

Effect of Parental Negligence on Mobile Phone Dependency Among Vulnerable Social Groups: Mediating Effect of Peer Attachment

Psychological Reports
2019, Vol. 122(6) 2050–2062
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DOI: 10.1177/0033294118799339
journals.sagepub.com/home/prx



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Abstract

The purpose of this study was to investigate the association between perceived parental negligence and reliance on mobile phone usage among youth in vulnerable social groups, and whether peer attachment mediates this association. Specifically, we aimed to provide in-depth information on the relationship between perceived parental negligence and mobile phone dependency by examining the mediating effects of three subfactors of peer attachment: communication, trust, and isolation. For this purpose, we analyzed the longitudinal data of 485 elementary school students in grades 4 to 6 who were attending a community children's center. The results were as follows: (1) parental negligence had a statistically significant positive effect on all subfactors of peer attachment; (2) while communication and trust were not significantly related to mobile phone dependency, isolation was related to mobile

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phone dependency; and (3) while perceived parental negligence did not have a direct effect on mobile phone dependency, it did have an indirect effect via isolation (a dimension of peer attachment).

Keywords

Vulnerable social group, parental negligence, peer attachment, mobile phone dependency

Introduction

Mobile phones make many aspects of life more convenient, and they are becoming increasingly accessible to the populace, particularly adolescents. The number of adolescents who own a mobile phone has been found to increase with age (Department of Statistics Korea, 2016). A smartphone is an intelligent mobile device with multiple computer-assisted functions that can help adolescents obtain useful information and interact with their peers. For this reason, they are widely used. However, the increasingly habitual use of smartphones is becoming a major social problem, as functional dependence on smartphones can readily deepen into psychological dependence.

According to the Internet Addiction Survey of 2014, conducted by the Ministry of Science, the risk of smartphone addiction among adolescents was three times than among adults. Furthermore, a sharp increase in this risk was observed compared to the previous year. Adolescents who are experiencing mobile phone dependency spend too much time using their phones on a daily basis, causing them to experience anxiety, nervousness, and feelings of isolation when not using these phones. These side effects of mobile phone dependency can harm adolescents' physical and psychological status by inhibiting growth hormone secretion, disturbing sleep patterns, causing headache and fatigue, and decreasing concentration during periods of increased physical development (Salama, Abou, & Naga, 2004). Additionally, adolescents exhibiting mobile phone dependency have a higher prevalence of depression, anxiety, impulsiveness, aggression (E. Park & Lee, 2015), obsessive compulsive disorder (Ko, 2012), attention degradation (Heo, 2013), low self-esteem (S. H. Jang & Park, 2009), and low self-efficacy (Koo, 2010).

Early adolescence is a transitional developmental period characterized by rapid change. The negative effects of mobile phone dependency—particularly among adolescents, who may be more susceptible than adults (Chang & Yang, 2015)—are likely to worsen as these devices become more engrained in modern society. To gain a better understanding of the causes of such dependency, a longitudinal design is needed. In this study, we examined adolescents from

vulnerable social groups. Studies highlighting the direct effect of poverty or family income have shown that parents from low-income families are generally unable to provide adequate parenting because of economic difficulties—this, according to human capital theory, may result in negligence or abuse (Chung, 2008). According to previous studies, economic problems are closely related to parental negligence, while income is an important predictive factor for parental negligence (Roh, 2013). In fact, the lack of socioeconomic resources is regarded as the most persistent risk of child negligence.

Theoretical background

Parents directly influence their children's growth, development, and socialization, and proper parental nurturing is a critical factor for healthy child development. In other words, proper nurturing by parents leads to a variety of positive developmental outcomes such as achievement of psychological stability (Crouter & Head, 2002). Children who are not properly nurtured by parents tend to exhibit negative development (Woo, 2013).

According to Baumrind (1991), there are four parenting styles: authoritarian, permissive, authoritative, and uninvolved (neglectful). Parents displaying the uninvolved style tend to not have any expectations for or reactions to the child and are largely neglectful. Children whose parents exhibit this style tend to lack goals or motives in life and have little to no self-control. In South Korea, neglect is conceptualized as a form of abuse: according to Article 3 No. 7 of the Child Welfare Act of Korea, child abuse is defined as "the behavior of adults or guardians inflicting physical, psychological, and sexual abuse that can damage the child's health, welfare, or normal development, and the act of child neglect or abandonment." Furthermore, according to the 2014 Child Abuse Case of the National Child Protection Agency, negligence is a common type of abuse, representing 19% of all abuse cases in 2014. It is not easy to predict the severity of neglectful parenting, as it is not as easily recognized as physical abuse. A neglectful parenting attitude might have a strong impact on adolescents' experience of social problems—given that such parents are indifferent to the adolescent's overall development—failing to offer praise or discipline to their child—the adolescent's emotional needs go unmet. Particularly, in early adolescence, neglectful parenting might be a cause of mobile phone dependence, as it enables adolescents to use their mobile phone without restrictions.

We might also infer that experiencing parental negligence in early adolescence, when adolescents rely heavily on their parents in most areas of life, is likely to result in psychological dependence due to their discouragement. Therefore, an uninvolved or neglectful parenting attitude could influence adolescents' mobile phone dependency. There is some evidence in support of this: According to K. H. Kim (2014), who used second-year data from the Korean Children and Youth Panel Survey, middle school students' mobile phone

addiction was related to their experience of child abuse by parents. Adolescents' experience of abuse was not only directly related to their level of mobile phone addiction but also indirectly related via depression. Woo (2013) found that awareness of abuse was associated with greater dependence on mobile phones. Specifically, experience of negligence functioned as an antecedent of mobile phone dependency, so the higher the level of parental negligence, the higher the degree of mobile phone dependency. Based on these previous studies, we sought to understand the relationship between parents' neglectful parenting style and mobile phone dependency, assuming that neglectful parenting does have a significant impact on adolescents' mobile phone dependence.

Generally, adolescents who have experienced abuse have learned negative interaction patterns from their parents, causing them to exhibit inordinately aggressive attitudes or inappropriate responses to others. Furthermore, people who have experienced neglect are used to being alienated from others and therefore have difficulty establishing or maintaining relationships (Wood, Emmerson, & Cowan, 2004). In other words, children who were abused or neglected often acquire inappropriate ways of handling themselves in interpersonal relationships due to the negative relationships they have with their parents, which can jeopardize their relationships with others (e.g., peers).

Indeed, Cho, Kim, and Song (2014) reported that middle school students' experience of abuse had a significant influence on their peer attachment. They found that individuals who had been abused by parents are likely to be alienated, ignored, or rejected by peer groups; have fewer friends; and have low-quality peer relationships in general (Chung, 2008; J. Kim & Choi, 2010). Experiencing continuous abuse also impairs their cognitive functioning, weakening problem-solving skills, and generating a negative bias and worldview, which can lead them to exhibit inappropriate cognitive responses in interpersonal interactions (Ayoub et al., 2006). Children's exposure to abuse at home, particularly refusal of emotional responses (a form of neglect) and violence, also has a negative impact on peer attachment (Finzi, Ram, Har-Even, Shnit, & Weizman, 2001; B. H. Lee, 2007; Zhang & Kim, 2014). These previous findings together indicate that children who have experienced neglect are likely to experience difficulties in establishing relationships with and attachment to peers.

Peer attachment, which is established through close peer relations, is significant because of its positive influence on overall psychological or emotional health. Children who have experienced negative relationships with peers often have difficulty maintaining good relationships and continue to exhibit problem behavior, such as school maladjustment and misbehavior. According to one previous study, children use their mobile phones in order to reduce feelings of anxiety and maintain stable peer relationships. Specifically, Song and Kim (2012) found that the higher the pursuit of peer attachment by adolescents, the greater their dependence on mobile phones. In other words, adolescents with high mobile phone dependence tended to be more immersed in

communicating with their peers or listening to music and playing games with their mobile phone than they were in communicating with family members.

Purpose of the study

The purpose of this study was to determine, using longitudinal data from a sample of fifth- and sixth-grade elementary school students, the influence of perceived parental negligence on mobile phone dependence in vulnerable social groups of adolescents and to confirm the mediating effect of peer attachment on this relationship. More specifically, we examined whether the effect of parental negligence on mobile phone dependency is mediated by the subfactors of peer attachment in order to provide more in-depth information on the relationship between these variables. The following research questions were addressed in this study:

First, does adolescents' perceived parental negligence influence their peer attachment and mobile phone dependency?

Second, does adolescents' perceived parental negligence influence their mobile phone dependency via the mediating effect of peer attachment?

Based on the previous research, we hypothesized that perceived parental negligence has a direct effect on mobile phone dependence and that all three subfactors of peer attachment serve as mediators of this relationship.

Method

Participants

The data used in the present study were taken from the National Youth Policy Institute (NYPI) Survey, a longitudinal study of elementary school students (fourth grade) attending a local children's center conducted from 2014 to 2016. We used a longitudinal sample of 485 participants. The mean age of these participants was 10.98 years (standard deviation (*SD*) = .16), and 49.5% of them were male. Regarding the educational level of participants' parents, the largest proportion of participants had fathers with a high school diploma or less (48.3%), followed by an undergraduate degree (18.5%). The largest proportion of participants also had mothers with a high school diploma or less (51.7%), followed by an undergraduate degree (17.3%).

Measures

Negligence. Parental negligence was measured using the scale developed by the NYPI, which refers to the child abuse questions of Huh (2000) and S. W. Kim (2003). The scale contains four questions, each rated on a four-point Likert-type scale (1 = *strongly true for me* to 4 = *not at all true for me*). An example question is "My parents are highly interested in how I do in school." The reliability of this

scale (Cronbach's alpha) for the current study was .76. This scale was used recently in Y. J. Park and Sung's (2014) study, which found that this scale predicted psychological and emotional problems and school maladjustment in adolescents.

Peer attachment. Peer attachment was measured using Armsden and Greenberg's (1989) Inventory of Parent and Peer Attachment (IPPA). The IPPA contains three subscales: communication, trust, and isolation. All items are measured on a four-point Likert-type scale (1 = *strongly true for me* to 4 = *not at all true for me*). Example questions for communication, trust, and isolation are "I talk to my friends about my concerns and problems" (Cronbach's alpha = .77), "I can open my heart to my friends whenever I want to" (Cronbach's alpha = .79), and "I feel lonely even though I am with my friends" (Cronbach's alpha = .67), respectively. Other studies in South Korea have applied the IPPA to Korean samples and verified its reliability as a measure of peer attachment (e.g., J. C. Kim, Seong, & Choe, 2010; Oak, 1998).

Mobile phone dependence. S. Lee et al. (2002) developed the Adolescent Mobile Phone Dependence Scale, which contains seven items, to measure mobile phone dependence. Each item is rated on a four-point Likert-type scale (1 = *strongly yes* to 4 = *strongly no*; i.e., reverse scoring). An example item is "I feel isolated when my mobile phone is not with me." In the current study, the reliability (Cronbach's alpha) of this mobile phone dependence scale was .91. Studies on Korean adults found that this scale had significant associations with measures of depression (K. H. Kim, 2014), thereby providing evidence of its validity for the Korean population.

Analysis

Structural equation modeling (SEM) was used to assess the hypothesized structural relationships among the latent variables. SEM was selected because it allows for specification of directionality among the variables of interest and is suitably flexible for testing causal relationships.

Model fit was assessed using several criteria, including the nonnormed fit index (NNFI; Bentler & Bonett, 1980), comparative fit index (CFI; Bentler, 1990), and root mean square error of approximation (RMSEA; Steiger & Lind, 1980). Values of less than .08 for the RMSEA and close to .95 for the NNFI and CFI were used to determine a good-fitting model. All analyses were conducted using AMOS 15.0.

Table 1. Descriptive statistics and correlations among study variables.

	1	2	3	4	5
1. Parental neglect	—				
2. Communication	−0.33***	—			
3. Trust	−0.32***	0.72***	—		
4. Isolation	0.14**	−0.13**	−0.16**	—	
5. Mobile phone dependency	0.15**	−0.03	−0.10*	0.27***	—
M	6.93	8.66	8.90	6.42	14.38
SD	2.37	2.01	2.16	2.22	4.73
Minimum	4.00	3.00	3.00	3.00	7.00
Maximum	16.00	12.00	12.00	12.00	28.00
Skewness	0.45	−0.09	−0.36	0.35	0.63
Kurtosis	−0.45	−0.01	−0.19	−0.30	0.55

Note: SD: standard deviation.

* $p < .05$; ** $p < .01$; *** $p < .001$.

Results

The correlations, means, SDs, skewness, and kurtosis of all study variables are shown in Table 1. Significant correlations were found among the study variables. Of particular interest, parental neglect was negatively correlated with communication ($r = -.33$; $p < .001$) and trust ($r = -.32$; $p < .001$). In contrast, it was positively correlated with isolation ($r = .14$; $p < .01$) and mobile phone dependency ($r = .15$, $p < .01$). Based on the guidelines for severe nonnormality (i.e., skewness > 3 ; kurtosis > 10) proposed by Curran, West, and Finch (1996), the normality assumption of all the variables was met, as their skewness and kurtosis values were less than 3 and 10, respectively.

Testing the measurement models

Before conducting the SEM, the overall measurement model was examined. The model yielded a good fit to the data ($\chi^2(160) = 466.38$, CFI = .959, NNFI = .954, RMSEA = .063). The factor loadings for the measurement model were .63 to .71 for communication, .67 to .79 for trust, .44 to .87 for isolation, .67 to .87 for parental neglect, and .56 to .87 for mobile phone dependency.

Testing the mediational model

We tested two mediational models. The initial structural model, which reflected a partial mediating effect, contained direct and indirect paths from neglectful parenting to dependency via the three mediators. The second structural model represented a full mediational model, wherein there was no direct effect of parental neglect on mobile phone dependency.

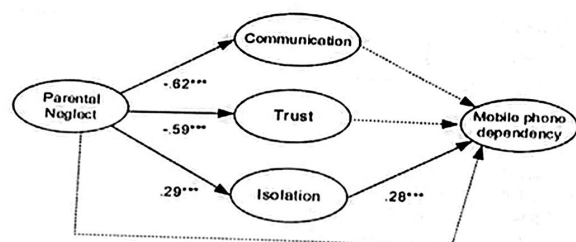


Figure 1. Final model estimation with standardized coefficients. *** $p < .001$.

Both models showed a good fit to the data: partial mediational model, $\chi^2(163) = 742.55$, CFI = .958, NNFI = .956, RMSEA = .057 and full mediational model, $\chi^2(164) = 744.74$, CFI = .947, NNFI = .904, RMSEA = .076. A χ^2 difference test was conducted to determine which was the better fitting model. The χ^2 difference value was statistically significant ($p < .05$): $\Delta\chi^2(1) = 2.195$ and favored the partial mediational model. Thus, we chose the partial mediational model as the final theoretical model. The fit of the final model was deemed acceptable based on the three fit indices chosen. The standardized parameter estimates for this model are presented in Figure 1.

The results showed that parental negligence exerted significant effects on all three subfactors of peer attachment, whereas only isolation had a significant effect on mobile phone dependency. We tested whether there were significant direct and indirect effects using Preacher and Hayes' (2008) nonparametric bootstrapping approach. The bootstrap results indicated that parental neglect had a significant indirect effect on mobile phone dependency via isolation ($\beta = .081$, $p < .01$).

Discussion

This study examined the influence of perceived parental negligence on mobile phone dependency among adolescents from vulnerable groups and the mediating effect of peer attachment on this relationship. To analyze these relationships, we used longitudinal data of fourth- to sixth-grade elementary school students who attended a local child center. The following results were obtained.

First, parental negligence significantly influenced all subscales of peer attachment. This result implies that parental childrearing attitude has a significant relationship with adolescents' peer attachment (Y. Jang & Eom, 2009), which supports the result of a previous study (Noh, Huh, & Hong, 2003). Particularly, Noh et al. (2003) found that children tend to have a low level of intimacy with peers and higher anxiety when subjected to abuse or negligence by parents.

Second, among the peer attachment subscales, communication and trust did not appear to have statistically significant effects on mobile phone dependency, whereas isolation did. According to a previous study (Kang, 2013), adolescents have strong relationship needs. When such needs are not met, they look for ways to indirectly satisfy these needs. Thus, students with poor peer attachment may go online to immerse themselves in the Internet, eventually becoming addicted to it (Y. Kim & Cho, 2016). More specifically, they may strive to satisfy their needs in a virtual world or get attention from others via social networking service (SNS) activities, which may cause them to excessively use smartphones. Studies have in fact shown that adolescents who express lower satisfaction with peer relationships, have less friends, and have weaker emotional bonds with peers who have higher levels of Internet addiction (Y. Kim, 2005). In the same vein, Roh (2013) argued that students with poor peer relationships try to establish and maintain peer relations via SNS on their smartphones, rather than via face-to-face interaction, which increases their use of and makes them more dependent on smartphones.

Third, perceived parental negligence did not appear to directly influence the mobile phone dependency. Rather, the effect was mediated by peer attachment. Specifically, parental negligence influenced mobile phone dependency only via the mediating role of isolation (a subfactor of peer attachment). This suggests that children who have experienced parental neglect are more likely to fail to establish close relationships with peers and become alienated from others (Wood et al., 2004). To try to resolve the difficulties stemming from their unstable peer relationships and ease their feelings of loneliness, these adolescents may rely more on their smartphones (Y. Kim & Cho, 2016).

Previous studies found that the greater the neglectful parenting attitude of parents, the more their children will come to depend on mobile phones (Chang & Yang, 2015; Woo, 2013). Thus, neglectful parenting attitudes have been found to directly influence the mobile phone dependency; however, we found that isolation has a mediating effect on this relationship. It is therefore important to consider both the indirect and direct effects when studying these relationships.

The findings of the current study must be interpreted in light of some limitations. First, the study relied on self-reported data. Although self-reports do offer a unique source of information regarding mobile phone dependency, it remains possible that the levels of dependency are underreported or overreported. Second, the current study was limited to individual background and psychological variables and did not examine contextual variables. School and family contexts should be considered in future studies examining mobile phone dependency. Despite these limitations, the results of this study highlight the mediating role of peer attachment in the relation between parental negligence and mobile phone dependency, as well as the long-term effects of parenting neglect and the mediators on later mobile phone dependency.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This work was partially supported by the Hankuk University of Foreign Studies Research Fund granted to Sukkyung You.

Ethical Approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. The entire survey was reviewed and approved by a professional panel of school counselors before administration.

Informed Consent

Informed consent was obtained from all individual participants included in the study.

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References

- Armsden, G. C., & Greenberg, M. T. (1989). *Inventory of parent and peer attachment: Revised manual* (Unpublished revised version). University of Washington, Seattle, WA.
- Ayoub, C. C., O'Connor, E., Rappolt-Schlichtmann, G., Fischer, K. W., Rogosch, F. A., Toth, S. L., & Cicchetti, D. (2006). Cognitive and emotional differences in young maltreated children: A translational application of dynamic skill theory. *Development and Psychopathology, 18*(3), 679-706.
- Baumrind, D. (1991). Parenting styles and adolescent development. In J. Brooks-Gunn, R. Lerner, & A. C. Peterson (Eds.), *The encyclopedia of adolescence* (pp. 746-758). New York, NY: Garland.
- Bentler, P. M. (1990). Comparative fit indices in structural models. *Psychological Bulletin, 107*, 238-146.
- Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin, 88*, 588-606.
- Chang, C., & Yang, H. (2015). The effects of parental neglect on middle school students' mobile phone dependency: Mediating roles of self-esteem and social withdrawal. *Social Science Research, 31*(2), 133-156.
- Cho, M. K., Kim, C. K., & Song, H. J. (2014). The structural relationship and latent mean analysis of gender among abuse, peer attachment, self-respect, depression, and aggression for middle school students. *Journal of Youth Welfare, 16*(2), 54-79.

- Chung, I. J. (2008). Developmental pathways from child abuse to peer rejection. *Korean Journal of Child Studies*, 29(4), 79-95.
- Crouter, A. C., & Head, M. R. (2002). Parental monitoring and knowledge of children. In M. Bornstein (Ed.), *Handbook of parenting: Vol. 3: Becoming and being a parent* (2nd ed., pp. 461-483). Mahwah, NJ: Erlbaum.
- Curran, P. J., West, S. G., & Finch, J. F. (1996). The robustness of test statistics to nonnormality and specification error in confirmatory factor analysis. *Psychological Methods*, 1(1), 16-29.
- Department of Statistics Korea. (2016). *Research on the Current State of Mobile Phone Dependency*. Seoul, Korea.
- Finzi, R., Ram, A., Har-Even, D., Shnit, D., & Weizman, A. (2001). Attachment styles and aggression in physically abused and neglected children. *Journal of Youth and Adolescence*, 30(6), 769-786.
- Heo, G. (2013). A study on the structural relationship among cell phone dependency, self-control ability, and attention with higher-order latent growth modeling. *The Journal of Educational Information and Media*, 19(4), 861-879.
- Huh, M. Y. (2000). The study for the development and validation of the 'Parenting Behavior Inventory' perceived by adolescents (Unpublished doctoral dissertation). Ewha Womans University, Seoul, South Korea.
- Jang, S. H., & Park, Y. J. (2009). The relations among teenagers' mental health, self-control, and self-esteem according to their mobile phone addiction. *The Journal of Korean Educational Forum*, 8(3), 25-41.
- Jang, Y., & Eom, Y. (2009). Effects of parenting behavior and parent-adolescent communication on adolescents' attachment with parents and peers. *Korean Journal of Youth Facility & Environment*, 7(4), 3-16.
- Kang, M. J. (2013). Identity and intimacy of adolescents and young adults: Differences based on the use of the social media. *Studies of Korean Youth*, 20(6), 1-28.
- Kim, J., & Choi, J. (2010). Adolescents' individual change in overt aggression and internalizing behavior problems and the effect of close friend variables. *Studies of Korean Youth*, 21(1), 123-148.
- Kim, J. C., Seong, G. J., & Choe, W. H. (2010). Effects of parents, teachers and friends' attachment on aggression in early adolescence. *The Journal of Child Education*, 19, 97-113. [Mismatch]
- Kim, K. H. (2014). Effects of middle school students' perceived child abuse on mobile phone addiction: Testing mediating effect of depression. *Journal of School Social Work*, 29, 98-121.
- Kim, S. W. (2003). *The effect of social support on abused children's adjustment* (Unpublished master's dissertation). Seoul National University, Seoul, South Korea.
- Kim, Y. (2005). *Construction of a model of Internet-addicted adolescents' mental health* (Unpublished doctoral dissertation). Chung-Ang University, Seoul, South Korea.
- Kim, Y., & Cho, G. (2016). The mediating effects of peer relationship on the relationship between parent-adolescent communication and smartphone overindulgence of high-school students. *Journal of Parent Education*, 8(1), 1-14.
- Ko, C. S. (2012). The effects of addictive cell-phone use of adolescence on mental health. *Youth Culture Forum*, 30, 8-36.

- Koo, H. Y. (2010). Cell phone addiction in high school students and its predictors. *Child Health Nursing Research, 16*(3), 203-210.
- Lee, B. H. (2007). A study on the child abuse by their parents and child adaptation. *Journal of Education & Culture, 13*(1), 99-122.
- Lee, S., Kim, H., Na, E., Lee, S., Kim, S., Bae, J., Yang, J. (2002). *A study of adolescents' cellphone usage*. Seoul, South Korea: Mental Health Research Institute, Samsung Life Public Welfare Foundation.
- Noh, K. S., Huh, M., & Hong, H. J. (2003). A study of relationship between adolescent attachment patterns and parenting behaviors. *Journal of Korean Neuropsychiatric Association, 42*(1), 116-123.
- Oak, J. (1998). *Relationship between secure attachment and depressive tendencies among adolescents mediated by perceived self-efficacy* (Unpublished doctoral dissertation). Ewha Women's University, Seoul, South Korea.
- Park, E., & Lee, E. (2015). The longitudinal structural relationship between mobile phone dependency, mental health, and school life adjustment. *Studies on Korean Youth, 26*(1), 171-193.
- Park, Y. J., & Sung, H. J. (2014). Caregivers on children's school adjustment: Focusing on the mediating effects of depression and aggression. *Korean Journal of Social Welfare Research, 46*, 85-114.
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods, 40*(3), 879-891.
- Roh, S. Z. (2013). Analysis of the structural relationships among environmental and personal-psychological factors, smartphone usage motivation affecting high-school student's smartphone addiction. *The Journal of Educational Information and Media, 19*(4), 659-691. [Mismatch]
- Salama, O. E., Abou, E. I., & Naga, R. M. (2004). Cellular phones: Are they detrimental? *The Journal of the Egyptian Public Health Association, 79*, 197-223.
- Song, M. R., & Kim, S. Y. (2012). The relationship among peer attachment, ego-resilience and mobile phone dependency in middle school students. *Youth Culture Forum, 32*, 65-89.
- Steiger, J. H., & Lind, J. M. (1980, June). *Statistically based tests for the number of common factors*. Paper presented at the Annual Meeting of the Psychometric Society, Iowa City, IA.
- Woo, S. J. (2013). The effects of parental abuse and neglect, and children's peer attachment on mobile phone dependency. *Family and Environment Research, 51*(6), 583-590.
- Wood, J. J., Emmerson, N. A., & Cowan, P. A. (2004). Is early attachment security carried forward into relationships with preschool peers? *British Journal of Developmental Psychology, 22*(2), 245-253.
- Zhang, G. F., & Kim, Y. M. (2014). Influence of parental child abuse on peer attachment among adolescents: Focused on mediating effects of self-esteem and aggression. *Public Policy Research, 31*(2), 101-130.

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