

# Factors Influencing on-line Game Addiction of Children

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## Abstract

**Background/Objectives:** The purpose of this study was to investigate factors contributing to on-line game addiction in 3rd, 4th, 5th, 6th graders living in 2 cities of Korea.

**Method/Statistical Analysis:** This study applied cross-sectional research design with a structured questionnaire. The subjects were 381 elementary school students in Korea. Data were collected after describing the purpose and contents to the students and were analyzed using SPSS 25.0 program.

**Findings:** The relative influence toward the children's ego-resilience was shown in the order of importance as follows; trait anxiety, gender, internet time of use, perceived home atmosphere, and satisfaction with school life.

**Improvements/Applications:** From the study, on-line game addiction appeared to be influenced by multiple factors such as gender, perceived atmosphere, satisfaction of school life, Internet time of use and trait anxiety and These variables should be considered when developing nursing interventions for online game addiction.

**Keywords:** Children, Anxiety, Resilience, Game, Addiction.

## Introduction

In modern society, the Internet is now an indispensable medium for information acquisition, communication, entertainment, and so on. In particular, Korea has the world's best high-speed Internet communication network <sup>[1]</sup>, which creates conditions for anyone to receive internet service conveniently. Also digital games tend to draw more and more time, money and energy from game players, and as a result, they can have negative life consequences such as game addiction again<sup>[2]</sup>.

Online game addiction is known to cause problems for game users, such as obsessive use, real-life cognitive

impairment, resistance, and daily disorders represented by poor academic performance and attention-intensive difficulties. In particular, online game addiction among teenagers is emerging as a research topic that should be paid more attention to.

The reason is that the internet use rate of Korean teenagers is close to 100% and the game population is mostly teenagers.

Now games interfere with the many hours that many children have to spend on growth and development, and affect the lifestyles of them. The impact of these online games on teenagers, especially children, may be more serious than the facts that appear in the results of various studies<sup>[3]</sup>.

Drawing the attention of both parents and schools is the time it takes to play online games in the daily lives of children and teens. Most existing data claim that the average amount of time a player takes to play online games is about 25 hours a week<sup>[4]</sup>.

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Often on the psychological aspect, the paradigm of Internet game addiction is related to the amount of time. Many heavy gamers actually show symptoms of other behavioral addictions, including similar interpersonal and social risks-excessive enthusiasm for games<sup>[5]</sup>.

Some researchers see the reason why children and teens play computer games is that they prefer computer games to friends, care for virtual friendships, prefer behavior, overcome loneliness, and avoid problems. And they find that there was a negative meaningful relationship among game addiction, ego-resilience of their children, and participation in social activities with their parents<sup>[6]</sup>.

Resilience is defined as the process of adjusting when a child is exposed to adverse conditions and is conceptualized in terms of protective factors related to risk<sup>[7]</sup>. A study showed that groups with high resilience were adaptable to school life and did not show good psychopathic symptoms than those with low resilience<sup>[8]</sup>. Through resilience, children can get positive results despite adversity, so it is important to recognize protection factors such as resilience that help them overcome adversity<sup>[9]</sup>.

In summary, there is evidence that online game addiction during childhood, when growth and development are required, can be compromised in relation to a child's home and school life as a whole. Therefore, it is necessary to gain insight into how family factors, school life-related factors, anxiety, and ego-resilience affect online-game addiction. The purpose of the study was to analyze relevant variables to gain insight into the causes and potential protection strategies of children's online game addiction.

## Method

**Study design and sample:** This study is a research study applying a cross-sectional design using a structured questionnaire. The investigator visited three elementary schools located in South Korea, to explain the purpose of the study to students and teachers. They obtained written consent from 400 voluntary participants, who then received completed questionnaires. The self-reported questionnaire took an average of 17 minutes.

The questionnaire was managed with the help of teachers in the classroom under the same environmental conditions as the test. The researchers collected each questionnaire as soon as the children completed it. 381

copies were analyzed using SPSS Win program except 19 copies of which were not completely filled in or duplicated.

**Instruments:** Online-game addiction was measured using a scale developed by the Korean National Information Society Agency (2006)<sup>[10]</sup>. The scale consisted of statements about current gaming behavior rather on self-recognition of game addiction. The questionnaire contained 20 items and each item was scored using a 4-point scale with respect to frequency. The reliability of this as determined by Cronbach's  $\alpha$  was 0.89 at time of its development and 0.94 in the present study.

Ego-resilience was assessed using a scale developed by Block J. and Kremen, AM<sup>[11]</sup> and composed of 14 questions with the self-reported 4-point scale. The higher the score, the stronger level of the ego-resilience.

Trait Anxiety was measured by Spielberger's Trait Anxiety Inventory for Children(TAIC)<sup>[12]</sup>.

## Results and Discussion

**Table 1: On-line game addiction according to general characteristics of children(N=381)**

	Variables	n(%)
Gender	Boy	172(45.1)
	Girl	209(54.9)
Class year	3rd	95(24.9)
	4th	91(23.9)
	5th	92(24.1)
	6th	1036(27.0)
Perceived home atmosphere	Not harmonious	5(1.3)
	Ordinary	58(15.2)
	Harmonious	146(38.3)
	Very harmonious	172(45.1)
Communication with parents	Difficult	8(2.1)
	Normal	105(27.6)
	Comfortable	268(70.3)
Satisfaction with school life	Satisfied	299(78.5)
	Average	76(19.9)
	Dissatisfied	6(1.6)
School score	High	126(33.1)
	Middle	228(59.8)
	Low	27(7.1)
Economic status	High	114(29.9)
	Middle	251(65.9)
	Low	16(4.2)

	Variables	n(%)
Parents	Both parents	341(89.5)
	Other	40(10.5)
Internet time of use	1hr↓	210(55.1)
	1-2 hr	71(18.6)
	2-3 hr	44(11.5)
	More than 4 hr	56(14.7)

**General characteristics of the children:** The questionnaire included items related to gender, class year, perceived atmosphere, communication with parents, satisfaction with school life, school score, economic status, parents and internet using time. 55.1% of children used the Internet for less than an hour a week [Table 1].

Characteristics of On-line game addiction, ego-resilience and anxiety of children.

The average score of on-line game addiction was 28.66 and anxiety averaged 31.53. According to a 2015 survey on Internet addiction, the risk group for Internet addiction was 6.9 percent (2,621 people) of all Internet users (3-59 years old), down 0.1 percent from the previous year's 7.0 percent).

Given that these results are assessed to have slightly higher levels of trait anxiety with a score of 39 or higher, the level of trait anxiety among children studied is not considered to be on average worrisome.

The average score of ego-resilience was 38.79 as seen in Table 2.

**Table 2: On-line game addiction, anxiety, and ego-resilience of children (n=381)**

Variables	M	SD	Min	Max
On-line game addiction	28.66	10.16	20.00	70.00
Anxiety	31.53	7.29	20.00	54.00
Ego-resilience	38.79	5.67	13.00	52.00

**Correlations between Online game addiction and other variables:** Table 3 exhibits the relationship between online game addiction and other variables. Boys were more likely to be addicted to online games than girls. The more harmonious the perceived atmosphere games. the more comfortable the communication with parents and the more satisfied with school life,the less likely it was to become addicted to online game.

The lower the level of schooling, the lower economic level, the absence of both parents, the longer internet

time of use, the higher the level of anxiety and the lower the level of schooling were associated with higher online game addiction.

Teenagers' Internet addiction is a social and environmental factors, such as nuclear families, the increase of working couples, the education environment based on admissions and the absence of play culture. Young (1998)<sup>[13]</sup> also said that the relevant factors of youth Internet addiction are the environmental characteristics of the family, the environmental factors of school, and the behavior of personal problems.

This can be seen as somewhat similar to the correlation results of this study, and is consistent with studies showing that boys are more addicted to online games than girls in gender characteristics<sup>[14]</sup>.

**Table 3: Correlations between On-line game addiction & other variables (n=381)**

Variables	On-line Game Addiction
Sex	-.179**
Grade	-.012
Perceived home atmosphere	-.316**
Communication with parents	-.284**
Satisfaction with school life	.304**
School score	.232**
Economic status	.214**
Parents	-.097
Internet time of use	.214**
Anxiety	.373**
Ego-resilience	-.303**

\* p< .01 . \*\* p<.001

**Factors Influencing ego-resilience of children:** Table 4 shows hierarchical multiple regression analysis to identify the factors affecting the ego-resilience of subjects. Gender children's perceived atmosphere, satisfaction with school life, internet time of use, anxiety explained 54.6% of the online game addiction. The most important factors affecting the online game addiction of children were followed by anxiety ( $\beta = .194$ ), gender( $\beta = -.179$ ), internet time of use ( $\beta = .178$ ), perceived atmosphere ( $\beta = -.117$ ), satisfaction with school life ( $\beta = .116$ ).

These results are similar to those of this study, which gender is a one of major factors in online game addiction. In this study, the less harmonious the home atmosphere was perceived to be, the higher the degree

of online game addiction, and these results were similar to the result preceding study<sup>[15]</sup>.

A study show that parent-related variables have not affected online game addiction, and that parental attachment has played no role in alleviating online game addiction, which differs from the results of this study<sup>[16]</sup>.

Among the factors related to school life, the lower the satisfaction level of school life, the higher the score of online game addiction, which is in line with a study by Park and Kim (2005)<sup>[17]</sup>, who claim that online games are a virtual place to solve stress caused by school life or grades. There is also a similarity to the argument that lack of leisure in life undermines life satisfaction and is linked to online game addiction<sup>[18]</sup>.

Therefore, it is very important to provide opportunities for offline leisure activities and to spread various cultural activities that can be experienced in order

Time spent on the Internet has been linked to online game addiction, similar to a 2014 study on Internet addiction. According to the results, the average daily Internet use time for teenagers was 138.6 minutes per week, compared with 189.1 minutes for those at risk of addiction and 225.1 minutes for those at high risk <sup>[19]</sup>.

Online game playing time was an important predictor of game addiction, supporting many aforementioned research results. These studies explain that a key factor in increasing online game addiction is the time and duration of the day, and that teenagers who spend more time playing games are more likely to be trapped in the world of virtual online games<sup>[20]</sup>.

When considering the relationship between anxiety and online game addiction, this study found that trait anxiety is a major variable of online game addiction, similar to the results of a study of elementary school students<sup>[21]</sup> that online games are related to anxiety, family relationships, etc

The negative experience during the growth period was shown to raise the level of anxiety and have indirect effects as well as direct effects on the risk of online game addiction, confirming the need to approach psychological and mental health issues of negative experience and anxiety for teenagers.

The relationship between anxiety and online game addiction is similar to other research, which was reviewed through prior research. The study identified the effects of anxiety associated with negative growing experiences on Internet addiction<sup>[22]</sup>.

Until now, research on the relevance of children's online game addiction to resilience has been very insufficient, making it difficult to compare other results on par with the results of this study.

Resilience did not appear to be a significant influence on online game addiction in this study, and these results differ from previous studies showing a negative correlation between resilience and smartphone addiction.

These results are somewhat different from existing literature that children with low levels of resilience often experience negative emotions and do not achieve successful adaptation by expressing undifferentiated behaviors due to their inability to exercise flexible self-control. Behaviors due to their inability to exercise flexible self-control<sup>[23]</sup>.

It is speculated that the online game addiction level of the study is not likely to be serious, and that this may not have highlighted the variable of resilience.

Rather than diagnosing game addiction as a problem for young children, it is reasonable to assess the possibility and trend of developing game addiction in the future.

**Table 4: Factors influencing On-line game addiction (n=381)**

	Variables	B	SE	β	t	p	VIF	Tolerance
M O D E L 1	Gender	-3.699	.922	-.181	-4.013	.000	.974	1.027
	Perceived home atmosphere	-2.239	.687	-.168	-3.259	.001	.747	1.339
	Communication with parents	-2.003	1.030	-.100	-1.944	.053	.746	1.340
	Satisfaction with school life	3.471	1.059	.156	3.278	.001	.874	1.145
	School score	2.017	.841	.115	2.397	.017	.867	1.154
	Economic status	1.254	.954	.065	1.314	.190	.819	1.222
	School score	1.893	.421	.207	4.493	.000	.935	1.070
R2 =.508, Adj R2 =.245035, F=18.58 (p<.001)								
M O D E L 2	Gender	-3.648	.903	-.179	-4.042	.000	.966	1.035
	Perceived atmosphere	-1.552	.698	-.117	-2.223	.027	.687	1.456
	Communication with parents	-1.137	1.028	-.057	-1.106	.269	.713	1.403
	Satisfaction with school life	2.579	1.056	.116	2.442	.015	.835	1.198
	School score	1.410	.840	.080	1.680	.094	.827	1.209
	Economic status	.998	.937	.052	1.066	.287	.807	1.239
	School score	1.624	.416	.178	3.907	.000	.914	1.094
	Internet time of use	.270	.069	.194	3.889	.000	.760	1.315
	Anxiety	-.163	.089	-.091	-1.829	.068	.761	1.315
	Ego-Resilience							
R2 =.546, Adj R2 =.281, F=10.54(p<.001)								

**Conclusion**

This study can be meaningful in that it has taken a comprehensive approach to the general characteristics of children, the home environment, the school environment, and psychological factors as an influence on online game addiction. The most important factor influencing resilience of children was trait anxiety followed in order by gender, internet time of use, perceived home atmosphere, and satisfaction with school life. These variables accounted for 28.1% of the children’s resilience.

Based on the risk factors of online game addiction among children shown in the above research, it is believed that the development of preventive nursing intervention programs and treatment programs for the problem of online game addiction in children that may increase due to the information age can be carried out.

**Ethical Clearance:** Not required

**Source of Funding:** Self

**Conflict of Interest:** Nil

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