3 Internet Abuse: Emerging Trends and Lingering Questions

Janet Morahan-Martin

There has been much alarm about Internet abuse in the past decade. Claims of Internet-related crimes such as homicides, suicides, and child neglect have received widespread media attention across the globe ("Chinese Gamer Sentenced to Life," 2005; Spain & Vega, 2005). Many claim that they are or know someone who is addicted to the Internet. Fifteen percent of university students in the United States and Europe and 26 percent of Australian students claim they know someone is addicted to the Internet (Anderson, 1999; Wang, 2001). Almost 10 percent of adult Internet users in a large online study self-identified as Internet addicts (Cooper, Morahan-Martin, Mathy, & Maheu, 2002), while 31 percent of MySpace users (Vanden Boogart, 2006) and 42 percent of online gamers (Yee, 2002) say they are addicted to those Internet applications. In Germany, a camp was established to help children who were addicted to the Internet (Moore, 2003). It is tempting to dismiss these claims as media hype, but clinicians also have reported Internet-related problems and have set up clinics specifically to treat these problems in many countries. In recent years, governments in Asia have established clinics and intervened to reduce Internet use. The first Chinese clinic for Internet addiction in Beijing has expanded from 40 to 300 inpatient beds, and new clinics are being established in other Chinese cities (Griffiths, 2005; Lin-Liu, 2006). The South Korean government established the Korean Center for Internet Addiction Prevention and Counseling “to correct the Internet misuse and to help Internet addicts” (International Telecommunication Union, 2003) and plans to increase the number of treatment centers for Internet addicts from 40 to 100 by 2010 (“South Korea Plans More Centres to Treat Internet Addiction,” 2005).

At the same time, there are many who question the concept of Internet addiction. In fact, Ivan Goldberg, who established both criteria for Internet addiction and the online Internet Addiction Support Group in the 1990s, did so as a joke because he did not and still does not believe in Internet addiction (Suler, 2004a). However, research in the past decade has confirmed that some Internet users do develop serious problems from their use of the Internet and has established factors related to problematic Internet use. Some etiological approaches have begun to emerge. This chapter will first discuss varying conceptualizations of Internet abuse and the factors related to it. Questions about the relationship of Internet abuse to other problems will be explored. Models
of Internet abuse will be presented, and three types of Internet abuse will be discussed. Finally, research on treatment will be presented.

**What is Internet Abuse?**

There is no standard term or definition for Internet abuse. Some of the terms used include Internet addiction (Bai, Lin, & Chen, 2001; Chak & Leung, 2004; Li & Chung, 2006; Nalwa & Anand, 2003; Nichols & Nicki, 2004; Pratarelli & Browne, 2002; Simkova & Cincera, 2004; Wei, Zijie, & Daxi, 2004; Yang & Tung, 2007; Yoo et al., 2004; Young, 1998), Internet dependency (Chen, Chen, & Paul, 2001; Lin & Tsai, 2002; Scherer, 1997; Wang, 2001; Whang, Lee, & Chang, 2003), Internet abuse (Morahan-Martin, 1999, 2001, 2005), compulsive Internet use (Greenfield, 1999; Meerkerk, Van Den Eijnden, & Garretsen, 2006), pathological Internet use (Davis, 2001; Morahan-Martin & Schumacher, 2000; Niemz, Griffiths, & Banyard, 2005), and problematic Internet use (Beard, 2005; Caplan, 2002; Shapira, Goldsmith, Keck, Khosla, & McElroy, 2000; Shapira et al., 2003; Thatcher & Goolam, 2005a, 2005b).

These terms reflect differing conceptualizations of Internet abuse (IA). Some have viewed IA as a clinical entity and have used modified criteria from the *Diagnostic and Statistical Manual of Mental Disorders (DSM–IV–TR)* (American Psychiatric Association [APA], 2000) for other disorders to define IA, thus implicitly assuming that IA is a specific disorder or disease. For example, Scherer (1997), Nichols and Nicki (2004), and Li and Chung (2006) define IA using modified criteria for substance abuse (such as withdrawal, and tolerance), whereas Young’s (1996, 1998) widely used criteria are adapted from *DSM* criteria for pathological gambling. Others define IA as an impulse control disorder not otherwise specified (NOS) (Orzack, 1999; Shapira et al., 2000; Shapira et al., 2003; Treuer, Fabian, & Furedi, 2001). For example, Shapira et al. (2003) proposed criteria for problematic Internet use that include: “A. Maladaptive preoccupation with Internet use . . . B. Use of the Internet or preoccupation with its use causes clinically significant distress or impairment . . . C. The excessive Internet use does not occur exclusively during periods of hypomania or mania and is not better accounted for by other Axis 1 disorders” (p. 213).

In a similar vein, LaRose, Lin, and Eastin (2003) propose that IA should be viewed as a deficiency in self-regulation. However, they do not view IA from a disease model, but rather as a continuum of deficiencies in self-regulation that includes normal use “that has occasional lapses in self-control [a ‘benign problem’ . . .] as well as problematic excessive usage” (LaRose et al., 2003, p. 235).

Other researchers also have approached Internet behaviors not as a clinical disorder but as a continuum from normal to disturbed use (Caplan, 2002, 2003,
Terms such as compulsive, problematic, or pathological Internet use reflect this approach.

Despite differences in how IA is defined and the specific criteria used, there is general agreement that Internet abuse is defined in terms of the negative effect of Internet use; that is, Internet use that causes disturbances in an individual’s life. Additionally, most agree that it involves preoccupation with using the Internet, compulsive Internet use, subjective feelings of inability to limit use, and using the Internet to escape or alter negative moods, that is, when down, an anxious (e.g., Aboujaoude, Koran, Gamel, Large, & Serpe, 2006; Caplan, 2002; Davis, 2001; Li & Chung, 2006; Meerkerk et al., 2006; Morahan-Martin, 2001, 2005; Morahan-Martin & Schumacher, 2000; Wang, 2001; Yang & Tung, 2007; Young, 1998). Similar criteria have been established for problematic behaviors related to specific Internet activities such as online interactive games (Parsons, 2005; Yee, 2006b).

Those who develop these disturbed patterns use the Internet more than others, and some have equated Internet abuse with heavy or excessive use of the Internet. However, it is possible to use the Internet heavily without having negative effects. Thus, excessive Internet use alone does not qualify as Internet abuse because Internet abuse is defined in terms of Internet-related disturbances in a person’s life.

This chapter uses the term Internet abuse except in reference to other authors’ terminology. As used here, Internet abuse refers to patterns of using the Internet that result in disturbances in the person’s life but does not imply a specific disease process or addictive behavior. The term excessive Internet use is used when referring to research using that construct rather than IA.

### Prevalence of Internet Abuse

Studies have been conducted to assess the prevalence of IA in a number of countries. Estimates of the incidence of IA vary widely. Epidemiological studies are limited and have found a low rate of IA: less than 1 percent of U.S. adults over 18 (Aboujaoude et al., 2006) and less than 2 percent of adolescents in Finland and Norway (Johansson & Götestam, 2004; Kaltiala-Heino, Lintonen, & Rimpelä, 2004) had IA. These are far lower than the incidence found in other studies using representative samples. In Taiwan, a study of a representative sample of university students found 5.9 percent with IA (Chou & Hsiao, 2000), while a second study using a cluster sample of high school students reported 11.7 percent had IA (Lin & Tsai, 2002). Leung (2004) reported 37 percent of a representative sample of sixteen- to twenty-four-year-olds in a Hong Kong have IA, which is far higher than other studies. Studies using convenience samples report IA incidence as ranging from 1.8 percent to 18.3 percent (Bai et al., 2001; Chak & Leung, 2004; Kim et al., 2006; Morahan-Martin, 2001; Morahan-Martin & Schumacher, 2000; Niemz et al., 2004, 2005a; Davis, Flett, & Besser, 2002; Morahan-Martin & Schumacher, 2000).
Differences in prevalence may represent differences in culture, sampling, age, or criteria used. For example, in South Korea, which has the highest broadband penetration in the world (International Telecommunication Union, 2003), there has been much concern about IA, and online games are enormously popular. Games are televised and professional players have status and salaries similar to top sports players (Chee, 2005; Kosak, 2003). Chee (2005) describes patterns of online game use as embedded in Korean culture. In South Africa, Thatcher and Goolam (2005a) demonstrated that the incidence of IA varied from 1.67 percent to 5.39 percent depending on the ethnic group and criteria used.

Thatcher and Goolam (2005a) substantiated the effect on the choice of criteria on the incidence of IA in a study that compared incidence of IA using three sets of criteria: Young (1996, 1998), Beard and Wolf (2001), and Thatcher and Goolam’s (2005b) Problematic Internet Use Questionnaire (PIUQ). To be diagnosed with IA, Young (1996, 1998) requires that an individual exhibit at least five of the eight criteria. These criteria, which were modified from the DSM criteria for pathological gambling, include:

1. Is preoccupied with the Internet (think about previous online activity or anticipate next online session).
2. Needs to use the Internet with increasing amounts of time to achieve satisfaction.
3. Has made unsuccessful efforts to control, cut back, or stop Internet use.
4. Is restless, moody, depressed, or irritable when attempting to cut down or stop Internet use.
5. Has stayed online longer than originally intended.
6. Has jeopardized or risked the loss of significant relationship, job, educational or career opportunity because of the Internet.
7. Has lied to family members, therapist, or others to conceal the extent of involvement with the Internet.
8. Uses the Internet as a way of escaping from problems or of relieving a dysphoric mood (e.g., feelings of helplessness, guilt, anxiety, depression) (Young, 1996).

Beard and Wolf (2001) use the same criteria but suggest more stringent requirements for IA. Arguing that a person with IA must indicate impairment from the disorder, they require that to be diagnosed with IA, an individual must fulfill at least one of the last three criteria plus all of the first five criteria. Thatcher and Goolam’s (2005b) PIUQ consists of 20 items that are rated on a five-point Likert scale. Factor analysis of this scale found three factors: online preoccupation, adverse effects from Internet use, and preference for online social interactions. Those identified as high risk for IA scored 70–100 on the scale. The incidence of IA in the three groups was 1.67 percent using PIUQ, 1.84
percent using Beard and Wolf’s criteria, and 5.29 percent using Young’s criteria. All who met Beard and Wolf’s stricter criteria also met Young’s criteria, but only 35 percent of those who met Young’s criteria met Beard and Wolf’s criteria. Of those who were classified as having IA using the PIUQ scale, 80 percent were also classified as having IA on Young’s scale and 40 percent using Beard and Wolf’s scale. The authors highlight that using more lenient criteria results in a significantly higher incidence of IA (Thatcher & Goolam, 2005a).

The lack of a uniform set of criteria for IA that is empirically validated is a weakness that pervades much of the research of IA. Young’s criteria for IA (1996, 1998) have been widely used in incidence studies. These criteria are lenient and may overestimate those with IA. Young’s criteria have face validity, but other types of validity are not reported. Ultimately, “to determine the accurate prevalence of clinically significant problematic Internet use will require agreement on diagnostic criteria and a study using a clinically validated, structured interview administered to a large and representative sample of the population” (Aboujaoude et al., 2006).

Questions About IA Research

Critics question whether IA should be considered as a clinical disorder and discount claims such as, “Internet addiction: the emergence of a new clinical disorder” (Young 1998, p. 237). Shaffer, Hall, & Vander Bilt (2000) argue that “empirical support for the construct validity of computer [and Internet] addiction has yet to emerge, (and) . . . defining the construct as a unique psychiatric disorder is therefore premature” (Shaffer et al., 2000, p. 162). LaRose et al. (2003) concur that “many of the ‘addicts’ and ‘pathological Internet users’ identified in . . . survey studies . . . of Internet addiction fell well short of the clinical definition that requires a professional assessment of harmful life consequences” (p. 245). Although they acknowledge that true pathology exists at the “extreme end of the spectrum” (p. 245), the authors argue that research on IA has been “studying the relationship between indicators of deficient self-regulation and usage in predominantly non-pathological populations” (p. 245).

Specific Versus Generalized IA

A second issue is that research on IA does not distinguish between specific applications of Internet use. Those with IA spend more time than others in online activities such as online sexual activities (OSA) and online socially interactive games (Chen et al., 2001; Greenfield, 1999; Meerkerk et al., 2006; Morahan-Martin & Schumacher, 2000; Thatcher & Goolam, 2005a; Wang, 2001; Yang & Tung, 2007; Yoo et al., 2004; Young, 1997), but it is not clear
how much these activities contribute to their Internet-related problems. However, evidence suggest that they may be important contributing factors. In a longitudinal study of IA, Meerkerk et al. (2006) found that the only two activities that predicted IA over a year’s period were time spent searching for online erotica and playing interactive online games. After two years, searching for erotica was the only online activity that predicted increases in IA. They assert that, “using the Internet for sexual gratification should therefore be regarded as the most important risk factor for the development of (IA)” (p. 98). In factor analytic studies, Pratarelli and his colleagues also found sexual activity an important factor in the development of IA (Pratarelli & Browne, 2002; Pratarelli, Browne, & Johnson, 1999).

Davis (2001) proposes two distinct types of IA: specific and generalized. Specific IA involves abuse of a content-specific function of the Internet such as online sexual behaviors or gambling. When these behaviors become disturbed online, they are technologically enabled variants of established pathologies such as pathological gambling, paraphilias, or compulsive sexuality (Morahan-Martin, 2005). Other Internet activities associated with specific IA such as online interactive games are unique to the Internet. Generalized IA not linked to any specific activity but to Internet abuse that transcends specific applications. It is associated with the unique communication patterns that are available on the Internet (Davis, 2001).

However, there is overlap among these classifications. For example, while playing online socially interactive games, users may engage in online sexual activities. A study of 1,504 U.S. therapists who had treated at least one client with problematic Internet use found considerable overlap among the eleven types of disturbed use that were identified (Mitchell, Becker-Blease, & Finkelhor, 2005).

In this chapter, research on specific applications is distinguished from research that does not differentiate between specific applications. In the latter case, the term IA is used. As will be discussed, there are commonalities across groups.

### Internet Abuse and Other Problems

Individuals with IA are more likely than others to have a number of other problems. These include mood disorders of depression (Kim et al., 2006; LaRose et al., 2003; Thatcher & Goolam, 2005a; Wei et al., 2004; Whang et al., 2003; Yang & Tung, 2007; Young & Rodgers, 1998) and bipolar disorder (Black, Belsare, & Schlosser, 1999; Shapira et al., 2000), substance abuse (Bai et al., 2001; Greenberg, Lewis, & Dodd, 1999), sexual compulsivity (Cooper, Putman, Planchon, & Boies, 1999), and pathological gambling (Greenberg et al., 1999). A study of children found that children with IA were more likely overall to have behavior problems, including attention deficit
hyperactivity disorder (ADHD), anxiety/depression, delinquent behavior, and sexual and social problems (Yoo et al., 2004). Personality factors associated with IA include loneliness (Caplan, 2002; Kubey, Lavin, & Barrows, 2001; Morahan-Martin & Schumacher, 2000, 2003; Nalwa & Anand, 2003; Whang et al., 2003), low self-esteem (Niemz et al., 2005; Yang & Tung, 2007), shyness and social anxiety (Caplan, 2002; Chak & Leung, 2004; Pratarelli, 2005; Wei et al., 2004; Yang & Tung, 2007). Research on specific IAs has found similar factors. This suggests a commonality between generalized IA and some forms of specific IA.

Is Internet Abuse Symptomatic of Other Disorders?

The association of IA with other disorders has raised a number of questions. One interpretation of the co-morbidity of IA with other disorders is that “in most cases, computer (and Internet) use may be symptomatic of other, more primary disorders” (Shaffer et al., 2000, p. 162). Hence, treating IA “as if it were a new diagnostic entity may lead to the misdiagnosis of primary psychiatric disorders for which we have proven therapeutic interventions” (Huang & Alessi, 1997, p. 890).

It is uncertain whether clinicians are using Internet abuse (or any variant of the term) as a primary or even secondary diagnosis. Internet abuse is not listed in DSM, which in the United States would affect reimbursement, although it would be possible to use Shapira et al.’s (2003) criteria to diagnose IA as an impulse control disorder NOS. Limited research indicates that clinicians give established diagnoses when treating those with symptoms of IA. In a survey study of eighty mental health counselors in the United States, Parsons (2005) found more than half (55%) had treated someone who met Young’s (1998) criteria for IA. Counselors who had treated someone with IA said these clients were also most likely to be diagnosed with depression (40.9%), obsessive-compulsive disorder (34.1%), impulse control disorder (31.8%), relational problems NOS (20.5%), anxiety disorder (15.9%), or adjustment disorder (6.8%).

However, a large-scale study using a systematic sample of 1,504 U.S. psychologists, social workers, and family therapists who had at least one client with an Internet-related problem found that the Internet-related problem frequently was the primary focus of treatment. Excessive overuse of the Internet, either in general or related to specific types of behavior, was the most frequent problem (61%), with frequent overlap with other Internet-related problems. When excessive overuse of the Internet was a presenting problem, it was the primary focus of treatment in 40 percent of cases. Clinicians reported that the Internet-related problem was the primary focus of treatment in 44 percent of cases involving problematic downloading of pornography, 29 percent of cases involving problematic gaming and role-playing behaviors, and 23 percent of
cases involving isolative-avoidant use of the Internet. Overall, the likelihood that the Internet-related problem was the primary focus of treatment varied among the eleven categories of Internet-related problems from 23 percent to 48 percent (Mitchell et al., 2005).

**Preexisting Problems and IA**

A second issue related to the co-morbidity of IA to other disorders is whether pathology predates IA or whether disturbed Internet use causes Internet-related problems such as depression. Limited evidence that those with IA had preexisting problems is provided by a small-scale study of twenty individuals with IA, defined as impulse control disorder NOS, who were administered face-to-face (F2F) interviews using the Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders (SCID-IV). All twenty participants had at least one lifetime *DSM–IV* Axis 1 diagnosis, with an average of five other diagnoses. Two-thirds (70%) had a lifetime diagnosis of bipolar disorder, 85 percent had received previous mental health treatment, and 75 percent had been treated with psychotropic medications. Participants retrospectively reported moderate to marked reduction in problematic Internet use when given medications appropriate for the co-morbid psychiatric illnesses (Shapira et al., 2000).

Longitudinal studies of Internet use are sparse. However, the HomeNet study (Kraut et al., 1998; Kraut et al., 2002) provides some insight into the effect of Internet use. This study monitored the Internet use of new users in the United States in the mid-1990s. It is one of a limited number of systematic longitudinal studies that followed the antecedents and consequences when a small, select group of users was introduced to the Internet. Users were given a free computer, Internet access, training, and support in exchange for allowing their Internet use to be monitored and for taking part in periodic interviews and testing. In the first follow-up, the researchers found neither loneliness nor depression before beginning Internet use but predicted loneliness or depression after the first twelve to eighteen months of Internet use. However, increased Internet use was associated with higher levels of both loneliness and depression. The researchers ascribe these increases in depression and loneliness to decreases in family communication, social activities, happiness, and the number of individuals in one’s social network, which also were associated with increased Internet use (Kraut et al., 1998).

The second wave of the HomeNet study (Kraut et al., 2002) was conducted after participants had been online for two to three years. The results contradicted the results from the first wave. After this amount of time online, loneliness and depression was unrelated to amount of Internet use. However, the researchers found that the effect of Internet use on psychological well-being varied between extroverts and introverts. For introverts, increased use of the Internet was associated with decreases in social involvement as well as
decreases in users’ sense of well-being as seen in increased levels of loneliness, negative affect and time pressure, and decreased self-esteem. For extroverts, the effects of Internet use were opposite in each of these measures. Separate analyses controlling for previous levels of loneliness and social involvement found increased Internet use associated with increased loneliness and decreased social involvement for introverts and the opposite effects for extroverts. The authors suggest a “rich get richer” hypothesis. That is, for extroverts who already have greater social resources, Internet use enhances their well-being, while the opposite is true for introverts.

These findings highlight not only that some individuals may be at greater risk of developing Internet-related problems but also that the effect of Internet use depends on characteristics of individual users.

**Is it Appropriate to Apply the Addiction Model to IA?**

There is much debate about the appropriateness of applying the addiction model to the Internet. Walther and Reid (2000) argue, “We should not use value-laden terms such as addiction to label something we know so little about” (p. B5). Others question why the Internet has been singled out as addictive. Although people spend more time watching television and talking on the phone than on the Internet, there is little concern that these are addictive (Grohol, 1999; Morahan-Martin, 2005; National Public Radio, 2000), and far less research about them than on IA (Morahan-Martin, 2005). However, like the Internet, when the telephone and television were new technologies, there was much concern about the negative effects of both. The spread of each of these technologies has exposed users to a wider universe, which can fuel fears, especially when children are involved. In the case of the Internet, apprehension can be magnified because users have access to activities that may not be culturally sanctioned, such as speaking to strangers, exploring pornography, and chatting about sexual topics (Bahney, 2006).

Still, many describe themselves as addicted to the Internet or specific applications of the Internet. However, it is unclear what people mean when they describe themselves or anyone else as addicted to the Internet or any other behavior. In a study of Facebook use on four U.S. university campuses, Vanden Boogart (2006) found nearly a third said they were addicted to Facebook; yet there were few negative effects from its use. Higher use of Facebook was associated with lower grades but also with higher social connectedness online. This highlights that self-reports of addiction should not be viewed clinically. The term *addiction* is widely used to describe a number of behaviors, such eating, exercise, gambling, sex, shopping, and television (e.g., Cooper et al., 1999; Jacobs, 1986; Kubey & Csikszentmihalyi, 2002; Milkman & Sunderwirth, 1982). Addiction has even been expanded in medical journals to include “UV (ultra-violet) light tanning as a type of substance-related disorder” (Warthan,
Uchida, & Wagner, 2005), chocolate (Small, Zatorre, Dagher, Evans, & Jones-Gotman, 2001), carrots (Kaplan, 1996), and botox (Singh, Hankins, Dulku, & Kelly, 2006).

This raises a broader, controversial issue of applying the addiction model from substances to any behaviors. Technically, addiction is a lay rather than a clinical term. *DSM* uses the terms abuse and dependence to describe disturbed patterns of substance use, not addiction (APA, 2000). Further, *DSM* does not apply addiction, abuse, or dependence in describing behavioral disturbances. However, as discussed later, some have argued that disturbed patterns of behaviors with characteristics such as withdrawal and tolerance and psychological dependence are similar to substance dependency and view these behaviors as behavioral (Bradley, 1990) and technological addictions (Griffiths, 1995).

Many object to expanding the addiction model to include behaviors. Madras argues, “The word is grossly overused. Addiction is a neurobiological disorder. Clinically, it’s a very clear syndrome” (Madras, cited in Lambert, 2000). Others argue that expanding the model of additions to behaviors trivializes substance-related addictions, undermines acceptance of addictions as illness, and is counterproductive to understanding etiology and treatment approaches for substance-related addictions as well as behaviors that are inappropriately labeled as addictions (Jaffe, 1990; Satel, 1993). Further, Jaffe argues that labeling behaviors as “addictions” results in those behaviors growing, “because it excuses uncontrolled behaviors and predisposes people to interpret their lack of control as the expression of a disease that they can do nothing about” (Peele, as cited in Jaffe, 1990, p. 1426).

**Internet Abuse as an Addictive Behavior**

Nevertheless, many mental health professionals believe that the addictive model does encompass both substances and behaviors (e.g., Grant, Brewer, & Potenza, 2006; Marlatt, Baer, Donovan, & Kivlahan, 1988; Pallanti, 2006; Potenza, 2006; Shaffer, 2006; Shaffer et al., 2004). Shaffer et al. (2004) argue for a syndrome model of addiction, which includes both substances and behaviors. Based on “evidence of multiple and interacting biopsychosocial antecedents, manifestations, and consequents – within and among behavioral and substance-related patterns of excess – reflects an underlying addiction syndrome, (they) propose . . . that addiction should be understood as a syndrome with multiple opportunistic expressions” (p. 367). Individual vulnerability to addiction, including shared neurobiological and psychosocial elements, puts individuals at risk for developing problems when exposed to specific objects of addiction. The expression of addiction can vary according to the specific object of addiction, but there are “common manifestations and sequelae (e.g., depression, neuroadaption, and deception)” (p. 368). A summary of the supporting evidence and how it may apply to cases of IA that are clinically significant.
follows. The term *Internet addiction* is used in this section to differentiate it from *Internet abuse* (IA) which, as used generically in this chapter, does not necessarily imply a mental illness. However, researchers do not necessarily use that term.

Many disorders that have been considered behavioral addictions are listed in *DSM* as impulse-control disorders not otherwise classified. “The essential feature of impulse-control disorders is the failure to resist an impulse, drive, or temptation to perform an act that is harmful to the person or to others” (APA, 2000, p. 609). This group includes pathological gambling, which is a frequent source of problematic online use, and kleptomania. Compulsive sexual behavior also is considered an impulse control disorder NOS. A consensus is growing among those who view IA as a clinical disorder that it should be classified in this group (Aboujaoude et al., 2006; Orzack, 1999; Shapira et al., 2000; Shapira et al., 2003; Treuer et al., 2001). Evidence that there is a relationship between substance and behavioral disorders, including impulse control disorders and other disorders involving poor impulse control such as bulimia, comes from a number of different lines of research. They share a number of clinical symptoms such as

repetitive or compulsive engagement in a behavior despite adverse consequences, diminished control over the problematic behavior; an appetitive urge or craving state prior to engagement in the problematic behavior, and a hedonic quality during the performance of the problematic behavior (as well as) . . . repeated unsuccessful attempts to cut back or stop, and impairment in major areas of life functioning. (Grant et al., 2006)

Additionally, both behavioral and substance abuse show signs of tolerance and withdrawal, which Shaffer et al. (2004) consider a neurobiological adaptation. These symptoms have been found in those with IA.

Furthermore, both chemical and behavioral addictions have similar patterns of co-morbidity and family histories with each other as well as with mood disorders (Grant et al., 2006; Greenberg et al., 1999; Shaffer et al., 2004), and people often go from one object of addiction to another (Shaffer et al., 2004). These suggest possible genetic or neurobiological links between the various types of addiction. Similar patterns have been found with studies of Internet addiction. For example, Greenberg et al. (1999) examined the relationship between behavioral and substance-related addictions. For each of four substance and five behaviors, university students rated the frequency they experienced craving, withdrawal, lack of control, and tolerance. Correlations were performed for the total for each. The Internet addiction scores were significantly correlated with all substances (alcohol, \( r = .42 \); cigarettes, \( r = .34 \); caffeine \( r = .26 \); chocolate, \( r = .23 \)) and behaviors (video games, \( r = .64 \); television, \( r = .57 \); gambling, \( r = .43 \); exercise, \( r = .12 \); caffeine \( r = .12 \)). All associations are significant at \( p = .01 \) for all except exercise, with \( p = .05 \). Overall, those “who reported greater addictive tendencies toward substances . . . also reported greater addictive
tendencies toward... activities ($r (127) = .50, p < .001$)” (p. 568). The authors conclude that “the overlapping addictions found in the... study do suggest a common core of vulnerability to addictive substances and activities” (p. 570).

Likewise, Yoo et al. (2004), in a study of children in South Korea, found those with Internet addiction were more likely to have a number of addictive behaviors, with disturbed playing of video games the most frequent. Children in this study were more likely to have ADHD, which in turn is a risk factor for substance abuse in adolescence. The authors suggest that ADHD symptoms of inattention and hyperactivity “may be, potentially, important risk factors for Internet addiction” (p. 492). Further, they suggest that “addictive behavior for the Internet may be regarded, in the future, to be on a continuum with other kinds of addictions, especially alcohol and other substances” (p. 493).

“Recent research has raised the possibility of a common biochemical mechanism of addiction to drugs, other chemical substances, or behaviors” (Betz, Mihalic, Pinto, & Raffa, 2000, p. 17). There is evidence that “biochemical, functional neuroimaging, genetic studies and treatment research have suggested a strong neurobiological link between behavioral addictions and substance use disorders” (Grant et al., 2006). Addictive behaviors including “impulse control disorder behaviors may be conceptualized as an imbalance between an overstimulated drive state, an impairment in inhibition or reward processing, or a combination of these factors” (Grant et al., 2006). Several neurotransmitters are believed to be involved: serotonin, dopamine and its pathways, and endogenous opioids. Dysfunction in the serotonin (5-HT) systems have been found in substance abuse and some impulse control disorders. These dysfunctions “may reflect the impairment in frontal inhibition which prevents individuals from controlling their desires” (Grant et al., 2006). The dopaminergic systems have been implicated in both substance and behavioral addictions. This system is involved in the reward system of the brain. Dysfunctions are hypothesized to be involved in what Blum, Cull, Braverman, and Comings (1996) have called a reward deficiency syndrome, which is a “hypothesized hypo-dopaminergic state involving multiple genes and environmental stimuli that puts and individual at high risk for multiple addictive, impulsive and compulsive behaviors [and] is a proposed mechanism of addiction” (Grant et al., 2006). This may be seen in strong craving and urges, which cause individuals to seek the reward from the given behavior or substance despite negative consequences. Endogenous opioids also are involved in processing reward, pleasure, and pain, play a role in the modulation of dopamine neurons, and have been implicated in substance, behavioral, and impulse control disorders. “Individuals with altered opiodergic systems may feel a more intense euphoria after engaging in rewarding behaviors and, thus, have greater difficulty controlling desires to continue the addictive behavior” (Grant et al., 2006).

The role of the brain’s reward system has also been found in neuroimaging studies, which “suggest as far as the brain is concerned, a reward’s a reward,
regardless of whether it comes from a chemical or an experience” (Holden, 2001, p. 980). Neuroimaging studies also indicate similarities between behavioral and substance addiction in decision-making parts of the brain. Decreased activation of the ventromedial prefrontal cortex (vmPFC) has been documented for both substance abuse and impulse control disorders. These abnormalities are “considered important in the disadvantageous decision-making (involving short-term gains vs. long-term losses) central to addiction” (Grant et al., 2006).

Although at this point there are no known biochemical or neuroimaging studies of Internet addiction, research on the commonalities of behavior addictions, particularly impulse control disorders, and substance abuse raises the possibility that Internet addiction also may have a biological basis. Evidence of a link is stronger with specific Internet activities. Much of the research on the biological component of addiction has been conducted with gambling, and similar results would be expected with online gambling. Neuroimaging has found activation of the dopamine system while playing video games (Koepp et al., 1998), which raises the probability that similar results would be found with socially interactive online games that have evolved from video games. Specific IAs involving activities that can create euphoric feeling, such as online sexual behaviors, are likely candidates for confirmation of a biological model of Internet-related behavioral addictions.

### Cognitive Behavioral Model of Addiction and IA

Of course, mere exposure to addictive substances or behaviors will not necessarily lead to addiction, even among vulnerable individuals. Learning is necessary. Cognitive behavioral models have been proposed for substance and behavioral addictions in general (e.g., Marlatt et al., 1998; Shaffer et al., 2004) and for generalized IA (e.g., Caplan, 2002, 2003, 2004, 2005a; Davis, 2001) and specific IAs (e.g., Putnam, 2000; Yee, 2001). Addiction to both substances and behaviors can “be understood as learned adaptive or functional behavior in the context of personal and environmental factors… learning factors, such as classical and operant conditioning, observational and social learning, and higher-order cognitive processes such as beliefs, expectancies and attributions are all common to addictive processes” (Marlatt et al., 1988, p. 226). Reinforcing effects are important for the establishment of a habit or pattern of continued behaviors that might lead to addictive behavior. Shaffer et al. (2004) contend that the premorbid stage of any addiction occurs when at-risk individuals “engage in repeated interactions with a specific object or objects of addiction, and…the neurobiological or social consequences of these addictions produce a desirable subjective shift that is reliable and robust” (p. 368). The shift in subjective state is “requisite for the development of the addiction syndrome” (p. 368). That is, reinforcement must occur. This reinforcement may
be positive (feeling of euphoria) or negative (relief from depression or other negative moods). Conditioned responses to stimuli associated with the object of addiction are learned after repeated association of these cues with unconditioned stimuli. Learned outcome expectancies as well as efficacy beliefs also are important in the acquisition of addictions.

A variant of this model views addiction as a form of self-medication. That is, people use objects of addiction to escape (i.e., negative reinforcement). Khantzian, who has written extensively about addiction as a form of self-medication, says of substance abuse: “The nature of suffering is at times overwhelmingly intense – or elusive… and beyond people’s control… the drug user sudden feels some control over what had felt uncontrollable. I do think there’s a specificity involved” (cited in Lambert, 2000). This model holds true of a number of impulse control disorders and behavioral addictions. Individuals continue these behaviors because they provide escape or positive feelings. Some have proposed that these disorders may exist “within a broad spectrum of affective (mood) disorders” (Zohar, 2006), which further supports that use may be related to dealing with depression.

There is evidence that many who develop IA use the Internet to modulate moods and as a form of escape. For people suffering from depression, social anxiety, or severe loneliness, using the Internet may provide escape from emotional pain and distress. Like drugs, the Internet offers different types of escape. Those who are lonely can find companionship in chat rooms. Those who are socially anxious can find online interactions are more rewarding or less threatening than offline ones. Those who are depressed can escape into an elaborate fantasy world in online interactive games. Research supports that both those with specific IA and nonspecific IA are more likely than others to use the Internet to modulate negative affect. Those with IA are more likely to use the Internet to escape pressures – when down, anxious, socially isolated – and to control moods (Anderson, 2000; Caplan, 2002; Morahan-Martin & Schumacher, 2000). Similar results are reported in studies of specific forms of IA. Some appear to experience dissociative experiences and flow states (Chou & Ting, 2003), which can both distract an individual from aversive feelings (negative reinforcement) and provide positive experiences (positive reinforcement). Mood modulation also plays a role in the development of specific IAs. Escapism (Parsons, 2005; Yee, 2006b; Zheng et al., 2006) and relief from dissatisfaction (Wan & Chiou, 2006) are predictors of abuse of socially interactive games. Use of the Internet for sexual purposes when stressed is an important predictor of compulsive online sexual behavior (Cooper et al., 1999; Cooper, Griffin-Shelley, Delmonico, & Mathy, 2001).

The following sections will look at theories and research on two specific IAs, online sexual compulsivity and online interactive games, and on generalized IA. Applications of the cognitive behavioral model within each will be provided. Similarities and differences will be highlighted.
Specific Online Activities and IA

There is a large and growing body of research on specific Internet activities, including online sexual behaviors, gambling, and online interactive games (e.g., Boies, Cooper, & Osborne, 2004; Cooper et al., 1999, Cooper, Delmonico, & Burg, 2000; Griffiths, 2001; Griffiths & Parke, 2002; Ladd & Petry, 2002; Parsons, 2005; Yee, 2006a, 2006b). Although this literature is beyond the scope of this chapter, aspects of research on online sexual behaviors and disturbances and online interactive game use provide insight about IA. The following brief review of selected aspects of compulsive online sexual behaviors and online games highlights similarities and differences between this research and research on IA. There is much overlap between specific IAs and generalized IA.

Specific Internet Abuses: Online Sexual Compulsion and Problematic Use of Online Pornography

Online sexual activities are an important component in the development of IA. In a longitudinal study of IA, Meerkerk et al. (2006) found that the only two activities that predicted IA over a year’s period were time spent searching for online erotica and playing interactive online games. One year later, searching for erotica was the only online activity that predicted increases in IA. The authors conclude that, “using the Internet for sexual gratification should therefore be regarded as the most important risk factor for the development of (IA)” (p. 98). In factor analytic studies, Pratarelli and his colleagues also found sexual activity an important factor in the development of IA (Pratarelli & Browne, 2002; Pratarelli et al., 1999). Online sexual activities (OSA) are some of the most common types of problematic Internet behaviors seen in clinical practice and often are associated with problematic excessive Internet use (Mitchell et al., 2005). Therapists reported that among clients in treatment with Internet-related disturbances, 56 percent involved problematic use of online pornography (defined as leading to guilt or interference with other activities, responsibilities or relationships) and 21 percent involved infidelity (Mitchell et al., 2005).

Cooper et al. (2000), in an online study of people who engaged in OSA found that one-sixth were sexually compulsive, but only 1 percent were what the authors called online sexual compulsives (Cooper et al., 2000). Most who develop problems from their online sexual behaviors have preexisting pathology (Schwartz & Southern, 2000). Putnam (2000) argues that individuals who are vulnerable to developing compulsive sexual behavior may become compulsive when exposed to online sexual activities. Cooper et al. (1999) provides support to this in a study that found some online sexual compulsives had no prior history of sexual compulsivity. They conjecture that these individuals may
have been susceptible to sexual compulsivity but “may never have had difficulty
with sexual compulsivity if it were not for the Internet” (p. 85) because they
had sufficient internal resources and impulse control to resist acting out these
impulses until they went online. Those who first became sexually compulsive
online were likely to be depressed and to use OSA as an escape or distraction.
A second study that compared those who develop problems from their use of
OSA were more likely to use OSA to cope with stress and to explore sexual
fantasies (Cooper et al., 2001).

A second factor associated with disturbances arising from OSA is being
involved in OSA to seek relationships. In a study of OSA among Canadian
university students, Boies et al. (2004) conclude that “activities facilitating
interpersonal contact were most strongly correlated to Internet-related prob-
lems suggesting Internet use is related to a need for affiliation in some indi-
viduals” (p. 215). Additionally, there are differences between introverts and
extroverts in their use of OSA. Koch and Prareelli (2004) found introverts more
likely than extroverts to use resources intended for adults only, to download
or view sexually oriented pictures online, and to be physically aroused while
online. Likewise, therapists who had treated clients who used the Internet “to
the exclusion of face-to-face social interaction with family, friends, and dating
partners” (Mitchell et al., 2005, p. 503) were highly likely to overlap with those
who were excessive Internet users (83%) and those with problematic use of
Internet pornography (42%) (Mitchell et al., 2005).

Putnam (2000) explains the pathogenesis of the development of online sex-
ual compulsions in terms of operant and classical conditioning. He argues that
individuals who are vulnerable to develop compulsive sexual behavior may
become compulsive when exposed to online sexual activities. From an operant
conditioning model, continuation of online sexual behaviors is both positively
reinforced, by sexual arousal and gratification (sometimes accompanied by
masturbation and orgasm), and negatively reinforced, by reductions in stress
when online. The reinforcing values may be especially strong because rein-
forcement is on a variable-ratio schedule. Classical conditioning eventually
occurs when, with repeated online sexual behavior, computer use is paired
with sexual arousal. Thus, the computer may provoke craving to engage in
online sexual activities.

These findings are similar to research on IA. Both those with IA and those
whose use of OSA is disturbed are more likely than others to be depressed and
to use the Internet and to use the Internet to deal with stress. For both, online
social interactions are an important factor. Introverts also are more likely to
develop IA.

Specific Internet Abuse: Online Social Interactive Games

Online games have long been associated with the addictive-like behavior. These
games date to 1978 when Trubshaw created a computer version of Dungeons
and Dragons (Bartle, 1996; Kent, 2003). The term used to describe them, MUD, originally meant Multiple User Dungeons although eventually MUD became an acronym for Multiple User Domains and was used generically to describe a wide variety of online games. Turkle (1995) and Rheingold (1993) first brought these games and their addictive appeal to popular attention in the mid-1990s when the Internet began its astronomical growth among the public. MUDs are text-based virtual worlds, run on private servers, free to users, and limited to 250 per game (Kent, 2003). Many are still in use.

Graphical interface began transforming online games in the mid-1990s with the development in 1996 of Meridian 59, the first commercially viable Internet-based game that was not limited to a closed circuit, which “incorporated[d] large numbers of players in a single world, a persistent world, and many of the other identifying elements of what later became known as MMOGs” (Massively Multiplayer Online Games) or MMORPGs (Massively Multiplayer Role-Playing Games) (Kent, 2003). Meridian 59 added a new visual reality by allowing players to experience the fantasy world of the game from the perspective of their characters. In 1999, SONY released one of the most popular MMOGs, Everquest, “a fully three-dimensional game that could truly support a massive community” (Kent, 2003), which offered players enhanced opportunities for combat, exploration, and character development. Access to these games is by subscription, usually about US$10–20 per month. Since their inception in 1996, the number of active subscriptions for MMORPGs worldwide is estimated at over 12 million (Mmogchart.com, 2006).

MMORPGs are played in a “fully developed multiplayer universe with an advanced and detailed world [both visual and auditory]” (Griffiths, Davies, & Chappell, 2004). “Different from forms of static entertainment, such as novels, television, cinema, and radio, [MMORPGs] are dynamic and highly interactive allowing players to become mentally immersed within them” (Kurapati, 2004). The result is that players are engrossed “within huge virtual worlds littered with towns, castles and other real life constructs to the point which a player can feel as if living inside a fully functional alternative reality” (Kurapati, 2004). Kurapati referred to this as immersiveness and believes it to be an important component of MMORPG abuse.

There may be as many as 2,000 players on a game server at a time. Each player creates his or her own character, or avatar, and then can roam the virtual world, perceive the virtual world through the persona, and act and socialize with others through this persona. Characters gain status and power based on time online and achievement of tasks. The game is continuous; that is, the game continues whether or not an individual is playing. In the virtual world, an individual can play solo or within a group. Players can communicate with each other via on-screen text either privately or between limited or all players in their zone.
Abuse of Online Interactive Games

MUDs and MMORPGs have been associated with compulsive and addictive behaviors. This is hardly surprising, given the large amount of time that gamers spend online. Overall, MMORPG players are online four times more than other Internet users (“Average MMORPG Gamer,” 2005). Yee (2006a), in a large-scale online study of more than 5,000 MMORPG players, found gamers spent an average of 22.71 hours per week in their MMORPG environment ($N = 5,471$, $SD = 14.98$), with a median of twenty hours per week; 8.9 percent spent forty or more hours weekly. Further, three-fifths of players had spent at least ten hours continuously playing a MMORPG at some point. In a second study, adolescent players report playing *EverQuest* 26.25 hours per week ($SD = 16.1$) while adults played report playing 24.7 hours weekly ($SD = 13.34$), with a small group playing over seventy hours (Griffiths et al., 2004). Many play for long periods of a time; three-fifths of players had spent at least ten hours continuously playing a MMORPG at some point in Yee’s (2006a) study, while 80 percent of MMORPG players in Ng and Wiemer-Hastings’ study (2005) had spent more than eight continuous hours playing in one session.

Anecdotal accounts of addictive MMORPG behavior abound. *Everquest*, one of the most popular MMORPGs, is commonly called Evercrack by gamers. Concerns about MMORPG abuse were the major reason that the South Korean and Chinese governments established Internet addiction centers. In other attempts to limit Internet abuse, the Chinese government initiated a program to restrict the time gamers play online (Taylor, 2006), while the government in Thailand has established an overnight curfew for online games (“Thailand Restricts Online Gamers,” 2003).

A significant minority of players self-report being addicted to MMORPGs as well. A twenty-two-year-old male *EverQuest* player describes why he thinks he is addicted.

> I call myself an addict, because I share the same symptoms as someone who’s addicted to smoking or alcohol, or some other substance. I think about EQ (*Everquest*) while I’m not playing, I get stressed when I have to go 23 hours without logging on for a fix and I wasn’t able to quit when I tried. If that’s not an addiction, I don’t know what it is.  
>  
> (Yee, 2002)

Yee (2002) found 40.7 percent of MMORPG players said they consider themselves addicted to the specific MMORPG that they used; the average rate varied between 36.5 and 53.2 percent, depending on the MMORPG played. In a second study, Yee (2006a) reports that about half of MMORPG players self-identified as addicted to the specific MMORPG they used, with differences by age and gender.

Research supports that many MMORPG users report that their game playing interrupts other aspects of their lives. In a study of *EverQuest* players,
four-fifths of adults (78.9%) and adolescents (78.4%) reported that they had sacrificed other activities to play the game. Adolescents (22.7%) were more likely than adults (7.3%) to report sacrificing work or education ($\chi^2 = 19.48$, $df = 1; p < .0001$), while adults (20.8%) were more likely than adolescents (12.5%) to report sacrificing socializing with friends, family, or a partner ($\chi = 3.24$, $df = 1; p < .0045$). Other activities that were sacrificed to play included: “another hobby or pastime (19.3% adolescents; 27.5% adults) and sleep (19.3% adolescents; 18.5% adults)” (Griffiths et al., 2004). The authors speculate that “some online gamers may be experiencing addictive like experiences similar to findings in other types of video game play” (p. 95), and suggest, based on video game research, that adolescents are more vulnerable.

Other studies of *EverQuest* players have found a significant minority of players exhibit addictive behaviors. Based on an online survey of 3,989 *EverQuest* players, Yee (2002) reported that 15.5 percent had withdrawal symptoms when not playing, 23.8 percent had mood alterations when playing, 28.8 percent played even when they did not enjoy the experience, and 18.4 percent said that playing caused academic, work, health, or financial problems. There were differences by age, as with Griffiths et al. (2004), and by gender. The percentage who had tried unsuccessfully to quit the game was highest among those who were twelve- to seventeen-years-old (males = 30%; females = 18.8%) and decreased steadily with age with about 20 percent of eighteen- to twenty-two-year-olds, 10 percent of twenty-three- to thirty-five-year-olds and 5 percent of those over thirty-five who had been unsuccessful in quitting.

Research on MMORPG abuse is limited. In a study of 513 MMORPG players, Parsons (2005) found 15.3 percent met Young’s (1998) criteria for IA, although less than 1 percent had sought professional help. Playing MMORPGs to relieve negative affect (Wan & Chiou, 2006) and as a form of escapism (Parsons, 2005; Yee, 2006b; Zheng et al., 2006) are predictors of MMORPG abuse as are having flow experiences while gaming (Chou & Ting, 2003) and sensation seeking (Zheng et al., 2006). Problematic game users also exhibit social disturbances. They are more likely than others to be involved in social interaction (Zheng et al., 2006), but 25 percent have isolated and avoidant patterns of use that involve using the Internet to the exclusion of F2F interactions (Mitchell et al., 2005), which might explain why they are more likely to be lonely (Parsons 2005). Clinicians report that half of those with problematic game use also have problems related to their use of online pornography (Mitchell et al., 2005).

Another predictor of MMORPG abuse, valuing the control and status that the games provided (Chak & Leung, 2004; Yee, 2006b), is unique to MMORPGs. In discussing excessive users of MUDs, Turkle (1995) argued that these games may provide modes of achievement. Some may “prefer the illusory power or pleasure of being able to control the world inside the computer when playing online games” (Chak & Leung, 2004, p. 567). In MMORPGs, the lack of a story line or plot can abet players’ feeling of control (Yee, 2001). Yee (2001) describes MMORPGs, notably *Everquest*, as a “virtual Skinner boxes,” which
are well designed to promote addiction because they effectively use principles of operant conditioning to promote players spending more and more time involved in the game by providing tokens of achievement. In the acquisition phase, users are rewarded frequently and are able to quickly move up to higher levels. During this stage, the tokens of achievement acquire value. Gradually, however, it takes longer and longer to get to the next level. Shaping is employed. Gamers also have to perform increasingly elaborate and complex tasks as the games continue. Because the games have “multi-layered and overlapping goals,” players “pursue multiple rewards concurrently,” which fosters motivation to continue because they always feel close to a goal and reward. Like a slot machine, games also use a variable ratio of reinforcement, which is the most effective way to distribute reinforcement. Ultimately, one’s accomplishments in Everquest or other MMORPGs “makes it possible for Joes and Janes to become heroes... What happens when people can feel achievement through continuous mouse-clicking... What happens when these achievements are more rewarding than ‘real life’ achievements?” (Yee, 2001). Thus, achievement is an important predictor of MMORPG abuse because it is conditioned.

The Role of Online Social Interaction in The Development of Internet Abuse

Research consistently has supported that the unique social interactions made possible by the Internet are important in the development of both generalized and specific IA (Boies et al., 2004; Caplan, 2002; Davis, 2001; Leung, 2004; Li & Chung, 2006; Morahan-Martin & Schumacher, 2000; Niemz et al., 2005; Pratarelli & Browne, 2002; Scherer, 1997; Thatcher & Goolam, 2005a; Weiser, 2001; Young, 1998; Young & Rogers, 1998; Yuen & Lavin, 2004). Those with IA are more likely than other Internet users to go online to meet new people, to talk to others with the same interests, and to find emotional support (Morahan-Martin and Schumacher, 2000). They are more likely to use socially interactive activities such as chat rooms, newsgroups, and socially interactive games (Chak & Leung, 2004; Chen et al., 2001; Johansson & Göttestam, 2004; Leung, 2004; Lin & Tsai, 2002; Morahan-Martin & Schumacher, 2000; Thatcher & Goolam, 2005a; Weiser, 2001; Whang et al., 2003; Yoo et al., 2004; Young, 1998). Similar patterns of social interaction also are related to disturbed patterns of online game use (Mitchell et al, 2005; Zheng et al., 2006) and sexual behaviors (Boies et al., 2004; Mitchell et al., 2005).

Davis (2001) argues the unique social environment of the Internet is a key component to the development of IA. Research has confirmed this. Leung (2004), who studied a representative sample of 976 sixteen- to twenty-four-year-olds in Taiwan, found social disinhibition on the Internet was an important predictor of IA. This factor included reporting that “the anonymity of the
Internet allows me to reveal my feelings as much as I like” (p. 228); that it is easier to express inner thoughts online; that the Internet is a more comfortable place to express their view, that they often talk about themselves on the Internet; and that the Internet “provides a wonderful opportunity to meet new people and sample different cultures” (p. 228). In a second study of U.S. university students, Morahan-Martin and Schumacher (2000) found that the social aspects of Internet use consistently differentiate those with IA from other Internet users and conclude that for those with IA “the Internet can be socially liberating, the Prozac of social communication” (p. 20). In this study, those with IA were more likely than others to report their behaviors online as less socially inhibited. They were more likely to say that they are more themselves online, have more fun with people they know online, share intimate secrets online, and prefer online to F2F communication. Internet abusers consistently reported increased social confidence online, which enhanced their friendship network. They were more likely than others to report that they are friendlier and open up more to people online than in real life, that going online has made it easier to make friends, and that they have a network of online friends. In fact, those with IA were more likely to say that most of their friends they know from being online and that their online friends understand them better than other people. Niemz et al. (2005) replicated these findings in a study of British university students. They found that 44.3 percent of the variance in IA was accounted for by scales that measured increased social confidence and social disinhibition online. Similarly, Leung (2004) found anonymity, social ease online, and social disinhibition were robust predictors of IA, while Whang et al. (2003) found those with IA are more likely to reveal personal concerns to online friends and even to meet online friends F2F. Caplan (2002) hypothesizes that users’ preference for the social benefits available online is an important predictor of IA, and, based on his research, concludes that “preference for computer-mediated social interaction, as opposed to face-to-face interaction, plays a role in the etiology, development and outcomes” of generalized IA (p. 555). As noted earlier, social aspects are important as well to the development of specific IA related to disturbances in online sexual behaviors and online interactive games (Boies et al., 2004; Mitchell et al., 2005).

Loneliness, Social Anxiety, Depression, and Internet Abuse

The preference for online over F2F interaction may be a key factor in the relationship between IA and both loneliness and social anxiety. Those who are chronically lonely and those who are socially anxious share many characteristics, which may predispose them to develop IA. Both are apprehensive in approaching others, fearing negative evaluations and rejection. They tend to be self-preoccupied with their perceived social deficiencies, which leads them
to be inhibited, reticent, and withdrawn in interpersonal situations and avoid social interactions (Bruch, Kalfowitz, & Pearl, 1988; Burger, 2004; Leary & Kowalsky, 1995a, 1995b; Morahan-Martin, 1999; Solano & Koesler, 1989).

The Internet is ideally suited for these individuals. Online social interactions are not F2F, often anonymous, less inhibited, and allow increased control, which can alleviate self-defeating behavioral patterns and cognitions. Research supports that social behavior of the socially anxious and lonely is enhanced online (Caplan, 2003; Morahan-Martin & Schumacher, 2003; Shepherd & Edelman, 2005), and they are more likely than others to develop a preference for online over F2F social interaction, which is an important predictor of the development of IA (Caplan, 2003; Ervin, Turk, Heimberg, Fresco, & Hantula, 2004).

Limited research indicates similar changes for those who are depressed. Using data from a representative telephone survey of 1,501 U.S. youths between the ages of ten and seventeen, Ybarra, Alexander, and Mitchell (2005) found strong differences in social uses of the Internet between those who met DSM–IV criteria for major depression and others. Although this was not a study of IA, the differences reported are strikingly similar to differences between those with and without IA. The depressed youth used the Internet more than others and were more likely to use chat rooms. They also were more likely to personally self-disclose and use the Internet to interact with people they know only online. The authors suggest that “youth with depressive symptomatology may be replacing in-person engagement with online socializing” (p. 15) and hypothesize that it is possible that youth who are depressed “perceive interaction online as demanding less effort... The Internet may offer a safe place for these youth to get the social interaction they need without requiring the social knowledge that in-person interactions demand” (p. 16).

A Cognitive Behavioral Theory of Generalized Internet Abuse

Cognitive behavioral models of generalized IA focus on the importance of online social interactions in the development of IA. Davis et al. (2002) posit that generalized IA is based on “a more pervasive compulsion to be online and communicate with others” (Davis et al., 2002, p. 332). Davis’s (2001) cognitive behavioral model of generalized IA proposes that psychosocial problems such as loneliness and depression predispose some Internet users to develop maladaptive cognitions and behaviors that result in IA. LaRose et al. (2003) suggest that “the transition to problematic usage can begin if the behavior acts as an important or exclusive mechanism to relieve stress, loneliness, depression, or anxiety” (p. 231). This transition also changes expectancies regarding positive result from Internet use.

Caplan, in a series of studies (2002, 2003, 2005a, 2005b), has expanded on Davis’s as well as others’ theories and research and developed an empirically
Based model of IA. In this model, a key cognitive component is a preference for online, over F2F, social interaction (POSI), which is defined as “a cognitive individual difference construct characterized by beliefs that one is safer, more efficacious, more confident, and more comfortable with online interpersonal interactions and relationships than with traditional F2F social activities” (Caplan, 2003, p. 629). POSI is a significant mediator between psychosocial problems associated with social anxiety, loneliness, and depression and negative outcomes associated with Internet abuse (2003). A second critical factor is a social skill deficit in perceived social control, which is “an individual’s competence at self-presentation, role-taking, and impression management in F2F interpersonal interactions” (Caplan, 2005, p. 725). Drawing on the literature on social anxiety, loneliness and their relationship to Internet use and abuse, this model hypothesizes that those who perceive themselves to have low self-presentational skill are more likely than others “to prefer online social interaction because they perceive their presentational skill in online social interaction to be greater than in F2F interaction” (Caplan, 2005, p. 726). That is, those who lack confidence in their self-control and self-presentational skills experience social anxiety, which leads to their being more likely to turn to communication channels that minimize risks and enhance their capabilities. For them, the Internet provides a “buffer for social interaction” (Davis et al., 2002, p. 332), where their social inhibitions are reduced because they have greater control over their presentation of self and less perceived risk in an anonymous environment. Preference for online social interactions is a predictor for both compulsive Internet use and using the Internet for mood regulation. That is, once POSI is established, individuals may turn to the Internet to mitigate affective distress and their use may become compulsive. In turn, compulsive Internet use mediates the influence of POSI on negative outcomes. All hypotheses have been confirmed in research with U.S. university undergraduates. Although preliminary, this theory provides an important framework for understanding the role of online social interaction in the development of generalized IA. It also provides a model for specific IAs where social use of the Internet is a key factor.

An Alternative Approach: Psychoanalytic Perspectives on Generalized Internet Abuse

Psychoanalytic interpretations of IA cast an alternative perspective on IA. Focusing mainly on online social interactions and the ability to enact different aspects of self online, psychoanalytic explanations of IA raise questions about normal, even therapeutic, uses versus disturbed use of the Internet and when use may be addictive.

Applications such as online games and chat rooms offer virtual spaces where individuals can experiment with behaviors and aspects of self free of the social constraints of F2F interactions in a relatively anonymous environment. Users can create an online persona and through social interactions construct new
selves. These online spaces can become “place[s] for the construction and reconstruction of identity” (Turkle, 1995, p. 14). This is especially true in online games where players specifically develop an online persona through their avatars but is also true in chat rooms and other social areas of the Internet where users consciously and unconsciously project an online persona through their self-presentations, behaviors, and even screen names. Turkle (1995) highlights that this allows for exploration of various parts of self. For example, she asserts that MUDs:

provide worlds for anonymous social interaction in which one can play a role as close to or as far away from one’s “real self” as one chooses. . . . the anonymity of MUDs . . . gives people the chance to express multiple and often unexplored aspects of the self, to play with their identity and try out new ones. MUDs make possible the creation of an identity so fluid and multiple that it strains the limits of the notion. (p. 12)

These online personae can be highly “evocative objects for thinking about the self” (Turkle, 1995, p. 256). A MUD player observes, “You are the charac-
ter and you are not the character, both at the same time” (Turkle, 1995, p. 12). Another says, “The persona thing intrigues me . . . it’s a chance for all of us who aren’t actors to play [with] masks. And think about the masks we wear every day” (p. 256). Turkle (1995) compares this to the self that emerges in a psychoanalytic encounter. “It too is significantly virtual, constructed within the space of the analysis, where the slightest shifts come under the most intense scrutiny” (p. 256). “Virtual space is similar to the psychoanalytic notion of transitional space in that it is not truly an internal realm but lies somewhere between an external reality and the internal world” (Allison, Wahlde, Shockley, & Gabbard, 2006, p. 384). As in psychoanalysis, the online world can “operate out of normal time and according to its own rules” (Turkle, 1995, p. 262).

In this sense, online interactions can serve a therapeutic function. As users experiment with aspects of self, they can explore and work through conscious and unconscious conflicts. “Virtual spaces may provide the safety for us to accept what is missing so we can begin to accept ourselves as we are. We can use it as a space for growth. Having literally written our online personae into existence, we are in a position to be more aware of what we project into everyday life (Turkle, p. 263). When the process leads to psychological growth, Internet use, even excessive Internet use that could meet criteria for IA, is “no more addictive than therapy” (Turkle, 1995, p. 13).

However, not all outcomes are positive. Positive outcomes involve working through unresolved issues and integrating them within oneself. Problems occur when individuals act out, sometimes repetitively, existing behaviors and conflicts without working through those issues (Turkle, 1995).

Problems also can occur when individuals dissociate parts of their online selves from the rest of their personality (Suler, 1999, 2004a, 2004b). Many
users experience a different, even more positive sense of self online than offline. One user explains:

“My online persona differs greatly from my persona offline. And in many ways, my online persona is more ‘me’.” This person, a 37 year old who has stuttered since childhood and says he is “still shy to speak . . . [and] out of sync . . . [because] I never learned the dynamic of conversation that most people take for granted.” However, when communicating on the Internet, “it’s completely different: I have a feel for the flow of the conversations, have the time to measure my response, don’t have to worry about the balance of conversation space – we all make as much space as we want . . . It’s been a wonderful liberating experience for me.” (Turkle, 1995, p. 318)

This experience has the potential to be therapeutic if he is able to take these new skills out to his offline life. However, to the extent that he experiences his online self as different from his offline self, he may separate the two, in effect dissociating his online from his offline self. Cooper and Sportolari (1997) observe, “rather than using the Net as a way to work on inhibited or conflictual aspects of the self, people may instead (consciously or not) use online relating to further split off unintegrated parts of themselves, leading to a compulsive and destructive overreliance on their screen personae and relationships.”

Suler (2002) contends that “bringing together the various components of online and offline identity into one balanced harmonious whole may be the hallmark of mental health” (p. 456). He argues that “the self does not exist separate from the environment in which that self is expressed . . . When a person is shy in person while outgoing online, neither self-presentation is more true. They are two dimensions of that person, each revealed within a different situational context” (Suler, 2004b, p. 325). Further, he proposes that Internet use is pathological or “addicted” when online life is dissociated from in-person life (Suler, 1999, 2004a). A key characteristic of pathological user is that “their cyberspace activity becomes an isolated world into itself . . . It becomes a walled-off substitute or escape from their life rather than a supplement to it. Cyberspace becomes a dissociated part of their own mind, a sealed-off intrapsychic zone where conscious and unconscious needs are acted out, but never really understood or satisfied. Reality testing is lost” (Suler, 1999, p. 394). He suggests that alleviating this dissociation should be an important component to therapy.

**Therapy for Clinically Significant Internet Abuse**

There is limited research on therapy for those with IA. This reflects the early stage of research on this emerging problem. Most research has been conducted with nonclinical groups, and, as discussed earlier, it is unclear what percentage of those identified as being Internet abusers exhibit clinically significant patterns. However, clinicians increasingly see clients with Internet-related
problems, but few have training to treat these problems. A U.S. study of 2,908 mental health professionals in direct practice found that three-fourths (73%) had worked with at least one client with Internet-related problems (Wells, Mitchell, Finkelhor, & Blease, 2006), with excessive problematic use and disturbed patterns of downloading pornography the most frequently encountered problems (Mitchell et al., 2005). There was significant variation in exposure to clients with problematic Internet use and exposure across professional groups. Although over 70 percent of mental health counselors (84%), psychologists (79%), and social workers (73%) had worked with clients with Internet-related problems, only 53 percent of school counselors and 34 percent of school psychologists had. However, less than half of the 1,516 clinicians who had worked with Internet-related problems reported that they asked about “Internet use and/or behavior as part of an initial assessment” (Wells et al., 2006, p. 42).

Less than 15 percent of professionals had any training to work with clients with problematic Internet use, with about half of these having training related to Internet addiction and addiction to cybersex. Although about a third of all mental health professionals “had read something in the professional literature on working with clients with problematic internet (use and) experiences” (p. 46), there were variations among professional groups. Marriage and family therapists (51%) were most likely to have read professional literature followed by psychologists (38%), school psychologists (13%), and school counselors (14%). Less than 10 percent of all mental professionals had clinical information regarding the treatment of clients with problematic Internet experiences, but over three quarters were interested in professional development and information related to problematic Internet use (Wells et al., 2006).

Limited research indicates that clinicians’ approach to treating clients with IA is generally consistent with their preferred approach to therapy. In a small-scale study of eighty U.S. clinicians, the most commonly used approaches for working with clients with IA were cognitive (43.2%), reality (22.7%), family systems (20.5%), and solution focused therapy (18.2%). All other approaches were less than 10 percent. “There was a shift away from existential and person-centered approaches when dealing with (IA)” (p. 100). Only 2.3 percent of clinicians used an existential approach or online counseling, whereas 4.5 percent used a psychoanalytic approach, and 6.8 percent used group therapy or a person-centered approach (Parsons, 2005).

There is minimal empirical research on treatment of IA and specific IA. The literature has been dominated by case studies (e.g., Allison et al., 2006; Hall & Parsons, 2001; Orzack & Orzack, 1999; Orzack & Ross, 2000; Sattar & Ramaswamy, 2004) or descriptions of approaches to treatment (e.g., Young, 1999). Cognitive behavioral methods are a dominant modality (e.g., Hall & Parsons, 2001; Orzack & Orzack, 1999; Watson, 2005), although other techniques have been suggested.

Clinical reports indicate that IA often is co-morbid with other disorders and presentation can be complex (e.g., Allison et al., 2006; Orzack & Orzack,
1999). Orzack and colleagues advocate treating IA and online sexual addiction like other addictions, particularly food and sex addictions (Orzack & Orzack, 1999; Orzack & Ross, 2000). A team approach using either inpatient or outpatient therapy, depending on the client’s needs, is suggested. Multimodal therapy is recommended; this can include cognitive behavioral therapy (CBT), motivational interviewing (Miller & Rollnick, 1991), problem solving, twelve-step groups, peer support, family therapy, appropriate medication, and relapse prevention techniques.

Young (1999) suggests that treatment of IA should focus on moderation and controlled use. She proposes time management techniques, setting concrete goals, providing alternative behaviors, and social support and family therapy.

The Internet has been endorsed as a vehicle for therapy for those with IA (Young, 2005) and as an adjunct to F2F therapy for those with online sexual addiction and compulsivity (Putnam & Maheu, 2000). Although having a person with problematic online behaviors use the Internet as part of therapy “may be akin to having an Alcoholics Anonymous meeting in a bar” (Putnam & Maheu, p. 96), abstinence from the computer and the Internet may not be practical because the Internet has become an integral part of people’s professional and social lives. “Therefore, it seems appropriate to include treatment that addresses the problems where it occurs, online” (Putnam & Maheu, 2000, p. 96). Putnam and Maheu (2000) advocate treatment be based on F2F contact with a qualified mental health professional but contend that they can be supplemented with online resources, which “have the advantage of being more accessible than traditional adjuncts to therapy” (p. 94). Online resources are available whenever the client would like to use them and online anonymity fosters less stigmatization and embarrassment.

Although no outcome studies are provided for online counseling for IA, Young (2005) provides information on attitudes to online counseling of forty-eight e-clients who received online counseling for IA from her via a chat room. Reasons for seeking online counseling were anonymity (96%), convenience (71%), not having access to any mental health facilities (38%), cost (27%), and a referral (6%). About half of the e-clients (52%) also cited counselor credentials, that is, “professionals with a background in Internet addiction were not available in their area or that they had previously entered counseling with therapists unfamiliar with Internet addiction” (p. 175). This is consistent with Wells et al.’s (2006) research, which found few therapists with knowledge and experience with IA. Three quarters of clients also expressed concerns about online counseling; these concerns included issues of privacy (52%), security (38%), and fear of being caught while conducting online sessions (31%). Not everyone is sanguine about online therapy. Finn and Banach (2000) argue that online counseling and self-help groups pose many problems, including the lack of standards and regulations, difficulties in ascertaining the credentials and identity of therapists, and loss of privacy.
There are no published studies that systematically evaluate psychopharmacological treatment of IA. When retrospectively assessing the effect of psychotropic medication in fifteen individuals with IA, Shapira et al. (2000) found participants reported moderate to marked reduction in problematic Internet use when given medications appropriate for their co-morbid psychiatric disorder, with mood stabilizers associated with a higher rate of improvement. This finding should be viewed with caution as the study was small and relied on retrospective self-reports.

Outcome studies of IA treatment are sparse. Fang-ru and Wei (2005) investigated the effect of using an integrated psychosocial intervention of fifty-two adolescents with IA in China. After three months of Solution-Focused Brief Therapy (SFBT) (Hawkes, Marsh, & Wilgosh, 1998), there was a significant reduction in time spent online and a 62 percent reduction in Internet addiction symptoms. Additionally, there was an 87 percent reduction in psychiatric symptoms on the symptom checklist (SCL-90); this included reductions in depression, interpersonal sensitivity, anxiety, obsessive-compulsive disorder, hostility, and phobic anxiety, which all had been higher than the domestic norm before treatment.

A study of group treatment for men involved in problematic online sexual behavior indicates that the effect of a treatment program varies according to clients’ co-morbid disorders (Orzack, Voluse, Wolf, & Hennen, 2006). In this study, thirty-five men (average age = 44.5), attended one of five closed group programs that met for sixteen weeks. Each of the men was diagnosed with either a sexual paraphilia NOS or impulse control disorder NOS as well as having an anxiety disorder, mood disorder, or ADHD. The program modified a psycho-educational protocol developed by Line and Cooper (2000, cited in Orzack et al., 2006) to treat maladaptive sexual behavior which combined cognitive behavioral and psychodynamic techniques. The sessions, conducted by a male and female psychologist, included CBT, readiness to change (RtC), and Motivational Interviewing (MI) (Miller & Rollnick, 1991).

CBT . . . allows participants to identify and then modify maladaptive cognitions by providing feedback, coping strategies. The RtC model focuses on an individual’s progress through six distinct stages of commitment (Precontemplation, contemplation, determination, action, maintenance and relapse) towards changing unproductive thoughts and behaviors . . . MI revolves around the process of individuals building problem solving strategies to help them change their current situation, with the eventual goal of creating motivation to achieve a particular goal. (Orzack et al., 2006, p. 360)

At the end of this intervention, participants overall had decreased levels of depression (measured with the Beck Depression Index) and increases in quality of life (assessed with the Behavioral and Symptom Scale [BASES-32]), but there was no reduction in participants’ inappropriate computer use. There were differences between the three co-morbid groups. Clients who were anxious improved in all three areas, while those with ADHD improved in none. Clients
who were depressed were less depressed and improved in quality of life but had no change in their inappropriate computer use.

**Conclusions**

Concern about Internet abuse has grown as Internet use has proliferated worldwide. Although some question whether IA exists, clinics have been established to treat those with IA and a growing body of research over the last decade has documented that, worldwide, a small percentage of Internet users develop disturbed patterns of behavior that have been called Internet abuse. People with mood disorders and those who are lonely, socially anxious, or use the Internet to cope with negative feelings are vulnerable to IA. Some researchers conceptualize IA as a continuum of deficient self-regulation that ranges from normal to disturbed use, while others conceptualize IA as a clinical disorder. Even in those cases in which IA reaches clinical significance, there is disagreement about whether IA is a distinct disorder. Some view IA as symptomatic of other, primary disorders that are frequently co-morbid with IA, such as mood disorders or social anxiety.

Among those who contend that IA is a clinical disorder, the consensus is that IA should be considered as an impulse control disorder NOS, that is, individuals’ habitual inability to control their Internet use, which causes clinical levels of distress or impairment. Problems with impulse and particularly impulse control disorders have been associated with behavioral addictions. Although behavioral addictions are not universally recognized, there is a growing body of evidence that disturbed patterns of substances and some behaviors – that is, chemical and behavioral addictions – share similar features and etiology. This model may apply to IA. Cognitive behavioral models of IA have also been proposed.

Some users develop IA from problematic use that is specific to a given online application (e.g., MMORPGs) or behavior (e.g., downloading pornography). These are called specific IAs. However, many users develop problems from what has been called a generalized form of IA. These users prefer socially interactive aspects of the Internet. Many are less inhibited in their online social interactions and develop a preference for online over F2F interaction. There is overlap between some specific IAs and generalized IA. In both types, social uses of the Internet or using the Internet to cope with stress become problematic. Future research should focus on the similarities and differences between specific and generalized IA.

Although many clinicians report that they have treated clients with IA or specific IA, few have training in recognizing and treating IA. Research on treatment of IA is limited.

IA is a relatively new area of research, and many areas need further research. The lack of a uniform set of empirically validated criteria for IA is a weakness
that pervades much of the research of IA. This is especially pertinent for those who suggest that IA should be accepted as a clinical disorder. Most studies have been surveys of adolescents and university students, which limits generalizability. Future research should use more representative samples of Internet users. Longitudinal research and experimental studies are needed. Empirically based outcome studies and protocols for training clinicians should be high priorities for future research. The Internet is constantly changing and future IA research will reflect these changes.

References


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