# Predicting adolescent Internet addiction: The roles of demographics, technology accessibility, unwillingness to communicate and sought Internet gratifications

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## ABSTRACT

Although research examining Internet addiction is as old as the Internet itself, the roles of Internet users' background characteristics and sought Internet gratifications in predicting Internet addiction (IA) are still unclear. Previous literature has pointed out the urgent need to identify how Internet addicts differ from non-addicts with regard to their background characteristics and Internet gratifications. In order to provide conceptual links among IA, background characteristics and Internet gratifications, a cross-sectional survey-based research study was conducted with 1914 adolescent Internet users from India. The data were gathered from 10 junior and senior high schools from four cities in northwestern India. The data were analyzed using exploratory and confirmatory factor analysis, Pearson correlations, independent sample t-tests, logistic regression and hierarchical multiple regression. The study results suggest that gender (male), daily time spent on Internet use, reward seeking, and connecting and social influence gratifications dichotomize the Internet addict and non-addict cohorts. Besides these study variables, academic performance, parental attitudes towards Internet use, approach avoidance, information seeking, and exposure and coordination gratifications were found to lead to the conditioning of IA among adolescent Internet users. The practical as well as theoretical implications for IA research and other stakeholders are also discussed and presented.

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## 1. Introduction

Due to the continuous development of the Internet infrastructure, the Internet has already penetrated deep into our lives. The Internet has various positive effects on human life, such as the expansion of social networks (Hampton & Wellman, 2003; Katz & Aspden, 1997), the promotion of psychological wellbeing (Chen, Boase, & Wellman, 2002; Kang, 2007), and the betterment of living conditions (Bauer, Gai, Kim, Muth, & Wildman, 2002). However, excessive use of the Internet also has negative implications for human wellbeing. Excessive Internet use may lead to reduced social interaction with friends and family, loneliness, alienation, disputes in social relationships, degradation of academic performance, and even mental illness (Chen & Peng, 2008; Chou, 2001;

Leung, 2004; Nalwa & Anand, 2003; Shapira, Goldsmith, Keck, Khosla, & McElroy, 2000; Suhail & Bargees, 2006; Young, 2004). Excessive Internet use might also result in Internet addiction (Kim & Haridakis, 2009).

The research examining Internet addiction is as old as the earliest forms of the Internet itself; however, as yet there is no agreement on appropriate terminology to describe the condition (Kim & Haridakis, 2009). It has therefore become difficult to predict if any psychopathological state is associated with this phenomenon (Shaffer, 2004). Various terminologies have been utilized to date, including Internet addiction (IA) (Ghassemzadeh, Shahraray, & Moradi, 2008; Young, 1998), Internet dependence (Lu, 2008), problematic Internet use (Caplan, 2002), pathological Internet use (Davis, 2001), and compulsive Internet use (Greenfield, 1999; Meerkerk, Van Den Eijnden, Vermulst, & Garretsen, 2009). However, clarification of the exact boundaries between these inter-related concepts is currently lacking (Kim & Haridakis, 2009). For consistency reasons, we utilize the term "IA" throughout this study

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to represent a pathological state that occurs due to Internet abuse and overuse.

Prior IA literature has shed some light on the possible reasons behind IA conditioning among Internet users. These include an internal human need to communicate (Ball-Rokeach, 1985; Rubin & Windahl, 1986), information sharing, or escape from real-life problems (Kim & Haridakis, 2009). However, questions remain unanswered such as "Why isn't every Internet user an addict?" "What kinds of Internet users are more vulnerable to IA?" and "Why do some Internet users learn to moderate their own Internet use, while others fail to do so?" According to Kim and Haridakis (2009), an extreme affinity for the Internet does not mean that a particular individual is addicted to it. Similarly, Kubey, Lavin, and Barrows (2001) argued that spending a great deal of personal time on the Internet, or heavily using the Internet does not necessarily result in IA symptoms. But, at the same time, prior research has also concluded that Internet addicts are much more excessively engaged in Internet use than those who are only dependent or excessive Internet users (Kubey et al., 2001). This has led to the examination of various differences between Internet addicts and non-addicts, e.g. significant differences in their sought Internet gratifications and background characteristics (Chou & Hsiao, 2000; Leung, 2004; Yang & Tung, 2007). However, these examinations do not provide a complete picture of the relationships shared among IA, Internet gratifications and Internet users' background characteristics simply due to the limited focus of the prior work (Kim & Haridakis, 2009).

To bridge these gaps in the existing IA literature, the present study examines the relationships among IA, demographic profile, technology accessibility status, personality attributes and Internet gratifications. In addition to this, the predictive powers of these study variables were assessed with respect to IA and the dichotomization of Internet addict and non-addict cohorts. A cross-sectional survey was administered to 1914 adolescent Internet users from India. There were a number of reasons behind choosing India and specifically adolescent Internet users, namely (1) India has a rapidly developing economy, and currently hosts the world's second largest Internet user base (India Internet usage, 2013). The consumer base of over 400 million people makes India a lucrative market for Internet based companies (Ranchhod & Gurau, 2014); (2) Despite the fact that the Indian Internet market has witnessed a 566.4% increase in Internet adoption and use (Asia Internet Usage, 2013), the Indian population has largely remained understudied with respect to the gratifications underlying their Internet use (Roy, 2009); (3) Almost all of the available literature concerning IA and Internet U&G (except for Leung (2014)) consists of either college students (Kim & Haridakis, 2009) or a wide age range of Internet users (Roy, 2009). Therefore, the present study specifically focuses on the adolescent user group.

## 2. Background literature

The Uses and Gratifications (U&G) theoretical framework has been extensively used to understand the role of Internet U&Gs in predicting IA in the prior literature (Kim & Haridakis, 2009; Leung, 2004, 2014; Song, Larose, Eastin, & Lin, 2004). According to the U&G theory, individuals have different social and psychological needs that are satisfied through media use (Dimmick, Sikand, & Patterson, 1994; Lin, 1999; Rubin, 1983). These needs actually drive their motivation to utilize a given media platform (Rubin, 1983). A review of the previous Internet U&G and IA literature revealed interesting differences in the resulting structure of the Internet U&Gs (see Table 1). It was found that earlier studies concluded with between two and seven gratification factors. Furthermore, the common gratifications motivating Internet use

**Table 1**
Review of Internet gratification structures utilized by prior Internet U&G and IA literature.

| Author & year | Obtained Internet gratifications |
|---|---|
| Chou and Hsiao (2000) | Five gratifications, namely escape, interpersonal relationship, use behavior, inter-text and anonymity |
| Leung (2004) | Two Internet U&Gs, namely pleasure of control and fluidity of identity in online life |
| Song et al. (2004) | Seven main Internet U&Gs, namely virtual community, information seeking, monetary compensation, diversion, personal status and relationship maintenance |
| Yang and Tung (2007) | Two gratifications, namely social/entertainment and searching for information gratifications |
| Roy (2009) | Six factor solution for Internet U&Gs, namely self-development, wide exposure, user friendly, relaxation, career opportunities and global exchange |
| Kim and Haridakis (2009) | Six factor Internet gratification solution, namely habitual entertainment, caring for others, information seeking, excitement, control and escape |
| Zhou (2010) | Four main gratifications behind SNS-games, namely personal relaxation, maintaining interpersonal relationship, achieving a high level in the game and earning virtual money |
| Lee, Lee, and Jang (2011) | Four factor gratification scale, namely entertainment, information seeking, social interaction and homeland orientation |
| Chen and Kim (2013) | Six factor Internet gratification solution, namely virtual content, diversion, self-presentation, relationship maintenance, relationship building and information seeking |
| Leung (2014) | Six factor Internet gratification, namely entertainment, status-gaining, experiencing opinions, identity experimentation, information seeking and passing time |

are entertainment, information seeking (or searching for information), escapism, relationship maintenance or connecting, self-development or exposure (also referred to as career development), or social reasons, e.g. coordination, gaining status or social influence. However, almost all of these existing studies just mirror the gratifications provided by the existing U&G literature. This might have added a possible bias in the available findings since it is likely that selective picking of gratification constructs might have omitted other important constructs. In order to bridge this gap, the present study utilized a comprehensive pool of 78 items that represent different Internet U&Gs. The original pool of items resulted in a final 27-item Internet gratification scale which represents six Internet U&Gs, namely information seeking, exposure, connecting and coordination, social influence, and entertainment. All six gratifications are consistent with the prior IA and Internet U&G literature.

According to Kim and Haridakis (2009), all users are not the same when it comes to media usage; some are more active and motivated than others. This could be a possible reason behind selective IA conditioning among certain Internet users. The prior literature examining the relationship between IA and Internet U&Gs in the context of adolescent Internet users was reviewed (see Table 2). It suggested that Internet addicts use the Internet in order to meet and communicate with others (Kubey et al., 2001), to build self-esteem and gain a sense of control (Peele, 1985), to seek higher levels of entertainment, interactivity and satisfaction (Chou & Hsiao, 2000), to seek greater pleasure and escape compared to information seeking (Leung, 2004), and to seek social and entertainment gratifications (Yang & Tung, 2007). Earlier research claimed that habitual use of the Internet (e.g., for escape, entertainment, habitual use, etc.) increases the likelihood of unintended Internet use, or even addiction (Song et al., 2004). On the contrary, purposeful and instrumental use of the Internet (e.g., for connecting, caring, control, information sharing, information seeking, etc.) may result in a reduction in IA (Song et al., 2004). This suggests that process gratifications, e.g. entertainment and