Loneliness, social contacts and Internet addiction: A cross-lagged panel study

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Abstract

This study aims to examine the causal priority in the observed empirical relationships between Internet addiction and other psychological problems. A cross-lagged panel survey of 361 college students in Hong Kong was conducted. Results show that excessive and unhealthy Internet use would increase feelings of loneliness over time. Although depression had a moderate and positive bivariate relationship with Internet addiction at each time point, such a relationship was not significant in the cross-lagged analyses. This study also found that online social contacts with friends and family were not an effective alternative for offline social interactions in reducing feelings of loneliness. Furthermore, while an increase in face-to-face contacts could help to reduce symptoms of Internet addiction, this effect may be neutralized by the increase in online social contacts as a result of excessive Internet use. Taken as a whole, findings from the study show a worrisome vicious cycle between loneliness and Internet addiction.

1. Introduction

Researchers around the world from the domains of communication, psychology, and psychiatry have paid considerable attention in recent years to the rising issue of problematic use of the Internet (PIU), or Internet addiction (IAD) (Griffiths, Miller, Gillespie, & Sparrow, 1999; Tao et al., 2010; Young, 2004; Zhang, Amos, & McDowell, 2008). While the ontological and epidemiological issues surrounding Internet addiction being a clinical pathology are still the subject of many intellectual debates (Czincz & Hechanova, 2009; Frances & Widiger, 2012; Pies, 2009; Widyanto & Griffiths, 2006), social and behavioral scientists generally believe that such a phenomenon indeed exists (Chou, Conron, & Belland, 2005) and that excessive and compulsive Internet use would negatively impact a person’s physical, psychological, and social well-being (Davis, 2001; Young, 1998).

Many studies have examined Internet addiction, its social and psychological correlates, and possible treatments (Beard, 2005). While this body of research has identified a number of related factors to the problem, such as depression, loneliness, and social isolation (Ceyhan & Ceyhan, 2008; Chou et al., 2005; Davis, 2001; Young & Roger, 1998), the causal direction of the relationships between these psychosocial problems and Internet addiction have not yet been clearly established (Chou et al., 2005). To fill this void, this study aims to determine the causal priority in the empirical relationship between Internet addiction and Internet users’ subjective feelings of depression and loneliness. The effects of online and offline social interactions are also examined.

2. Conceptualizing Internet addiction

Various labels (e.g., compulsive Internet use, pathological Internet use, Internet addiction disorder, Internet usage disorder, and problematic Internet use, etc.) have been adopted to describe the phenomenon of people engaging in excessive and unhealthy use of the Internet. (Widyanto & Griffiths, 2006). It has been widely recognized as a significant mental health issue worldwide. In 2012, the American Psychiatric Association recommended including “Internet Use Disorder” for further study in Section III of the DSM-5. In Korea, Internet addiction has been deemed a national health concern estimated to affect up to 30% of Internet users under 18 (Fackler, 2007; Ha et al., 2007). In China, more than 10% of adolescent Internet users were identified as Internet addicts (Block, 2008; Wu & Zhu, 2004), and the Chinese government went so far as sponsoring various treatment clinics to deal with this new “addiction”. In Taiwan, nearly 6% of college students were believed to be affected by problematic Internet use (Chou & Hsiao, 2000).

In general, Internet addiction has been conceptualized as a behavioral control problem. It refers to Internet users’ inability to control their use of the medium, which in turn might cause one’s marked distress and functional impairment in daily life (Shek, Sun, & Yu, 2013). This condition often shares similar epidemiological properties and consequences as some classified addictions
such as substance dependency (Brenner, 1997) and impulse control disorders (Young, 1998, 1999, 2004, 2009). To this extent, a number of diagnostic criteria have been proposed and tested (Beard, 2005; Brenner, 1997; Byun et al., 2009; Chou et al., 2005; Demetrovics, Szeredi, & Rozsa, 2008; Ha et al., 2007; Young, 1999). However, methods of clinically assessing Internet addiction disorder remain limited and inconsistent (Chou et al., 2005; Dell'OssO, Altamura, Allen, Marazziti, & Holland, 2006). A number of epidemiological and theoretical issues related to the proposed disorder have not been fully resolved through empirical research; for example, Internet addiction may be a symptom resulted from other existing psychiatric disorders, such as depression, social anxiety, and generalized obsessive and compulsive disorder (Beard, 2005; Ha et al., 2007; Pies, 2009).

Adding to the complexity in conceptualizing Internet addiction as a psychiatric condition, the very notion of “Internet use” has also changed dramatically since researchers began to investigate this problem almost 20 years ago. Early forms of the Internet were simply channels of electronic communication. Users mainly browsed information displayed on static webpages and/or sent text-based messages to each other. As computing and network technologies advance, however, the Internet is no longer just a communication channel. People nowadays conduct more and more of their routine social and professional activities online. The Internet is now quite literally a common thread that weaves the fabric of our lives. Furthermore, mobile devices such as smartphones and wearable computers allow people to stay connected wherever and whenever. A growing number of Internet users spend nearly as much, if not more time, online as they do offline. Thus, it is problematic to use the amount of time spent online or a general dependency on the Internet technology as primary indicators of problematic use. It is also difficult to determine to what aspects of the Internet people are “addicted”.

Despite a lack of consensus on the conceptualization and assessment of Internet addiction and the ambiguity in defining “Internet use”, most social scientists agree that Internet addiction, as a general social phenomenon, indeed exists (Chou et al., 2005). Those who are affected by this problem often spend an excessive amount of time on the Internet, which adversely affects their offline lives; they may develop a preoccupation with online activities, feel the need to escape into cyberspace, and express an increased amount of irritability when trying to cut back their Internet use (Dell'OssO et al., 2006). These individuals may also experience a number of functional impairments as a result of using the Internet such as marital or family strife, job loss or decreased job productivity, and legal difficulties or school failure (Chou & Hsiao, 2000).

In the present study, we are not interested in engaging the debate surrounding Internet addiction in a clinical sense, but rather as a widely observed social phenomenon. As such, we will use the term Internet addiction throughout this paper to describe a general psychological condition in which an individual’s mental and emotional states are adversely affected by the overuse of the medium (Beard, 2005).

3. Internet addiction and psychosocial problems

Numerous studies from around the world found Internet addiction to be positively associated with other psychosocial problems, such as feelings of depression and loneliness (Beard, 2005; Chou et al., 2005; Ha et al., 2007; Tokunaga & Rains, 2010). Morahan-Martin and Schumacher (2000) found that 8% of their sample of undergraduate students in the United States were engaging in pathological Internet use, and were experiencing a greater degree of loneliness than their non-addicted counterparts. In a cross-sectional study, Kim, LaRose, and Peng (2009) identified loneliness to be the cause, as well as the effect, of problematic Internet use among American college students. Yen, Ko, Yen, Chang, and Cheng (2009) recently surveyed 8941 adolescents in Taiwan; they found depression and a lack of family contact to be discriminating factors for Internet addiction. Similar patterns were also found in China (Huang & Deng, 2009; Liu, Xu, & Hu, 2009), South Korea (Byun et al., 2009; Park, 2009), Norway (Balken, Wenzel, Gøtestam, Johansson, & Øren, 2009), and Iran (Ghassemzadeh, Shahrayar, & Moradi, 2008). Most recently, Tokunaga and Rains (2010) conducted a meta-analysis of 94 studies from 22 different countries and found moderate and consistent links between loneliness, depression, and problematic Internet use.

Davis (2001) posited that existing psychopathological disorders, such as depression, loneliness, social anxiety, and substance dependence were necessary elements in the etiology of pathological Internet use. Specifically, people with psychosocial dispositions such as depression and loneliness would be prone to hold maladaptive cognitions (e.g., they would only feel good on the Internet and/or the offline world is awful). Therefore, those who feel depressed and lonely would be especially vulnerable to Internet addiction. Extending from Davis’s cognitive–behavioral model of problematic Internet use, Caplan (2003) further argued that individuals with psychosocial problems (e.g., depression and loneliness) were more likely to perceive themselves as unskilled in social competence. They would prefer computer-mediated interactions rather than face-to-face communication because the anonymity and a lack of non-verbal cues in computer-mediated communication would make online social interaction less threatening. As a result, these individuals would be inclined to perceive themselves as more sophisticated or successful in online social interactions. This preference would in turn lead to excessive and compulsive use of the Internet. Based on the theoretical reasoning outlined above, we would predict that:

**H1.** Feelings of depression will lead to higher levels of Internet addiction.

**H2.** Feelings of loneliness will lead to higher levels of Internet addiction.

More interestingly, if depression and loneliness drive people to use the Internet more often, will such an increase of usage provide a relief for these negative psychological feelings? From a social network and social capital perspective, Wellman et al. (1996) argued that the Internet could strengthen previously formed social relations because it would add effective means of communication and social contact. Supporting this view, Howard, Raine, and Jones (2002) found that, after controlling for basic socio-demographics, those who had gone online had a 24% greater likelihood of stating that they knew people who could be helpers in times of need than those who had never gone online. A variety of early studies (Constant, Sproull, & Kiesler, 1996; Rice, 1999; Sproull & Kiesler, 1991) have also found that computer-mediated communication extended possibilities for social connection by crossing time, geography and space, allowing people with different backgrounds to share interests and to come together in a virtual world. From this perspective, it seems that Internet use may foster virtual, but still real and meaningful, social interactions that would in turn reduce feelings of loneliness. This suggests that while feelings of depression and loneliness may lead to Internet addiction in the short run, as predicted in H1 and H2, the reduction of these feelings associated with greater virtual social connections may therefore also reduce Internet addiction over time. Based on this line of reasoning, we propose the following hypothesis and research question:
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