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Problematic Internet use or Internet addiction?

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Abstract

The aim of this paper is to review the gradually evolving body of the literature on Internet addiction. Two schools of thought have emerged: those authors who believe that Internet addiction merits classification as a new or emerging psychiatric disorder in its own right, and those who define certain individuals as having problematic Internet use in relation to specific online activities, such as gambling, email or pornography. Despite a total lack of methodologically sound research, the evidence appears to support the second perspective. It appears that individuals who are premorbidly vulnerable, especially with a history of impulse control and addictive disorders, are especially at risk of using the Internet in a problematic way. Aside from the personal and social implications of this finding, this behavior has important implications for the workplace and may be resulting in substantial loss of productivity in companies who are not implementing Internet governance policies.

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1. Definition and prevalence

The concept of addiction, though traditionally used to describe a physical dependence on a substance (Holden, 2001), has been applied to excessive use of the Internet.

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A variety of terms have been used to describe this behavior, including “Internet addiction” (Bai, Lin, & Chen, 2001; Mitchell, 2000; Shapira, Goldsmith, Keck, Khosla, & McElroy, 2000; Young, 1998), “pathological Internet use” (Davis, 2001), and “problematic Internet use” (Davis, Flett, & Besser, 2002). Researchers have described a syndrome of intense preoccupation with using the Internet (Chou, 2001; Treuer, Fabian, & Furedi, 2001), excessive amounts of time spent online, compulsive use of the Internet, difficulty in managing the time spent on the Internet, feeling that the world outside of the Internet is boring, becoming irritated if disturbed while online, decreased social interaction with “real” people (Kraut et al., 1998), and increased loneliness and depression (Nalwa & Anand, 2003; Whang, Lee, & Chang, 2003). Several Internet researchers have developed tools for assessing Internet dependence or addiction (Tsai & Lin, 2001). The bulk of the work in the area of defining Internet addiction has been undertaken by Young and Case (2004).

In 1998, Young proposed a set of criteria for diagnosing Internet addiction based on the DSM-IV (American Psychiatric Association, 1995) criteria for pathological gambling (Young, 1998). She selected eight of the 10 gambling criteria she felt applied most readily to Internet use – preoccupation with the Internet, a need for increased time spent online to achieve the same amount of satisfaction, repeated efforts to curtail Internet use, irritability, depression, or mood lability when Internet use is limited, staying online longer than anticipated, putting a job or relationship in jeopardy to use Internet, lying to others about how much time is spent online, and using the Internet as a means of regulating mood – and determined that those patients fulfilling five out of the eight criteria would be considered Internet-dependent. This determination exceeds the indication for a diagnosis of pathological gambling disorder, which requires only five out of 10 criteria to be met. Although Young admitted that her data collection by voluntary online or telephone surveys was probably somewhat biased, and that it was more likely that people formed addictions to the applications available on the Internet, rather than to the Internet itself, her results showed a number of differences between addicted and non-addicted groups, as well as a variety of psychological and occupational consequences of excessive internet use.

Young’s criteria quickly took hold in the Internet research community; a number of other researchers have used her criteria to determine the degree of Internet dependence in their subjects (Chou, 2001; Tsai & Lin, 2003; Whang et al., 2003). However, despite the suggestion by some that Internet addiction considered to be an established illness (Bai et al., 2001), no criteria have been adopted into the DSM-IV or its more recent revisions. In their 2001 study, Beard and Wolf proposed modifying Young’s original criteria for Internet addiction to categorize problematic Internet use more appropriately. They asserted that the first five statements – preoccupation with being online, increasing time spent online, unsuccessful attempts to stop, irritability when cutting back use, and staying online longer than intended – would not necessarily disrupt one’s routine all by themselves. To more clearly delineate Internet addiction, Beard and Wolf stated that the first five of Young’s criteria must all be met, and that at least one of the final three be met as well. Two camps have formed in the area of Internet research – one which feels that Internet addiction is, or should

be, established as a psychiatric disorder in its own right, and one which insists that Internet addiction sufferers are actually dependent on some rewarding aspect or function of behavior associated with Internet use that could exist in the “real” world, such as dependent or addictive behavioral patterns related to money or sex.

Those who define Internet addiction as a specific mental illness have developed most of the estimates of the prevalence of the problem, but these estimates vary greatly, from as low as 3% reported by Mitchell (2000) and Whang et al. (2003) to 15% reported by Bai et al. (2001), 25–30% reported by Chou (2001), to as high as 80% in Young’s original study (1998). Many of these estimates were made, however, from data gathered from methodologically poor online surveys, which probably also have biased their findings in favor large numbers of high Internet users. Researchers in the other camp have not denied the addictive features of the Internet, but generally assert that users are addicted to the material they find on the Internet, such as online gambling, shopping, or chatting, not to the medium itself (Davis, 2001; Davis et al., 2002; Griffiths, 2000; Tsai & Lin, 2003). In particular, Davis has described “pathological Internet use” and has distinguished between specific pathological Internet use, or the overuse of certain online applications, and generalized pathological Internet use, or the overuse of the Internet for no specific purpose. They have also noted that Internet addiction shares a number of common elements with impulse control disorders (Beard & Wolf, 2001; Shapira et al., 2000; Treuer et al., 2001), and some researchers have proposed that problematic use of the Internet should be viewed as such a disorder; for example, impulse control disorder not otherwise specified (NOS) with excessive Internet use.

A number of differences have been found to exist between those who use the Internet in a healthy way and those who do not. Individuals found to be “Internet-dependent” have also frequently been found to be more attracted to interactive Internet applications, such as chatting, games, and shopping, whereas non-dependent individuals seem to use the Internet almost exclusively for sending email and searching for information (Whang et al., 2003; Young, 1998). Young found that just over half of those labeled “Internet-dependent” had been online for less than one year, indicating that new users may be more inclined to develop problematic behaviors associated with their internet use, a finding supported by later studies (Kraut et al., 1998). Additionally, more than two-thirds of Young’s subjects found to be “non-Internet-dependent” had been online for over a year, which may show that excessive Internet use is something that could wear off over time in the majority of individuals.

2. Etiology

Research in this area is generally of poor quality, with few studies using control groups, randomization, or well-validated measures. A number of psychosocial disorders are thought to be related to excessive Internet use. The presence of certain comorbid diagnoses, including mood disorders, bipolar disorders, and social anxiety disorder, are highly represented among groups of excessive Internet users (Shapira et al., 2000). A large proportion of individuals who overuse the Internet also meet

or have met the criteria for a substance abuse disorder (Anderson, 2001; Bai et al., 2001), which is consistent with the pattern found in individuals with other “behavioral addictions” such as pathological gambling. Some believe that those Internet users who have such addictive risk factors have already made the first step toward overuse (Pratarelli & Browne, 2002). Similarly, others have described a cognitive-behavioral model (Davis, 2001) where Internet addiction may result when some psychological factor causes an individual to be vulnerable to dependence on new online content. Obsessive thoughts then follow about the online material, and feelings develop where the Internet is perceived as a “friend,” which further encourages problematic behaviors.

Perhaps most significantly, a number of researchers have identified impulse control problems in conjunction with problematic Internet use (Bai et al., 2001; Beard & Wolf, 2001; Davis et al., 2002; Holden, 2001; Mitchell, 2000; Shapira et al., 2000; Treuer et al., 2001). A 2002 study that examined Internet problems in the workplace determined that poor impulse control was indicative of more severe problems with the Internet. Likewise, others have shown that features of impulse control disorders are extremely common among excessive Internet users; in one study, nearly all respondents frequently felt an urge to be online, felt that a world without the Internet would be dull, and became nervous if their Internet connection was slow. In another study, researchers hypothesized that the behaviors associated with Internet addiction shared features with obsessive-compulsive disorder (OCD), and could be treated similarly; instead, these researchers found that few Internet-dependent subjects met criteria for OCD but every single one met criteria for impulse control disorder NOS. The existence of this relationship has caused some to postulate a role of brain chemistry in Internet addiction. Many other impulse control disorders and “behavioral addictions” such as compulsive eating and shopping and kleptomania are thought to operate dopaminergically. Pathological gamblers have long been shown to demonstrate the same patterns of cortical arousal as substance abusers, and dosing with naltrexone has mitigated problematic gambling behavior in some individuals. It has been suggested that these same pathways may make the Internet rewarding and addictive in the same way as other behaviors. Overall, it seems more likely that the content on the Internet, such as online gambling, interactive games, or chatting, would be what stimulates these reward systems, rather than simply access to the Internet itself.

3. Treatment

Excessive Internet use certainly has substantial social effects. Several studies have demonstrated that those individuals who spend too much time online tend to lose sleep (Anderson, 2001; Nalwa & Anand, 2003), decrease social communication (Kraut et al., 1998), have problems in their interpersonal relationships (Lin & Tsai, 2002; Young, 1998), and use the Internet as their primary means of alleviating stress and depression (Chou, 2001). Those who have asserted that Internet addiction is primarily maintained cognitively believe that cognitive-behavioral therapy may be

a possible solution (Davis, 2001; Yellowlees, 2001). Therapeutic strategies would include cognitive restructuring regarding the Internet applications an individual uses most often, behavioral exercises, and exposure therapy in which the individual stays offline for increasing amounts of time. Others have suggested that education and training about the risks of Internet addiction could alleviate many Internet-related problems (Young & Case, 2004). Lastly, as more work is done in the area of the neurochemistry of non-chemical addictions, it is possible that problematic Internet use can be ameliorated using drugs in combination with other strategies, in the same way that one would treat substance dependence or pathological gambling. Some pharmacological treatments of excessive Internet users have been thought to be effective; in their small 2000 study, Shapira and colleagues showed that six out of seven subjects with excessive online usage decreased their Internet use when administered a combination of mood stabilizing and antipsychotic medications. Many of their subjects, however, had a lifetime diagnosis of bipolar disorder, and it is not clear whether or not the medications acted specifically to reduce Internet-related behaviors or, more likely, acted to simply stabilize their moods.

4. Workplace implications

In Young's original study of Internet addiction, approximately half of Internet-dependent individuals reported that they had suffered severe work- or school-related problems because they spent so much time online (Young, 1998). It has been shown that in the workplace, like at home, more interactive online applications are associated with more problems with Internet use (Davis et al., 2002). Young and Case (2004) demonstrated that the most common applications associated with problematic Internet use in the workplace are pornography, interactive chatting, and playing games. Most companies have access to the Internet, and a large proportion of them have policies in effect regarding the online activities of employees (Greenfield & Davis, 2002). However, few companies enforce these policies, despite reports that at least half of Internet-enabled employees go online for personal purposes at an average rate of 3 h per week. Even fewer companies have actually disciplined employees for inappropriate Internet use. A few companies are starting to use Internet-monitoring software to keep abreast of their employees' online activities but many employees still view "over the shoulder" observation and monitoring of their Internet use by management as more deterring than invisible software monitoring. As more companies are made aware of their employees' abuse of the Internet, though, more reprimands and industrial actions are likely. To try and predict problematic Internet use in the workplace, Davis and colleagues designed the Online Cognition Scale to screen for possible Internet-related problems. They found that traits of decreased impulse control and procrastination appear to predict troublesome Internet use, and that in turn, high scores on their Scale predicted reprimands for Internet abuse.

Some Internet researchers have hypothesized that students may be at the highest risk for developing problematic Internet use (Nalwa & Anand, 2003), in part because for many students, online access is free, fast, and available all the time. Lin and Tsai

found that Internet-dependent students often scored highly on measures of disinhibition, which in turn predicted social and financial problems (2002). Students who use the Internet excessively are also very likely to favor online activities over sleep, and in at least one study, only sleep patterns distinguished high users from low users (Anderson, 2001). Many students become so involved with using the Internet that they miss class or skip exams, even when they know they might fail their classes (Chou, 2001; Tsai & Lin, 2003). However, some have cautioned that it may not be practical to label students “Internet addicts” based purely on excessive use, as it is often necessary for them to use the Internet to do their schoolwork (Hansen, 2002).

5. Conclusions

The Internet is an extremely important social and communications tool, and is changing our daily lives at home and at work. It is entirely predictable that any major new technology, or way of doing business, should be associated with a variety of human responses, some good, and some not so good. Research about the effects of the Internet is still in its infancy, and needs to be qualitatively and quantitatively improved. There is no doubt that some Internet users develop problematic behavior. Most of these are probably premorbidly vulnerable people who often have a history of impulse control and addictive disorders, and whose abnormal behavior is a response to specific online content and activities. It is unlikely that “Internet addiction”, as a disorder in its own right, exists.

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