is an excessive attention and uncontrolled dedication to cellular phone despite its negative impact on one's well-being [11, 12].

Cellular phone addiction has resulted in physical and psychological problems like other addictions [12, 13]. Addicted users caused social and familial conflicts because of problematic use in dangerous situation or prohibited contexts [13, 14], social relationship interruptions preferring the cellular phone to personal contact [15], and work or study interruptions with frequent and constant using [8, 16]. They also experienced stress due to the need of an immediate response to messages [17, 18], anxiety and loneliness when unable to send or receive messages [19], feelings of irritability if separated from the cellular phone [15], and sleep disturbances [17, 20]. As a result, they showed low self-esteem, difficulty with conflict, impulsive seeking, intolerance of sadness, and/or a depressive

tendency [16, 21, 22]. In today's highly mobile environment, possibility of cellular phone addictions is getting higher. Therefore, it is important for healthcare providers to investigate the degree and related factors of cellular phone addiction and provide interventions and strategies to prevent cellular phone addiction based on evidence.

In addition, considering the fact that cellular phone addictions may also be an indicator of other problems and the age of one's first cellular phone possession was negatively correlated the probability of problematic use in the future [6], interventions and strategies for elementary school students are critical and urgent issues. An increasing number of studies have focused on cell phone addictions [12], however, most studies conducted for adolescent or young adult. Therefore, this study will investigate the cellular phone addiction status of upper grades elementary school students. And self-esteem is suggested a critical factor influenced the cellular phone addiction, studies on relationships self-esteem and cellular phone addiction of elementary school students are also insufficient. Therefore, this study will also investigate the relationships between cellular phone addiction and self-esteem of upper elementary school students.

## 2. METHODS

### 2.1 Research design

This study was descriptive study to investigate the cellular phone addiction status and relationships between cellular phone addiction and self-esteem of upper grades elementary school students.

### 2.2 Research Subject

The study subjects were 1,173 upper grade elementary school students from three elementary schools in Chungnam province.

### 2.3 Research Tools

Cellular phone addiction was measured using modified and revised scale of the cellular phone addiction scale developed by Jang [23]. Jang's scale consists of 20 items with a 5 point Likert scale (1-5), with higher scores indicating higher level of cellular phone addiction. In this study, minor word revisions and elimination of several items of this scale were made for suitable to upper grade elementary students. Modified and revised scale consists of 15 items (learning disorder 5 items, life disorder 5 items, relationship disorder 5 items) and content validity of this scale was confirmed by three elementary school teachers. The internal consistency reliability was Cronbach's  $\alpha = .90$  in this study.

Self-esteem was measured using the Self-esteem scale translated by Cho [24]. Cho's scale consists of 20 items with a 5 point Likert scale (1-5), with higher scores indicating higher level of self-esteem. In this study, minor word revisions and elimination of several items of this scale were made for suitable to upper grade elementary students. Modified and revised scale consists of 13 items and content validity of this scale was confirmed by three elementary school teachers. The internal consistency reliability was Cronbach's  $\alpha = .82$  in this study.

### 2.4 Data Collection

Data were collected using a self-report questionnaire from November 5 to 26, 2012.

For the collection of research data, the researcher first contacted the teachers of upper grade elementary schools and explained the research purpose, contents of research questionnaire, time to filling out a questionnaire, and assurance of no disadvantage for the nonparticipants in this research. After explanations, written informed consents and research questionnaires were distributed to teachers those who permit to conduct this study. Distribution and collection of research questionnaires and informed consents from research subjects were carried out by teachers.

### 2.5 Data Analysis

Collected data were analyzed using the IBM SPSS 20.0 program with descriptive statistics, Pearson's correlation coefficient, independent t-test, one-way ANOVA and Scheffe test.

Descriptive statistics were used to describe the general characteristics, cellular phone addiction and self-esteem. Independent t-test and one-way ANOVA were used to analyze cellular phone addiction according to general characteristics. Pearson's correlation coefficient was used to analyze the relationship between cellular phone addiction and self-esteem.

## 3. RESULTS

### 3.1 General Characteristics Of Subjects

General characteristics of research subjects are showed in Table 1. In gender, female students (n=596, 50.8%) were a little more than male student (n=577, 49.2%). In grade, 6th grade students (n=441, 37.6%) were the most and 4th grade students (n=338, 28.8%) were the least. In family type, most students (n=1,016, 86.6%) lived with their parents. In siblings, 50.2 percent of students (n=590) have siblings with opposite sex and 10.2 percent of students (n=120) have no siblings.

Table 1. General characteristics

N=1,173

Characteristics	Categories	n	%
Gender	male	577	49.2
	female	596	50.8
Grade	4th	338	28.8
	5th	394	33.6
	6th	441	37.6
Family type	living with parent(s)	1,016	86.6
	living with parent(s) & grandparent(s)	116	9.9
	living with grandparent(s)	6	0.5
	others	35	3.0
Siblings	No	120	10.2
	Same sex	463	39.5
	Opposite sex	590	50.3

### 3.2 Cellular phone addiction and Self-esteem

Cellular phone addiction and self-esteem degree of research subjects are showed in Table 2. Mean scores of cellular phone addiction were 22.84 out of 75.00 (30.45 out of 100.0). Among the area of cellular phone addiction, mean scores

of life disorder (8.04±3.51) were the highest and those of learning disorder (7.34±2.96) were the lowest.

Mean scores of self-esteem were 46.74 out of 65.00 (71.91 out of 100.0).

Table 2. Cellular phone addiction and Self-esteem

	Total score	Minimum score	Maximum score	Mean±SD
Cellular phone addiction	75	15.00	63.00	22.84±8.41
learning disorder	25	5.00	21.00	7.34±2.96
life disorder	25	5.00	23.00	8.04±3.51
relationship disorder	25	5.00	22.00	7.46±2.93
Self-esteem	65	17.00	65.00	46.74±7.12

SD=standard deviation

### 3.3 Cellular Phone Addiction According To General Characteristics

Cellular phone addiction according to general characteristics is showed in Table 3. The higher the grade, the higher the mean score of cellular phone addiction (F=50.21, p<.001).

The students living with parent(s) showed higher score of cellular phone addiction than other students (t=1.98, p=.048), however, cellular phone addiction according to gender and siblings did not showed significant difference.

Table 3. Cellular phone addiction according to general characteristics

Characteristics	Categories	n	Mean±SD	t or F	p
Gender	male	577	22.54±8.04	1.23	.220
	female	596	23.14±8.76		
Grade	4th <sup>a</sup>	338	19.74±6.19	50.21	<.001 (a<b<c)
	5th <sup>b</sup>	394	22.47±8.23		
	6th <sup>c</sup>	441	25.55±9.15		
Family type	living with parent(s)	1,016	23.03±8.49	1.98	.048
	others	157	21.61±7.82		
Siblings	No	120	23.65±8.81	.634	.531
	Same sex	463	22.71±8.38		
	Opposite sex	590	22.80±8.35		

SD=standard deviation

### 3.4 Relationships Between Self-Esteem And Cellular Phone Addiction

Relationships between self-esteem and cellular phone addiction are showed in Table 4. A negative correlation was observed between self-esteem and

cellular phone addiction ( $r=-.367$ ,  $p<.001$ ). Negative correlations were also observed between self-esteem and three areas of cellular phone addiction.

Table 4. Relationship between Cellular phone addiction and self-esteem

	cellular phone addiction	learning disorder	life disorder	relationship disorder
self-esteem	-.367**	-.312**	-.334**	-.338**

\*\* $p<.001$

## 4. DISCUSSION

In this study, mean scores of cellular phone addiction were 22.84 out of 75.00 (30.45 out of 100.0). This result consistent with previous study reporting that the pattern of cellular phone use in elementary school students did not show the severe addiction pattern [21]. This result also consistent with previous study reporting that the mean scores of cellular phone addition were 37.37 out of 100.0 [25]. Researches about cellular phone addiction of elementary school students were not much [21]. But, considering the result of previous study and this study, it is assumed that the degree of elementary school students' cellular phone addiction is generally low. However, maximum score of cellular phone addiction was 63.00 out of 75.00 (84 out of 100.0), this score means high risk

of cellular phone addiction. Lee & Lee (2012) reported that there was a great deal of variability between elementary school students in the pattern of cellular phone use [21]. In addition to, there is a difference between result from self-reported questionnaires and self-implication [12]. Therefore, although the mean scores of cellular phone addiction is showed low level, it is needed to take an interest about elementary school students' cellular phone addiction. It is also needed to develop and apply for interventions and strategies to prevent elementary school students' cellular phone addiction and application of interventions to manage of cellular phone addiction for high risk students is needed urgently. Previous study reported that group counseling

program reduce the cellular phone addiction tendency of higher grade elementary school students [27]. However, other studies reported conflicting results that education programs for elementary school students about cellular phone use were not effective on self-efficacy and self-control about cellular phone use [8, 26]. Therefore, continuous and repetitive studies to develop effective interventions and strategies for preventing and controlling cellular phone addiction of elementary school students should be conducted. In this study, the higher the grade, the higher the mean score of cellular phone addiction ( $F=50.21$ ,  $p<.001$ ). The higher the grade, the probability of long time exposure to cellular phone is high. This means that the cellular phone addiction risk of higher grade students can be much higher than that of lower grade students. The result of this study can be explained in this context. Therefore, considering the result of this study, 6<sup>th</sup> grade elementary school students can be the most risk group and needed more interest and interventions than any other elementary school students. However, the younger the age of first possession of one's own cellular phone, the probability of cellular phone addictive use is high [12]. Particularly, the greatest risks of problematic or addictive use are found when one's own phone is first obtained at an age of younger than 13 years [20]. The greater dependence of cellular phone exists in Korea [12], and the age of firsts cellular phone possession is getting lower. Therefore, interventions and strategies according to elementary school grade should be developed and applied to prevent and manage cellular phone addiction.

In this study, the students living with parent(s) showed higher score of cellular phone addiction than other students ( $t=1.98$ ,  $p=.048$ ). Family strengths were negative correlation with cellular phone addiction of elementary school students [9]. Parental factors were significantly related to cellular phone addiction of elementary school students, among parental factors, open communication was negative correlation, while problem communication and rejecting/restrictive or permissive/neglecting parenting behavior were positive correlation with cellular phone addiction of elementary school students [21]. However, this study investigate only the family type and most students (86.6%) lived with their parents. Therefore, repetitive studies about family type and cellular phone addiction should be conducted.

In this study, cellular phone addiction according to gender did not showed significant difference. Several studies reported that women

exhibit a higher level of attachment to ad dependence on their cellular phone compared with men [28, 29, 30]. However, other studies reported little or no difference in cellular phone dependence across male and female cellular phone users [25, 31]. Therefore, repeated studies about cellular phone addiction according to gender should be conducted. In additions, most previous studies about cellular phone addiction, like other additions, are lack of clear terminology [32], studies to clarification of terminology also should be conducted along with these studies.

In this study, a negative correlation was observed between self-esteem and cellular phone addiction ( $r=-.367$ ,  $p<.001$ ), and negative correlations were also observed between self-esteem and three areas of cellular phone addiction. These results are consistent with previous studies reporting the negative correlation between self-esteem and cellular phone addiction [16, 19, 21]. Self-esteem is found in the majority of researches on problematic use of cellular phone [21]. The personal trait most consistently associated with addictive behavior is low self-esteem and women with low self-esteem are the most vulnerable group [1]. To prevent and manage cellular phone addiction of elementary school students, various strategies and interventions are needed. Considering the result of this study and previous studies, self-esteem can be the important factor of prediction and control the cellular phone addiction of elementary school students.

In this study, mean scores of self-esteem were 46.74 out of 65.00 (71.91 out of 100.0). This means that elementary school students have generally low level of self-esteem. As mentioned above, many previous studies for addictive behavior including cellular phone addiction showed that the lower the level of self-esteem, the probability of cellular phone addiction is high [1,21]. Addictive cellular phone use is a function of the need for social approval, time dedication writing and reading message, the need for social approval has been associated with low self-esteem [3, 33]. The number of text message is frequently the result of addictive cellular phone use [12]. In additions, cellular phone is the preferred method of accessing the internet [6,12] and about 56 percent of internet users access the web via their cellular phone [6]. Considering these fact, the probability of addictive cellular phone use for internet searching can be also highly associated with low self-esteem students. Cellular phone addiction has been explained using Attachment Theory, insecure attachment styles are associated with low self-esteem, thus, potential



predictors of addictive cellular phone use [34]. This can be consistent with the fact that cellular phone addiction has correlation with loneliness [35] and the need for social approval above mentioned. Therefore, increase of self-esteem should be involved in interventions and strategies to prevent and manage cellular phone addiction of elementary school students.

## 5. CONCLUSIONS

This study was conducted to investigate the cellular phone addiction status and relationships between cellular phone addiction and self-esteem of upper grades elementary school students in today's highly mobile environment .

This study found that the degree of the cellular phone addiction in upper grade elementary school students was generally low but high risk students also existed. Therefore, considering today' highly mobile environment and growing possibility of cellular phone addiction, various interventions and strategies to prevent and manage the cellular phone addiction should be provided for elementary school students and interventions for high risk students of cellular phone addiction should be provided urgently.

This study also found that there were negative correlations between self-esteem and cellular phone addiction of elementary school students in upper grades. Therefore, strategies to increase of self-esteem for elementary school students should be involved in interventions and strategies to prevent and control the cellular phone addiction of elementary school students.

In today's highly mobile environment, cellular phone use has rapidly increased and probability of addictive use of cellular phone also has increased. Therefore, healthcare providers should investigate the degree and related factors of cellular phone addiction and provide interventions to prevent and manage cellular phone addiction based on evidence. Continuous studies to investigate the degree and related factors of cellular phone addiction should be needed. Developing and applying interventions to prevent and manage cellular phone addiction should be also needed for healthy and desirable mobile environment.

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