Archives of Psychiatric Nursing xxx (2017) xxx–xxx

Contents lists available at ScienceDirect

Archives of Psychiatric Nursing

journal homepage: www.elsevier.com/locate/apnu

Relationships of Mental Health and Internet Use in Korean Adolescents

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ARTICLE INFO

Article history:
Received 19 January 2017
Revised 9 July 2017
Accepted 27 July 2017
Available online xxxx

KEYWORDS:
Internet
Mental health
Korean
Adolescent

ABSTRACT

AIM: The purpose of this study was to identify the relationships of mental health and internet use in Korean adolescents. Also, it was intended to provide guidelines for reducing internet overuse based on the influencing factors of internet use.
METHODS: Participants in this study were convenient sampling, and selected middle and high school students in Incheon metropolitan city, South Korea. Internet use and mental health of adolescents were measured by self-reported instruments. This study was carried out from June to July 2014. 1248 participants were collected overall except for insufficient data. The data were analyzed by descriptive statistics, *t*-test, ANOVA, Pearson's correlation coefficient, and multiple regression.
RESULTS: There were significant correlations between mental health and internet use. The significant influencing factors of internet use were normal internet use group, mental health, middle school, internet using time on weekends (3 h or more), internet using time at a time (3 h or more), and high school record. These six variables accounted for 38.1% of internet use.
CONCLUSIONS: The results of this study will be used as guidelines for reducing internet overuse of adolescents.

INTRODUCTION

Today internet use has become essential to our living, and it is estimated that the number of internet users has reached 3 billion around the globe. About 26% of the internet users are aged between 15 and 24 years, and internet use is on the drastic increase in the young generation (Statista, 2014). About 99% of the South Korean adolescents use internet, and the spread of mobile devices that enable internet connection, without spatial or temporal restrictions, through smart media, including smartphones, have rapidly increased habitual internet overuse (Ministry of Science, ICT and Future Planning, Korea Internet, & Security Agency, 2014; Ministry of Science, ICT and Future Planning, National Information Society Agency, 2014; Weinstein & Lejoyeux, 2010). Habitual internet overuse is becoming a social concern because it is more likely to have adverse effects on adolescents, who are weaker than adults (Kuss, Rooij, Shorter, Griffiths, & Mheen, 2013). Taking their developmental characteristics into account, adolescents tend to develop a habit more easily than any other age group (Lopez-Leon & Raley, 2013), and reckless internet overuse leads to internet addiction (Gamito et al., 2016; Tokunaga & Rains, 2010).

Internet addiction may involve failure to control internet use, and make the borderline between the reality and virtual space more confusing (Ministry of Science, ICT and Future Planning, Korea Internet, & Security Agency, 2014; Ministry of Science, ICT and Future Planning, National Information Society Agency, 2014), and lead to a serious problem of addiction in adulthood (Ho et al., 2014). Therefore, it is urgent to manage and prevent it.

Recently, instead of viewing the internet addition as a pathological condition, it is viewed as a comprehensive concept of problems caused by internet use (Alpaslan, Avci, Soylu, & Guzel, 2015; Kaess et al., 2014; Škařupová, Ólafsson, & Blinka, 2015; Yang et al., 2014).

As a result of the preceding study on internet use, adolescents' excessive use of the internet may specifically have adverse effects on mental health and psychiatric conditions, such as attention deficit/hyperactivity disorder, depression, and anxiety disorder, and interfere with them through life (Ho et al., 2014). Internet overuse of adolescents are more likely to complain of depression and hostility (Alpaslan et al., 2015; Ho et al., 2014; Weinstein et al., 2015; Yang et al., 2014), and to experience problems with interpersonal relationships (Seo, Kang, & Yom, 2009). They are also more likely to complain of somatization and show aggressive behavior (Lee, Shin, Cho, & Shin, 2014), and reject communication (Dhir, Chen, & Nieminen, 2015).

Although internet overuse is serious as above (Gamito et al., 2016; Tokunaga & Rains, 2010), specific guidelines have been rarely provided

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http://dx.doi.org/10.1016/j.apnu.2017.07.007
0883-9417/

to reduce the risk of internet overuse, taking its correlation with mental health into account.

There were some previous studies that examine the correlation between internet overuse and mental health. But, some studies did not involve the overall age of adolescents (Byeon & Lee, 2007; Lee et al., 2014; Waldo, 2014), and studied only university students or children only (Alavi, Maracy, Jannatifard, & Eslami, 2011; Alpaslan et al., 2015; Ge, Se, & Zhang, 2015; Li, Zhang, Lu, Zhang, & Wang, 2014). In particular, the study of Byeon and Lee (2007) was focused exclusively on middle school students, not the overall age of adolescents. And their research results were too old, and unable to identify the relationships between the latest trends in internet use and mental health. In addition, there were limitations to providing specific guidelines for reducing internet overuse because they did not identify the influencing factors between internet use and mental health and internet use characteristics (Byeon & Lee, 2007; Dhir et al., 2015; Evren, Dalbudak, Evren, & Demirci, 2014; Lee et al., 2014; Shek & Yu, 2016; Tokunaga & Rains, 2010; Yoo, Cho, & Cha, 2014).

The purpose of this study was to investigate internet use and mental health of adolescents and provide specific guidelines for reducing internet overuse. Specific objectives of the study were to investigate internet use by the respondents' demographics and internet use characteristics; to determine the correlation between internet use and mental health of the respondents; and to identify the influencing factors of internet use.

METHODS

STUDY DESIGN

A cross-sectional study was used to examine the relationships of internet use and mental health in Korean adolescents.

SETTING AND SAMPLE

Participants of this study were convenient sampling accessible by authors, and recruited from two middle and two high school students in Incheon metropolitan city, South Korea. The authors visited the schools, and asked the presidents for permission of survey. Students of all grades in approved schools were surveyed. A total of 1300 students were recruited and consented and of these, 1248 completed the survey.

MEASUREMENTS/INSTRUMENTS

DEMOGRAPHIC AND INTERNET USE CHARACTERISTICS

Demographic characteristics included participants gender, school grade, school record, economic status, main source of household income, and possession of mobile phone. Internet use characteristics included age for starting to use internet, internet using time during weekdays, internet using time on weekends, internet using time at a time, and recent internet use.

INTERNET USE

Internet use was assessed using the 15 item Internet Addiction Proneness Scale for Youth (Ministry of Science, ICT and Future Planning, National Information Society Agency, 2014). This scale is composed of four subscales: disturbance of adaptive functions (5 items), virtual life orientation (2 items), withdrawal (4 items), and tolerance (4 items). Living dysfunction and conflicts caused by internet use were measured for the first subscale of disturbance of adaptive functions, and the level of giving meanings to the internet world rather than to the reality was measured for the second subscale of virtual life orientation. The level of anxiety and agitation caused by the failure to use internet was measured for the third subscale of withdrawal, and the level of feeling more satisfied with longer use of internet and failure to control the use were measured for the fourth subscale of tolerance. Each item contains a four-point Likert scale (1 = strongly disagree to 4 = strongly agree). If the total score exceeds 44 points, it is a high-risk group of internet addiction. If the total score is between 41 and 43 points, it is an addicted potential-risk group. If the total score is 40 points or below, it is a normal use group. In this study, Cronbach's α for the subscales were as follows: disturbance of adaptive functions 0.76, virtual life orientation 0.83, withdrawal 0.51, and tolerance 0.77.

MENTAL HEALTH

To measure mental health using the Symptom Checklist-90-Revision (SCL-90-R) scale, developed by Derogatis and Cleary (1977), and its derived Korean standard version was used in this study (Kim, Kim, & Won, 1984). The SCL-90-R consisted of 90 questions in total, which were divided into nine subscales: somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation and psychoticism. Each question contains one of the psychological symptoms in which include a five-point Likert scale (1 = no problem to 5 = very serious) to describe the extent of the symptoms they had experienced during the last week. In this study, the Korean version of SCL-90-R had a Cronbach's α of 0.98, 9 subscales' Cronbach's α were as follows: somatization 0.87, obsessive-compulsive 0.87, interpersonal sensitivity 0.84, depression 0.91, anxiety 0.89, hostility 0.83, phobic anxiety 0.82, paranoid ideation 0.79, and psychoticism 0.88.

DATA COLLECTION/PROCEDURE

Permissions were obtained from the presidents of selected schools. Data were collected from two middle and two high school students in Incheon metropolitan city, South Korea from June 30 to July 11, 2014.

Table 1
Demographic and internet use characteristics of participants ($N = 1248$).

Variables	Categories	N (%)
Demographic		
Gender	Male	993 (79.6)
	Female	255 (20.4)
School grade	Middle school	470 (37.7)
	High school	778 (62.3)
School record	High	293 (23.5)
	Middle	636 (51.0)
	Low	319 (25.5)
Economic status	Wealthy	262 (21.0)
	Middle class	721 (57.7)
	Poor	265 (21.3)
Main source of income	Father	553 (44.3)
	Mother	115 (9.2)
	Both parents	539 (43.2)
	Etc.	41 (3.3)
Possession of cell phone	Yes	1195 (95.8)
	No	53 (4.2)
Internet use		
The first age of internet use	Under 6 years old	153 (12.3)
	7–9 years old	618 (49.5)
	10–12 years old	375 (30.0)
	Over 13 years old	102 (8.2)
Internet using time during weekdays	<1 h	469 (37.6)
	1–2 h	430 (34.4)
	2–3 h	238 (19.1)
	>3 h	111 (8.9)
Internet using time during weekends	<1 h	299 (24.0)
	1–2 h	362 (29.0)
	2–3 h	307 (24.6)
	>3 h	280 (22.4)
Internet using time at a time	<1 h	492 (39.4)
	1–2 h	420 (33.7)
	2–3 h	191 (15.3)
	>3 h	145 (11.6)
Recent internet use	Within 7 days	921 (73.8)
	7 days ~ 1 month	208 (16.7)
	>1 month	119 (9.5)
Internet use group	Normal use group	1185 (95.0)
	Addicted potential-risk group	63 (5.0)

Please cite this article as: Choi, M., et al., Relationships of Mental Health and Internet Use in Korean Adolescents, *Archives of Psychiatric Nursing* (2017), http://dx.doi.org/10.1016/j.apnu.2017.07.007