

# An Analysis Study on Correlation of Internet Addiction and Smartphone Addiction of Teenagers

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**Abstract**— It is known that, for teenagers, internet addiction ratio is proportional to smartphone addiction. It means that, for same school age group, the higher internet addiction ratio is, the higher smartphone addiction ratio is. The research purpose of this paper is to investigate correlation of internet addiction and smartphone addiction of teenagers. For this purpose, extensive internet addiction survey works of NIA(National Information Society Agency of Korea) are gathered and analyzed. Based on exhaustive statistical analysis, it is concluded that there is a meaningful correlation between internet addiction and smartphone addiction.

**Keywords**—internet addiction; smartphone addiction; correlation analysis

## I. INTRODUCTION

With aid of advances in new internet and smart technologies, our life becomes more abundant and joyful than ever. Nowadays, most people rely on such new technologies for every aspect of their lives. For example, we can read online news anytime anywhere from all over the world. We also can check stock price instantly every day. With navigation menu in smartphone, we do not need paper map anymore.

As everything has both good side and bad side, new technologies do not always give benefits. Sometimes such new technologies give us unpleasant things. Those things are side effects that are typically personal information violation, copyright infraction, noxious information distribution, internet addiction, etc. No matter how you want or not, we need to deal with such side effects. Passively we need to cure all of physical and economic damages from those side effects. Actively we need to prevent those side effects in advance with various types of education and programs.

In this paper, internet addiction and smartphone addiction are concerned. Recent research reports show that both internet addiction and smartphone addiction ratio are going higher year by year[1,2,3,4]. It is believed that internet addiction ratio is proportion to smartphone addiction since both addictions have some common symptoms. However, in the literature, there is no research work on correlation between internet addiction and smartphone addiction.

The research purpose of this paper is to investigate correlation between internet addiction and smartphone addiction. To the best of my knowledge, there is no research

work on correlation between internet addiction and smartphone addiction. For fulfillment of this research purpose, massive and national survey works on internet addiction and smartphone addiction from Korea Information Society Agency(<http://www.nia.or.kr>) are gathered and analyzed.

This paper is organized as follows. In Section 2, definition and characteristics of internet addiction and smartphone addiction are presented. In Section 3, first of all, correlation analysis methods are presented and then correlation analysis results are presented. In Section 4, conclusions and further research works are discussed.

## II. RELATED WORKS

### A. Definition of Internet Addiction

So far, there is no uniform agreement on definition of internet addiction. In this section, some of definitions from previous research works are introduced as follows.

In [5], internet addiction is defined as “a proposed but unproven disorder that involves excessive Internet use to the extent that it interferes with daily life. Excessive use may be determined by losing track of time, neglecting basic drives such as hunger and sleep, withdrawal systems, and negative behaviors including anger, fatigue and social isolation”.

In [6], internet addiction is defined as “internet addiction is characterized by excessive or poorly controlled preoccupations, urges or behaviors regarding computer use and internet access that lead to impairment or distress. The condition has attracted increasing attention in the popular media and among researchers, and this attention has paralleled the growth in computer (and Internet) access”.

On the other hand, in [7], internet addiction is defined as “an impulse control disorder, which does not involve use of an intoxicating drug and is very similar to pathological gambling”.

### B. Characteristics of Smartphone Addiction.

In [8], CNN has reported 10 signs of smartphone addiction are presented.

1. When you check your phone to see the current temperature instead of opening a window, and/or when you

check your phone to see the current time instead of looking at the watch that's right on your wrist.

2. When you have to consciously say to your spouse "Let's put our phones away" while watching TV because it's more common that they're out than away.

3. If you are answering emails in a dimly lit reception area while waiting for your massage therapist to destress you, you may have a problem.

4. When your kids have to text you their carry-out orders because you've lost the ability to retain information that is not received on your phone.

5. When you hope you hit a bunch of red lights on the way home so you can comment on a Facebook post.

6. When one of your daughter's first drawings of you has a BlackBerry in your hand.

7. When you wake up, you grab your phone and check it before you get up to pee.

8. When you drop a phone on your face because you're dozing off.

9. When you choose your clothing based on the best pockets to hold your phone.

10. When you are staring at photos you took on your phone while the actual moment is taking place right in front of you.

### III. CORRELATION ANALYSIS BETWEEN INTERNET ADDICTION AND SMARTPHONE ADDICTION

In this section, correlation analysis between internet addiction and smartphone addiction is presented. First, survey analysis methods are introduced. Second, analysis results from statistical works are presented.

#### A. Survey Analysis Methods

The research purpose of this study is to identify correlation between internet addiction and smartphone addiction. For accomplishment of this research purpose, according to 4-year(year of 2011 to 2014) national exhaustive survey works on internet addiction and smartphone addiction in Korea from Korea Information Society Agency[1,2,3,4], correlation is analyzed. For correlation analysis, so called Cross Analysis method is adopted. The Cross Analysis is very useful method to check difference verification between groups.

The following Table 1 shows internet addiction ratio and smartphone addiction of teenagers. In this paper, internet addiction and smart phone addiction user include two groups, high-risk group and potential-risk group, respectively. According to categorization of internet addiction and smartphone addiction from Korea Information Society Agency, there are 3 groups depending on internet addiction and smartphone addiction degree: high-risk group, potential-risk group, and general user group, respectively.

TABLE 1. RATIO OF INTERNET ADDICTION AND SMARTPHONE ADDICTION

	Ratio of Internet Addiction	Ratio of Smartphone Addiction	ALL	$\chi^2(p)$
2011	2536	2536	5072	17.241** (.002)
	10.4%	11.4%	10.9%	
2012	3187	3187	6374	
	10.7%	18.4%	14.6%	
2013	3671	3671	7342	
	11.7%	25.5%	18.6%	
2014	2998	2998	5996	
	12.5%	29.2%	20.9%	
ALL	12392	12392	24784	
	11.3%	21.1%	100.0%	

\*\*p<.01

Fig. 1 shows graph of ratio of internet addiction and smartphone addiction of teenagers.

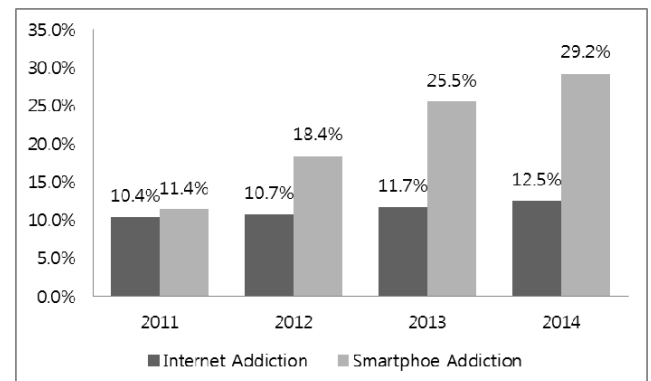


Fig. 1. Graph of Internet Addiction and Smartphone Addiction Ratio

As we can see in Table 1, for year of 2011, internet addiction ratio and smartphone ratio of teenagers are 10.4% and 11.4%, respectively. For year of 2012, internet addiction ratio and smartphone ratio of teenagers are 10.7% and 18.4%, respectively. For year of 2013, internet addiction ratio and smartphone ratio of teenagers are 11.7% and 25.5%, respectively. Finally, for year of 2014, internet addiction ratio and smartphone ratio of teenagers are 12.5% and 29.2%, respectively. After cross analysis, it is concluded that there is a meaningful correlation between internet addiction and smartphone addiction. It means that, the higher internet addiction ratio is, the higher smartphone addiction is.

### IV. CONCLUSIONS AND FURTHER RESEARCH WORK

In this paper, an analysis work is performed to identify correlation between internet addiction and smartphone

addiction. With aid of extensive and national survey results on internet addiction (from year of 2011 to 2014), after radical statistical analysis, it is concluded that there is a meaningful correlation between internet addiction and smartphone addiction. It means that, the higher internet addiction ratio is, the higher smartphone addiction ratio.

The further research issues of this work are as follows. First, it is very helpful to extend investigation period for both addiction of teenagers. As we can see from Table 1, the smart phone addiction ratio is going higher than internet addiction. It is very likely that, in the near future, smartphone addiction is going to be independent of internet addiction. Second, it is necessary to classify both addictions into more specific addictions. For example, internet addiction includes mobile game addiction, search addiction, and app addiction. It is interesting to compare addiction for more specific addiction types under both internet and smartphone addiction.

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