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INTERNET ADDICTION: Is the Internet a “pathological agent” includable as a disorder separate from other psychiatric diagnoses?¹

SUMMARY

An examination of whether the Internet is a “pathological agent” and should be included as a disorder separate from other psychiatric diagnoses, including discussion of Internet overuse, the distinction between addictions, compulsions and impulses, technology as a non-chemical addiction, symptoms suggesting addiction potential of the Internet, the prevalence and demographic profile of addicts, uniqueness of the etiology, contrary theories, and placement of the pathological Internet use within the DSM IV.

ARTICLE

Defining Internet Overuse

In 1994, Dr. Kimberly S. Young, an Associate Professor of Psychology at the University of Pittsburgh, Bradford, received an urgent telephone call from a friend (Young, 1998). Between sobs, the woman told her that she was about to divorce her husband. When asked why, the woman replied, “ he’s addicted to the Internet.” Having piqued her interest, Dr. Young devised a simple eight-question survey from criteria used to assess alcoholism and compulsive gambling. She posted the questionnaire on several Internet user groups on a given day in November 1994, she says, “expecting a handful of responses, and none as dramatic as her friend’s story.” (Young, 1998, p. 4) The following day she had received 40 responses from all over the world, with many claiming they were addicted to the Internet. From this simple survey, followed by her subsequent research, publications, and her presentation at the 104th annual meeting of the American Psychological Association in 1996, (Young, 1996a), there rose a social issue being pursued by dozens of researchers and writers from that time to present day. Several authors have attempted to apply meaningful and accurate definitions to this phenomenon. In this paper, the relevant theory and research will be reviewed, first to develop as good an understanding of this issue as possible. Second, to chronicle the diverse ways of approaching the issue, the writers and researchers in the field have struggled with. Finally, an attempt, based on the literature, will be made to determine if placement of Internet overuse as a legitimate disorder is justified, and (if so) what kind of disorder it should be considered.

Several attempts have been made to name to appropriately title Internet overuse. These attempts are chronicled as follows:

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Internet Addiction Disorder

The term "Internet Addictive Disorder," (IAD) was coined by a New York psychiatrist by the name of Ivan Goldberg in 1996. (Griffiths, 1999; Kandell, 1998; Wang, 2001) He posted a set of criteria on an online message board for a professional web page as a joke. The criteria, paralleling that of substance dependence as defined by the Diagnostic and Statistical Manual of the American Psychiatric Association, 4th edition (1994), replaced the term "Internet," for a given substance. While Goldberg described his intention as a parody, it is noted in literature that IAD was taken seriously by some.

Pathological Internet Use

The term Pathological Internet Use (PIU) was assigned in 1996, by Kimberly Young, based on results highly suggestive of a common etiology with pathological gambling. (Young, 1998) PIU was later reinforced by Davis, (2001) who pointed out that the DSM-IV favors the term *dependence* for substances, and pathology for disorders like gambling. Young refers to the *addictive* potential of the Internet, yet avoids the term as it pertains to diagnosis for the above reason.

Specific or Generalized Pathological Internet Use

Davis (2001) distinguishes two types of pathological Internet use, as to their utility. Specific Pathological Internet Use (SPIU) refers to those dependent on content specific functions of the Internet (e.g. online stock trading, auctions, and sexual material). Generalized Pathological Internet Use (GPIU) is used to describe general, multi-dimensional use without a clear objective (e.g. wasting time, surfing, chatting, e-mailing) These definitions will be discussed in more detail, when exploring social-cognitive theory.

Internet Dependence and Internet Behavior Dependence

Sherer and Bost, (1997, cited by Griffiths, 1999, 2000) conducted a study of *Internet Dependence* using criteria parallel to that of substance dependence as defined in the DSM-IV. Hall and Parsons, (2001) expanded the definition of Internet Dependence to that of Internet Behavior Dependence (IBD). They placed emphasis on the affects of the Internet on cognitive, behavioral, and affective functioning. They do not endorse a pathological etiology to the problem, but rather, a compensation mechanism for other areas in the person's life.

For the purposes of simplicity and to avoid getting lost in terms used to define excessive Internet use, the term "Internet addiction" will be applied to the subject phenomenon in this paper. There will be justifications for and against the use of the term addiction mentioned in the citations. The term Internet addiction will be used during review of literature for the purpose of uniformity.

Understanding Addictions and Compulsions**Definition of Addictions vs. Compulsions vs. Impulses**

Many psychologists are of the opinion that the term *addiction* should be reserved for physical substances known to create dependency. (Griffiths, 2000; Holden, 1997; Young, 1999) The term *addiction* is not used in the clinical criteria or diagnostic terminology in the DSM-IV. (Griffiths, 1999; Kandell, 1998; Wang, 2001; Young, 1996a; Young and Rodgers, 1998b) The terms *dependency and abuse* are used to describe degrees of pathology in use of chemical substances. (DSM-IV, 1994) Compulsions, as defined by the DSM-IV, (1994) are repetitive behaviors or mental acts, the goal of which is to reduce anxiety or stress, not to provide pleasure or gratification. Marks, (1990, p. 1391) points out that "behavioral addictions are often called compulsions to denote coercion from a discomfort that has to be allayed, whereas addiction more implies attraction towards something." Marks describes the accepted definition

of compulsion as a *push* toward relieving discomfort, while addiction as a *pull* toward a good feeling. He makes a case that push and pull occur simultaneously with both chemical and behavioral examples, (e.g. alcohol, sex) thereby lending evidence to no differentiation in the terms addiction or compulsion.

Impulse-Control Disorders, are considered by the DSM-IV, (1994) as an inability or failure to resist an impulse, drive, or temptation to perform an act that is harmful to the person or others. For most of these disorders, the user feels an increasing sense of tension or arousal before committing the act and then experiences pleasure, gratification, or relief afterward. The DSM-IV, (1994) notes such similarities to chemical substances but with clear distinction that the terms dependence and abuse are reserved for a drug, medication, or toxin. Beard and Wolf, (2001) make a viable argument that Internet use as well as other non-chemical behaviors are separate from chemically induced problems that may be entitled addiction, because of lack of such symptoms as physical withdrawal. They prefer the terms “problematic” or “maladaptive” as most appropriate to describe Internet overuse.

The Existence of Non-chemical Addictions

In the last two decades, psychologists and addiction counselors have begun to acknowledge that people can form addictions to more than physical substances. They point to common *addictive behavior* in such habits as compulsive gambling, chronic overeating, sexual compulsions, and obsessive television watching. (Marks, 1990; Young, 1998) Young, (1998, p. 17) takes the position that “in behavior-oriented addictions, those who get hooked are addicted to what they *do* and the *feelings* they experience when they’re doing it.” Also according to Young recent findings in science suggest that there is a possibility of experiencing habit-forming chemical reactions to non-chemical as well as chemical substances. Researchers point to the presence of dopamine release (the pleasure neurotransmitter) in the nucleus accumbens during non-chemically induced excitement, producing the same effect as alcohol and other drugs. (Bai, 2000; Mitchell, 2000; Young, 1998) “And when something makes our dopamine level rise, we naturally want more of it.” (Young, 1998, p. 220) “Today among a small but growing body of research, the term addiction has extended into the psychiatric lexicon that identifies problematic Internet use associated with significant social, psychological, and occupational impairment.” (Young, 1997, p. 2)

Technology as a Non-chemical Addiction

General Theory About the Addictiveness of Technologies

Each significant technological development fundamentally changes the way the world works,...just as the invention of the electric light bulb enabled a multitude of nocturnal activities to occur,...the world-wide web has spawned a revolution in communication, commerce and behavior. (Kandell, 1998) Technological addictions as a subset of a broader category of non-chemical addictions involve human-machine interaction, and can be either passive (e.g. television) or active (e.g. computer games). (Griffiths, 1999) Since movies in the 1929's, radio in the 1930's, and television in the 1940's and 1950's, such technologies have been criticized as affecting time management and behavior. (Stern, 1999) Television, according to Stern is evidenced to cause “parasocial” relationships with the characters on the television, being used to both combat and enhance loneliness. A total of nearly 9 years of an average American's life is spent viewing television. (Grohol, 1999) Technology according to Stern, (1999) provides a highly effective medium by which maladaptive behaviors can be carried out (by breaking down social boundaries), not the technological agent serving as the addiction itself. The addictiveness of technologies may be contributed to by the reinforcing features such as the sound effects and features that may promote addictive tendencies. (Griffiths, 1999)

Kraut, et al., (1998) identify that most empirical work has indicated that television watching reduces social involvement, physical activity, mental health, and promotes boredom, and unhappiness. They identify *time displacement* (time not spent socially engaged) as the major causal factor of negative effects. Lonely people they report, watch television more than others. Young, (1998) and Young and Rodgers, (1998b) point out the fad associated with the Citizen's Band (CB) Radio as a similar technological fascination (and potentially addictive agent) as the Internet (in terms of such qualities as interactiveness and anonymity).

Capacity of the Internet to Express Maladaptive Behaviors

The rapidity and convenience of the Internet has opened up an entirely new set of doors for people looking for resources and fulfillment. As in so many other things, what man can create to do good things, he can use in equally negative fashions. Often, this negativity comes from not the phenomenon itself, but from an immoderate frequency and volume of its use. Such functions of the Internet that have the capacity to be misused in this way are listed in the following paragraphs.

"Pornography" is the most frequently searched for topic on the Internet...with the Internet pornography industry expected to reach \$366 million to \$1 billion in 2001. (Greenfield, 1999; Griffiths, 2001) Griffiths reports estimates that one in five excessive Internet users are engaged in some form of online sexual activity. Nearly 20 percent of the Internet users surveyed by Pratarelli, et al., (1999) used the Internet to become sexually aroused.

A variety of pornography related activities might be realized via the Internet. Persons may seek out sexually related material (e.g. pornography websites), buy or sell sexually related goods, order from virtual sex shops, (find) sex therapists, escorts, prostitutes, swingers, and other types of material for masturbatory purposes (such as the heads of famous people superimposed on someone else's body). (Griffiths, 2000, 2001) *"Cyber-pornography"* is legal, readily available in one's own home or office, inexpensive (unlike prostitutes or phone sex), safe from physical harm or venereal diseases, and is ideal for hiding an activity from a partner. (Griffiths, 2001)

Cyber-relationships or *Cyber-affairs*, involve individuals married or unmarried forming on-line love relationships which may or may not evolve into real-life affairs. (Young, 1997) The user may carry on as many of these affairs as desired in relative safety, and at the same time without leaving the house or office. According to Griffiths, (2001) innocent chat room affiliations can turn into a passionate cyber-affair, evolving into intense mutual erotic dialogue (cyber-sex) with text-based fantasies. Masturbation, he notes may often accompany the fantasies. Accelerated intimacy, (Greenfield, 1999) as explained later in terms of reinforcers unique to the Internet, refers to the unnatural rapidity with which persons seem to develop these relationships. For disenfranchised groups such as homosexuals, the Internet may be a tremendous advantage. (Griffiths, 2001) Three types of online relationships are conducted: those in which people never meet, those developing online but with a desire to meet in real life, and those where people meet in real life but maintain a relationship online. (Griffiths, 2001)

Cyber-stalking may be described in terms of such behaviors as online sexual harassment and pedophilic grooming. (Griffiths, 2000) According to Griffiths, the first may include such behaviors as sending someone unsolicited pornographic or hateful material (from individuals or groups), or giving someone's e-mail address out to others involved in (bizarre behavior) web-groups to be besieged with unwanted contacts. The second, refers to those manipulating others with deception about themselves, often with the ultimate purpose setting up real life meetings. Young, et al., (1999) point out that the act of pedophilia does not require physical molestation, but is present when intense reoccurring sexual fantasies about children are being entertained. Young, (1988) describes such grooming tactics used by pedophiles as pretending to be another child, or pretending to be a caring adult friend unlike the way they

perceive their parents. An organization entitled the "CyberAngels," a branch of the Guardian Angels organization, (an unofficial policing organization) was set up in 1995 to help protect victims of cyber-stalking. (Griffiths, 2000)

Gambling may be found on the Internet, chiefly in the form of online stock trading and auctions. According to Pratarelli, et al., (1999) 4 percent of the Internet users in their study reported using the Internet for gambling. Online stock trading and online auctions such as eBay, according to authors, Orzack and Young, are gambling behaviors providing the user with a sense of accomplishment, power, and excitement. (Networker@USC, 1999)

Multi-user dungeons, or multi-user domains, (MUDS) involve games where players take on roles...ranging on themes from space battles to medieval duels. (Young, 1997) MUDS, are places where a user under a character name, fights monsters, saves maidens, buys weapons...and can be social in the same fashion as a chat room, but typically always in character. (Young, 1997) MUDS, according to the consensus of writers on the subject, represent one of the two most problematic (addictive) uses of the Internet, for reasons of depersonalization into their fictional characters and fictional world.

Chat Rooms (and various types of news sharing groups) are identified by writers and researchers as the other of the two most addictive of activities on the Internet. (Griffiths, 2000; Young, 1998) A chat room is a place where anyone online can access, to carry on conversations with others in "the room." Chat rooms are available 24 hours a day, 7 days a week. A savvy chat room user can be carrying on multiple conversations at once, and may develop relationships of any variety and depth.

Shopping for virtually any types of products may be accomplished through the Internet. Convenience is of course the most attractive aspect of on-line buying. As differentiated from auctions or stock trading, (gambling for cost on items) there has been little concern by authors and researchers as to addiction to Internet shopping, except in cases where persons already have an addiction to shopping. (Griffiths, 2000; Pratarelli, et al., 2002)

Information Surfing is a relatively benign activity, where the user is looking for resources, or finding out things of interest. This may include researching a topic as not only condoned but also encouraged by educational institutions. (Griffiths, 2000; Kandell, 1998; Young, 1998) Information surfing is generally accepted by all writers on the subject of the Internet to be not only mildly or non-addictive, but healthy.

Symptoms to Suggest Addiction Potential of the Internet

The Degree to Which the Internet Meets Core Components of an Addiction

Authors such as Walters, (1996, as cited by Young, 1996b) Young, (1996b, 1998) and Griffiths, (2000) have made a case for the criteria associated with all pathological addictions as the measure by which the behavior should or shouldn't qualify as addictive. Griffiths, (2000) identified a required presence of: preoccupation with the addictive agent (salience), mood modification, tolerance, withdrawal, conflict, and relapse. Additional criteria of progression, denial, and continued use despite consequences were added by Young. These and other authors, through research and relation to social/addiction theory have made attempts to qualify use of the Internet as meeting these required criteria.

Salience occurs when an agent becomes perhaps the most important activity in the person's life, causing a preoccupation with the activity. Restructuring time and other activities, are common salient traits cited by authors such as Young, (1998) and Griffiths, (2000). Fabian, et al., (2001) found 92 percent of their respondents who met Internet addiction criteria felt the world was a dull, empty place without the Internet, and 77 percent reported daytime fantasies about the Internet. Greenfield, (1999) found 83 percent of Internet users experiencing salience.

Mood Modification refers to the previously mentioned euphoria or excitement induced when dopamine is released in the nucleus accumbens (pleasure center) of the brain. Persons

may include such reasons for accessing the Internet as a “buzz,” “high,” “tranquilizing,” “escaping,” or “numbing” effect. (Griffiths, 2000)

Tolerance is the process by which increasing amounts are required to achieve the former mood altering effects. (Griffiths, 2000) Young, (1996a) found that those meeting criteria as Internet addicted, (modified from that of pathological gambling) used the Internet nearly 8 times more than non-addicts, and 10 times more than average use before familiarity with the online skills. Brenner, (1997) found 55 percent of Internet users to have been told they spend too much time on the Internet. This phenomenon may be likened to tolerance levels which develop among alcoholics who gradually increase their consumption of alcohol in order to achieve the desired effect. (Young, 1996a) Tolerance levels in Internet use, according to Young, may be also seen by fear of missing out on something, driving users to marathon-length Internet sessions. Tolerance was found in 58 percent of Greenfield’s, (1999) survey respondents.

Withdrawal involves unpleasant feeling states, and/or physical effects that occur when the mood-modifying agent is discontinued or suddenly reduced. (Griffiths, 2000) Studies by Seeman, et al., (cited in Mitchell, 2000) and Bai, et al., (2000) found subjects who met criteria for Internet addiction exhibited typical withdrawal symptoms of nervousness, agitation, and aggression when not online. Fabian, et al., (2001) found 82 percent of their subjects who met criteria for Internet addiction, to report a great urge to be online if disconnected, and 81 percent to become very nervous if the Internet connection was slow. Withdrawal was also noticed by Brenner, (1997) who found 28 percent of his Internet users to find it hard to stop thinking of the Internet if they weren’t logged on.

Conflict is a common factor associated with addictions, whereby others, or the user himself is under increased stress from use of the agent (family, job, social life, interests, etc.). (Griffiths, 2000) Fabian, et al., (2001) found 43 percent of their subjects to feel depressive mood and guilty after a long use of the web. 71 percent of those subjects reported aggressive behavior if interrupted by others while on the web. Young, (1996a) found that those determined Internet addicted, had moderate/severe scores in areas of conflict, to include: academic 40%/58%, relationships 45%/53%, financial 38%/52%, occupational 34%/51%, and physical 10%/0%.

Relapse, as defined by Griffiths, (2000) involves reversions to earlier patterns after a period of abstinence. An explanation provided by Hirschman, (1992) defines relapse as one or more failed attempts to stop consumption, (of an addictive agent) often failing because the underlying emotional problems helping to perpetuate the addiction have not been remedied. Young, (1996a) found that 46 percent of the persons considered Internet addicted, had made unsuccessful attempts to cut down the time they spent online to avoid negative consequences. Brenner, (1997) found 22 percent of his respondents had tried to cut down their Internet use but were unable. Greenfield, (1999) reports 68 percent of respondents reporting relapse, with 79 percent feeling restless when trying to cut back.

Progression, serves as a criterion of addiction, whereas the person may begin use with “softer” agents, and find he or she is later taking more risky, dangerous, addictive agents (e. g. a drug user begins with milder drugs like tobacco and continually progresses to more highly addictive drugs like heroin). Young’s study, (1996a) produced interesting results which may be likened to a progressive nature in the Internet. She found that Internet addicts used the more benign functions of information protocols, like www-websites and email less, as Internet use increased, while the more personal and interactive functions (news groups, MUDS, and chat rooms) became much more highly used by those addicted. Results for non-addicted users were exactly opposite.

Denial of a problem, represents a subconscious feeling of stability and self-control, despite external, observable cues that a problem exists. Young, (1998, 1999) describes

Internet denial as including such beliefs as “no one can be addicted to a machine,” or “this is part of my job.” Further, she says, the user may be convinced that “this is just a hobby, and besides, everyone is using it today.” Young, (1999) points out that professional therapists may exacerbate denial by not taking seriously a person’s problem with excessive Internet use.

Consequences, and Continued Use Despite Consequences, represent a final addiction criterion. Kimberly S. Young’s, (1996a, 1998) original survey respondents, had reported that they were staying online for up to 10, or more hours at a time, day after day despite the problems the habit was causing in their families, their relationships, their work life, and their school work. They were found to crave their next date with the Internet, and unable to stop or even control their online usage despite divorces (53 percent reporting serious relationship problems [Young, et al., 1999b]) lost jobs, or poor grades. Kraut, et al., (1998) found the ties developed in Internet associations to be “weak,” organized around specific topics, and not like one would develop around families and friends.

Young, et al., (1999) pointed out tendencies of hiding and lying behavior about Internet use to delay consequences. Using her criteria for Internet addiction, Young, (1998) found that those meeting criteria for Internet addiction spent an average of 37 hours on the Internet each week, despite such effects as: serious and continuous fatigue resulting from staying up on the Internet until early morning hours, having to take caffeine pills to facilitate longer Internet sessions. Other problems in life areas included, physical effects such as carpal tunnel syndrome, back strain, and eyestrain. (Young, 1997, 1999). Brenner, (1997) found Internet users averaging 19 hours per week on the Internet and experiencing 10 signs of interference in role functioning to include: failure to manage time, cutting short on sleep, missing meals, job problems, and social isolation.

Comorbidity

Bai, et al., (2000) using a virtual Internet disorder clinic, found 60 percent comorbidity (two or more separate coexisting disorders) in subjects, chiefly, high incidences of anxiety, depression and substance abuse. Maressa Hecht Orzack, (Cromie, 1999; Mitchell, 2000; Orzack, n.d.; Griffiths, 2001) director of the Computer Addiction Services program associated with Harvard, states that the clinic’s patients are commonly found to have at least one other problem such as depression, social phobia, impulse control disorder, and attention deficit disorder, while other patients have been diagnosed with substance abuse or other addictive disorders. A few, she finds to have bipolar disorder, or are prone to suicidal or violent outbreaks. Seemann, et al., (cited in Mitchell, 2000) adds schizoid personality disorder to the list of comorbid disorders among Internet addicts.

Young, (1998) found through her research, that some form of *escape* usually lies at the “heart and soul” of the drive toward Internet addiction. Kandell, (1998) described this phenomenon as escape, procrastination and self-medication. Young, (1998) found many of these people to be depressed and lonely, held back by low self-esteem, insecurity, and anxiety. Some were battling diseases like cancer, or living with a permanent disability. Young, (1998) found that 54 percent of those who met her criteria for Internet addiction had a prior (to Internet use) history of depression, 34 percent anxiety disorders, and others had chronically low self esteem. Several were in professional treatment and/or on medication. Furthermore, 52 percent had current or prior problems with alcoholism, drug dependency, compulsive gambling, or chronic overeating. Young, (1998) hypothesized that people who use the Internet as a temporary reprieve from anxiety and depression, find it a more attractive and socially acceptable anesthetic agent than those stigmatized like drugs. Researchers have found addictive use of the Internet to not only result from depression, but in fact to contribute to higher levels of depression. Research in the addictions field has utilized the Beck Depression Inventory (BDI) to identify high levels of depression often associated with alcoholism, drug

addiction, and compulsive gambling. (Young and Rodgers, 1998a) Young and Rodgers, (1998a) studied the relationship between persons determined as Internet addicts (utilizing the criteria for pathological gambling amended to apply to Internet use) and co-existing clinical depression. Applying the Beck Depression Scale, Sixteen Personality Factor Inventory and Zuckerman's Sensation Seeking Scale-Form-V to survey responses, results indicated those meeting the criteria as Internet addicts had moderate to severe levels of depression compared to the normal population. They warned that results do not clearly indicate whether the depression was prior to, or a result of, excessive Internet use.

Kraut, et al., (1998) conducted a study sponsored by Carnegie Mellon University, entitled "Homenet," (Harmon, 1998; Kraut, et al., 1998; The Homenet Project, n.d.) in which random families involving 169 people in 73 households were given Internet access and studied over a 2-year period. They found a statistically significant relationship between Internet use and the development of depression, loneliness, decline in family interaction, and social isolation following its continued use; thereby supporting a *causal* explanation of the Internet to pathology. Praterelli, et al., (1999) utilizing a factor analysis approach, found the problem to be cyclical in nature; loneliness and depression leading to excessive computer use, leading in turn to more loneliness and depression, and so on.

Relatedness to Social-Cognitive Theory

Human development requires *identity formation* (Kandell, 1998) which consists of one's personality, knowing one's likes and dislikes, social and subgroup identification, and a vocational path. Disruption in these areas may act as fertile ground for the pursuit of addictive agents as coping mechanisms, and as a means of escape and emotional numbing. (Hirschman, 1992; Kandell, 1998) Developing meaningful relationships or *intimacy*, (Kandell, 1998) comprises a second area where failure to develop adequately can lead to loneliness and unfulfilled longings for partnership. The Internet, Kandell says, especially through the socially interactive modes, (chat rooms, e-mail, MUD games) provides for these unfulfilled developmental intimacy needs. He warns that such relationships may be distorted via the nature of the Internet medium, making attempts to bond in real life more frustrating. Albert Bandura's social learning theory suggested that low self efficacy and poor coping skills elicited risk of developing addictions to cope. (cited in Armstrong, et al., 2000; Larose, et al., 2001)

As the result of this under-developed identity and intimacy, Hirschman, (1992) viewed persons susceptible to addiction falling into two subtypes: *distressed* and *sociopathic*. Distressed types, exercise an external locus of control...fueled by feelings of self-doubt, incompetence, and personal inadequacy...resulting in being easily influenced by environmental factors (addictions). Sociopathic types had above average sensation-seeking tendencies with needs for immediate sensory gratification. In either case says Hirschmann, the addictive agent is used to create and maintain a stable sense of self, and without it a sense of loss of identity.

Larose, et al., (2001) compared (social cognitive) measures of self-efficacy and self-disparagement in Internet use behavior of a sample of college students. They found 60 percent of the variance in a multiple regression analysis as a social cognitive explanation of excessive Internet use. Weitzman, (2000) found a significant moderate relationship between what she called "differentiation of self" and Maladaptive Internet use. Respondents in her study reporting themselves Internet addicted, also reported historic family functioning problems.

Wang, (2001) applied Erikson's psychosocial development model of psychosocial maturity and self-efficacy to the development of Internet addiction. He did not find a causal linkage between low emotional development and Internet addiction, but did confirm there was a dependency group which was comprised of longer Internet users. Young (1998, p .72) identified some Internet users (especially found in MUDS) as having found a medium in which to express "buried emotions awakened on-line." She cites case studies of persons with

neglect/abuse in their background taking out rage toward other people through killing, destroying, etc., fictional game characters and other users.

Davis, (2001) presents a model that cognitive distortions, (irrational thoughts) may explain pathological Internet use. He views maladaptive ruminative thoughts about the self (e.g. the Internet is the only place worth living in, or the only place I am respected and worthy) as preceding the affective or behavioral symptoms, not vice-versa. His model portends that Specific Pathological Internet Use, (SPIU) is likely the result of a pre-existing pathology such as gambling or pornography. In this case, the Internet serves as a most convenient medium for the behavior. It is the Generalized Pathological Internet Use, (GPIU) that Davis sees as most dangerous in our society. GPIU involves wasting time, procrastinating real activities, and is more likely to cause the psychosocial problems with depression and detachment to family, jobs, and the social milieu.

Prevalence and Demographic Profile of Persons Believed Addicted

Instruments Developed to Diagnose Internet Addiction

Young, (1996a) was the first to develop a survey instrument to measure excessive Internet use with 8 criteria. She has since refined her instrument to a test using a 5-point Likert-scale, with 20 questions. Young's, (1998) test asks questions directed at: staying online longer than intended, neglecting other routines, excitement preference of the Internet vs. real partners, forming new relationships on-line, others complaining about use, degree schoolwork/job suffers, number of times checking e-mail throughout the day, secretiveness/defensiveness, blocking out disturbing thoughts with thoughts about logging on, emptiness without the Internet, frequency of anger outbursts, amount of lost sleep, failed attempts to cut back, amount of reduction of real-life contact, and ill feelings that disappear when logging on. Brenner, (1997) developed the Internet-Related Addictive Behavior Inventory, (IRABI) along those same lines. The IRABI, was later expanded to the C-IRABI-II by Chou and Hsiao. (Hall and Parsons, 2001) Greenfield, (1999) developed a modified assessment tool he called the Virtual Addiction Survey (VAS). The VAS assessed respondents in terms of demographics, types of use, and clinical aspects (e.g. mental health consequences).

Most Susceptible Populations

Young, (1998) and Kandell, (1998) identify college students as the group most highly susceptible to Internet addiction, due to the uniqueness of their situation. Students have "unlimited Internet access... huge blocks of unstructured time... newly experienced freedom from parental control... no monitoring or censoring of what they say or do on-line...full encouragement from faculty and administrators... adolescent training in similar activities...the desire to escape college stressors...social intimidation and alienation (feeling lost in the crowd)...(and) a higher legal drinking age (prohibiting alcohol as a socializing and relief agent)." (Young, 1998, p. 177) She adds that denial is especially strong, due to the permissive and encouraged nature of computer use on campus, rather than discouraged behavior like drinking, drugs, or gambling. Kandell, (1998) adds that Internet use is not only encouraged but some courses are now Internet dependent (the Internet becoming part and parcel of the course). He identifies Internet accessible terminals all over campuses, in places like residence halls, departments, the library, student union, common areas, and computer labs. 32 percent of *all* Internet users access the Internet through college campuses. (Pitkow and Kehoe, 1996, as cited by Griffiths, 2000)

Employees working in companies with prolific computer/Internet availability comprise a high "at risk" group. According to Young, (1998, p.195) "a survey of 150 executives from the nation's top 1000 companies revealed that 55 percent of all managers revealed that time surfing the Internet for nonbusiness purposes is undermining their employees' effectiveness on the job."

Reprimand, suspension, and termination are common results of problematic Internet use by employees. (Beard, 2002) "The Irony of this situation is that the company is supplying the so-called drug. (Beard, 2002, p.7)

A study by Schwartz and Southern, (2000, as cited by Griffiths, 2001) found that two-thirds of their sample population of reported Internet sex addicts, were survivors of sexual abuse with a propensity toward Post-traumatic Stress Disorder. They described these persons' Internet sexual activity as a survival mechanism, providing re-enactment to their original trauma and control of their feelings.

Demographics (Age, Gender, Intelligence)

Initial impressions of the excessive computer user, was of a young, computer savvy, introverted, object-oriented male. (Shotten, 1991, as cited in Griffiths, 1999; Young, 1996a, 1996b) This belief was challenged by Young, (1998) who found that 61 percent of her survey respondents were women. Older persons and women are usually drawn to the socially interactive aspects of the Internet (conversation groups), while younger patients and men are more likely to access the interactive role playing games and pornography. (Mitchell, 2000) Males tend to be more visual with respect to sexual fantasies while females are more process or verbally oriented.. (Pratarelli & Browne, 2002) Bai, et al., (2000) found 67 percent of Internet addicts to be women, 84 percent of those single, and 63 percent college educated.

According to Hall and Parsons, (2001), age and education (averaging 15 years of education) appear factors in what they call Internet Behavior Dependence, while not gender or race. Students and homemakers they say are particularly susceptible to the disorder. Physicians, according to O'Reilly, (1996) have a propensity to become excessive Internet users due to their professional information needs. Brenner's, (1997) survey of 654 Internet users, found that most respondents were male, with the average amount of time on the Internet being 19 hours per week. Average amount of education was 15 years with Internet experience averaging 2 years.

Personality Types

Persons who lack adequate self esteem appears to be a major personality factor cutting across many of the studies on the subject of excessive Internet Use. (Bai, et al., 2000; Velea, cited in Mitchell, 2000; Young, 1996a) Introversions in males and schizoid personality types (loners) were found to be prevalent characteristics in Shotton's study (cited by Young 1996b; Young and Rodgers, 1998b) Beard, (2002) suggests problematic Internet users as having a tendency to "intellectualize," or use the pride in their intellect to justify their behavior.

Young and Rodgers (1998b) conducted a study of personality traits of those meeting criteria as Internet addicted. Using the Sixteen Personality Factor Inventory, on a sample of 259 subjects, the research found Internet Dependents ranking high in self-reliance, but with strong preference for solitary activities, restricted social outlets, less socially conforming, and more emotionally reactive toward others. In answer to the question "Don't these Internet using people have lives?"...the answer is that they in fact lead lonely, shy, afraid, or unattractive lives. (Rheingold, 1993, as cited by Cooper and Sportolari, 1997)

Armstrong, et al., (2000) produced a study confirming self esteem as a predictor of pathological Internet use (PIU), while impulsivity in these persons appeared to be low. This may lend evidence to the idea that sociopathic types (Hirschman, 1992) are less likely to become Internet addicted than the distressed types.

Statistics on Numbers of Persons Believed Affected

Several writers have commented on the prevalence of persons affected by the Internet. These statistics from literature are (so far) based upon independent surveys, without

comprehensive epidemiological studies being cited. It should also be noted that aside from the "Homenet Project," (n.d) statistics have been taken from subjects who are already using the Internet and appear to be lacking before and after effects.

Young's, (1996a) original survey of Internet related problems in 1994, elicited 496 respondents. She categorized 396 (80 percent) as meeting her criteria for Internet Addiction. Bai, et al. (2000) later paralleled the study using Young's criteria with 251 subjects, finding 15 percent of respondents as Internet addicted. Brenner, (1997; and as cited in Young, 1997) found 17 percent of subjects, used the Internet more than 40 hours per week, 58 percent of which complained about excessive usage, and 46 percent were getting less than 4 hours of sleep per night. Thompson, (1996, as cited in Young, 1997) found 72 percent of his respondents felt addicted, with 33% reporting negative effects to their usage. Greenfield, (1999) determined that 6 percent of Internet survey respondents were Internet addicted while Rauterberg, (1996, as cited by Wang, 2001) reported 10 percent of Internet users as addicted. Smaller proportions (e.g. 2-3 percent) of Internet users may be addicted according to Griffiths, (1999).

Rapidity of addiction was reported by Young, (1996a, 1998), who found that of those responding to her survey of Internet addiction, 25 percent reported getting hooked in their first 6 months on-line, with 58 percent considering themselves addicted from 6 months to 1 year, and 17 percent reporting addiction after 1 year. Rapidity of growth of the number of addicted persons has also concerned writers, who view more Internet access to elicit more addicts, based on the above-cited percentages. Cooper, (1997) estimated the rate of growth for new computer networks to be 25 percent every three months, while Young, et al., (1999) estimated 95 million Americans to be using the Internet in the year 2000.

Uniqueness of the Etiology

Reinforcers Specific to the Internet

Young, (1997) reduced an understanding of "Computer-mediated Communication, (CMC) to three major areas of reinforcements: (1) social support, (2) sexual fulfillment, and (3) and creating a persona. The following list of reinforcers (believed contributing to addictive Internet use) may all be explained as meeting one or more of Young's 3 cited purposes. The theory that there is a pathological etiology involving excessive Internet use might be supported by the unique characteristic (or reinforcers) of the Internet, specific to this CMC as reported in literature.

Greenfield, (1999) supported the existence of a valid, compulsive nature to contributing factors (reinforcers) unique to Internet Addiction. They include: disinhibition, anonymity, ease of access, accelerated intimacy, time distortion, and intensity of on-line content. Greenfield's reinforcing factors as well as those identified by other writers are provided with explanations below in an attempt to depict the uniqueness of the Internet not found in most other addictive phenomenon.

Disinhibition may be defined as a comfort in behavior, free from the worry of consequential aspects. Young, (1998, p. 163) refers to the Internet as "A big city with no police." She points to the ease of misrepresenting one's age, allowing children to surf along adult chat areas and websites, or the pedophiles to represent themselves as young children or adolescents. Young, further points out that Triple-X websites ask users for a claim of age 18 or older, yet there is no checks or safeguards. She finds people much more willing to access things like pornography without having to physically go into adult book/video stores, strip clubs, or children's playgrounds. Griffiths, (2000) points to computer/Internet use as a *socially acceptable*, perhaps even admirable behavior, easily separated from other addictive behaviors such as drug use. Griffiths, (1999) study determined 43 percent of Internet users to report

disinhibition as a reinforcer, while the figure rose to 75 percent in those determined as "Internet addicted."

Anonymity has been found by authors such as Griffiths, (2001) and Young, (1998) as the most contributing factor to deviant behavior on the Internet. "In the safe haven of cyberspace, you share your deepest feelings, offer your strongest opinions...(because) the other people in this make-believe world can't see you and they don't know who you are. (Young, 1998 p. 21) "The feeling of anonymity allows for increased risk taking with revelations." (Cooper and Sportolari, 1997, p. 10)

Ease of Access. Access to the Internet is now commonplace and widespread, easily accessed from people's homes or workplaces. (Griffiths, 2000) Internet users can escape into a fantasyland where they make instant friends and talk any time of the day and night. (Young, 1998) From the safety of one's bedroom, office or dorm, this electronic community emerges with remarkable ease. (Young, 1998) Young adds, that you don't have to get dressed up, or drive anywhere, or wait for a response (like pen pals). Graphically based, easy to use methods of accessing remote computer sites are readily available. (Kandell, 1998)

Accelerated Intimacy. Intimacy in relationships on the Internet may be unnaturally accelerated due to peoples' decreased ability to detect signs of insincerity, disapproval, or judgment in their partner as they present themselves online. (Griffiths, 2000) An Internet relationship may reach in days or weeks, what might take a real relationship months or years to develop. (Griffiths, 2001) Greenfield, (1999) found 41 percent of his survey respondents to report this phenomenon, while 75 percent of those determined "Internet addicted" reported experiencing accelerated intimacy. Cooper and Sportolari, (1997) add a dimension about risk taking in online developing relationships. They cite how much less inhibited someone might be to say "stop" in on-line mating dialogue, as opposed to face to face mating relations.

Time Distortion. Young, (1998, p. 35) coined the term "Terminal Time Warp" to describe how excessive Internet users lose sense of time in the net due largely to the hypnotic effect of continuous moving, inter-exchanging phenomenon, with no breaks or commercials (like TV or music). Her study indicated 97 percent of her respondents found themselves spending longer periods of time on the Internet than they had intended. Another type of time distortion is pointed out by Young, (1998) in which Internet users maintain on-line relationships with others in different time zones. She describes some users falling into an abnormal "sleep-wake cycle" in which the user must disrupt continuous sleep and a sense of time/day continuity in order to dialogue with others at times like 3:00 A.M. (when it's the other's daytime). Users, Young says, may be asleep and awake several times during each night, further exacerbating the fatigue, depression, and inability to attend to routines, as previously mentioned. Greenfield, (1999) found time distortion as "almost always occurring" in users according to his study.

Intensity/Stimulation of Online Content. Young and Rodgers, (1998a) measured survey respondents' (meeting criteria as Internet addicted) scores on the Zuckerman's Sensation Seeking Scale-V, finding evidence of a high level of sensation seeking behavior compared to the normal population. They also found high scores on sub-scales of thrill and adventure seeking, experience seeking, disinhibition, and boredom susceptibility. Young's studies, (1999b) have indicated that it is the "high" itself rather than the (sexual) gratification of on-line sexual content that reinforces compulsivity.

Convenience (along with ease of access) is identified by Young, (1999b) as the aspect most likely to lure the curious person to the more risky places like chat rooms, and on-line games. Computers with Internet access are available in many workplaces, and especially college campuses. (Young, 1998). She points to prolific purchasing of computer hardware, software, and on-line access in colleges, under the belief that they are providing students with cutting edge tools needed in the job market. Griffiths, (2000) points out that on-line access in

places that are familiar and comfortable contribute to convenience of use otherwise not found in other real life activities.

Control is a condition Internet users have almost 100 percent of, unlike that of real life experiences. Largely due to the presence of anonymity, the user is provided with a greater sense of perceived control (than real life activities) over the content, tone and nature of their on-line experiences. (Griffiths, 2000; Young, 1999b)

Affordability. Computer use has proliferated since the advent of high-quality, low-cost hardware and software. (Kandell, 1998) On-line services are becoming cheaper and cheaper, with cost compared to telephone calls, and postage as cheap to moderate. (Griffiths, 2000)

Ease of Escape in this particular respect, refers to the literal process of egress, as opposed to the reinforcer of discomfort avoidance. Internet users have the unique ability to disappear, not found in real life. According to Young, (1998) Internet users enjoy freedom from demands such as finding friends or romance without the accountability for their actions. She points out that users may engaging in such behaviors as *flaming*, (verbally bashing someone) releasing highly controversial opinion, inappropriate statements, and engage in outlandish (e. g. sexual) behaviors, and then abandon their email address with the click of a button, never to face responsibility for the actions.

Proximity (spatial proximity) according to Cooper and Sportolari, (1997) refers to an attraction fostered through proximity and familiarity...(and) that mere frequency of exposure can create a degree of attraction between people. "Electronic communication" may in fact, *uniquely* exacerbate this feeling. (Cooper and Sportolari, 1997) The Internet potentially reduces the importance of physical proximity in creating and maintaining networks of strong social ties. (Kraut, et al.)

Dissociative Aspects

The following three categories of reinforcers unique to the Internet have been reserved for the purpose of distinguishing a special characteristic among them, referred to as *dissociation*. The DSM-IV, (1994, p. 477) defines dissociation as "disruption in the usually integrated functions of consciousness, memory, identity, or perception of the environment."

Paralanguage. Cooper and Sportolari, (1997) describe a "paralanguage" among avid Internet users that may be considered as an (other cultural) experience removed from their real life environment. Online text they say, tends to be "informal, emotive, and playful," rendered more like speech than writing. They identify characters and cues to indicate such things as shouting, a kiss, a smile, and laughter. Regularly used paralanguage during excessive Internet use is purported to further remove the user from his or her real life social functioning.

Body/Image Distortion. Young, (1998, p. 22) describes the Internet as a place where "all the women are assertive and adventuresome, all the men are blond, 25-year-old hunks, and all the children are wonderfully creative and mature beyond their years." "People who are unattractive or overweight...with a little artistic license on the Internet, can become younger, and more alluring." (Young, 1998, p. 22) "Some addicts go by several different "handles," changing their on-line persona according to their moods or desires...others settle on one identity, either an ideal self that reflects the opposite of their everyday personalities or a character that accesses repressed emotion." (Young, 1998, p. 63)

Other peoples' bodies and images can be distorted as well. According to Young (1998, p. 101) "If he describes himself as good looking, you imagine Tom Selleck. If he appears honest and says sweet things online, you think of Tom Hanks. You supply those details in your own mind...and because using the Internet often makes you feel calm or even euphoric, you're naturally going to create the ideal person." According to Cooper and Sportolari, (1997) skills on the computer such as the ability to type fast and write well can promote an attraction from another person equivalent to having "great legs" or a "tight butt" in the real world. People

overgeneralize from appearance, assuming that those who are attractive on the outside are also nicer on the inside, and have better future prospects. (Cooper and Sportolari, 1997)

Separation From "Real Life." Three phases are associated with developing excessive Internet use leading to separation from real life. (Young, 1998) *Engagement* refers to discovered ease of use and possibilities, *substitution* refers to the Internet supplying what you didn't have or couldn't find in life, and *escape* refers to the increasing detachment from the stresses, problems, responsibilities of real life. People who consider themselves dull or shy in real life, can become outgoing and witty in cyberspace. (Young, 1998) Cyber-affairs (erotic relationships) may be carried on with little or no thought to the idea that one is actually cheating on one's wife or husband. (Cooper and Sportolari, 1997)

Adopting Different Identities. As previously mentioned, the other people in cyberspace can't see you, and they don't know who you are. You can be whomever you choose, act however you want, says Young, (1998). Taking on a persona of the opposite sex is common according to Young. Passionate, extensive, Cyber-affairs may be carried on with fictitious names in a fictitious gender. MUDS are particularly depersonalizing according to Young (1998). Users take on new personas through continuous, day and night never ending games where they may develop great status, power, invincibility, and the awe and respect of peers. As play increases to higher hours each day, users can increasingly identify more with their characters than with themselves. Young's, (1997) study found those who suffer from low self esteem, feelings of inadequacy, or frequent disapproval from others are at the highest risk for developing a secret online identity.

Unconstrained Social Functioning

A final category of reinforcers unique to the Internet would include the expansion from physical or geographic limitations users may feel when online. Three such examples are cited in literature, and presented here.

Feelings of a Global Home, and cultural diversity add to the alluring "global nature" of the Internet. (Griffiths, 2000) Young, (1997, p. 7-8) describes the Internet as "creating a community from a collection of strangers...virtual communities that leave the physical world behind." "Cyber friends may provide a rare sense of community for a young person who is otherwise alone...particularly true for rural and small-town youth where there are no support services available." (Cooper and Sportolari, 1997, p. 10)

Freedom and Boundlessness may be experienced in a medium in which one can go anywhere, anytime, to any culture or subculture in the world. According to Seemann, et al., (cited in Mitchell, 2000) subjects of their study meeting criteria as Internet addicts, were found to have a feeling of a global home, freedom, and boundlessness, uncharacteristic in substance dependence or other compulsive disorders including "common computer addiction." Greenfield, (1999) found loss of boundaries reported by 39 percent of his respondents, and reported by 83 percent of those "Internet addicted."

Freedom to Realize Sexual Fantasies in terms of unconstrained social functioning on the Internet, exceeds that already mentioned in terms of pornography, cyber-sex, and cyber-stalking. In a 1999 study, Young, et al., (1999b) found that anonymity allowed users to explore deviant, deceptive and even criminal acts that would be difficult to engage in real life. She includes such taboo activities as pedophilia, urination, bondage, and adultery. Griffiths, (2000) adds to the list, citing of ease of access and safe pursuit via Internet use, such unconventional or bizarre behaviors as voyeurism, bestiality, and sexually arousing violence. "Sexual fantasies in which the participant assumes different identities, sometimes of the opposite sex are common." (Velea, cited in Mitchell, 2000, p. 632)

Contrary Theories

Online Overuse as Simple Normal Social Interaction

Griffiths, (1999) makes the point that these interactions and relationships on the Internet might in fact be psychologically healthy because they break down prejudices (due to the unique characteristics previously mentioned such as anonymity). Going on-line he says, may perhaps be a way of dealing with a society where people are becoming ever more isolated from one another.

Grohol, (1999) feels that Internet technology and overuse closely resemble normal social interactions and methods of normal coping; being too quickly labeled as addictive or compulsive. He hypothesizes that any behavior can be viewed as addiction given the criteria of salience, withdrawal, mood modification, tolerance, etc., as identified by Griffiths (to some extent or other). Grohol points out that nearly half of Americans can be viewed as addicted to television, yet television is not viewed as a pathology, but rather a leisure activity. He makes a further argument that the Internet provides people the opportunity of finding others with greater commonality than they would find by meeting face to face. Naturally then, according to Grohol, people will be more compelled to spend more time with such people. Along these lines, Hansen, (2000) points to the potentially, perhaps unrealized range of positive benefits resulting from excessive Internet use such as generalisable technological skills that come with Internet developed skills.

The Internet as a Tool to Engage in Other Types of Behavior Already Addictive

According to Oliver Seemann, of Ludwig-Maximilians University in Munich, the main argument against the validity of an Internet Addictive Disorder is the high incidence of co-morbidity: that is other psychiatric illnesses are leading to misuse of the Internet. (Mitchell, 2000) An outspoken critic of the idea of Internet addiction is Griffiths, (2000, 2001) who argues that excessive Internet users are not addicted to the Internet itself, but use the Internet excessively as a *medium* in which to carry out other already addictive behaviors (such as sex and gambling). The Internet in his opinion is the place where people engage in the behavior. This idea was supported by Pratarelli & Browne, (2002) whose factor analysis determined that *having addictive characteristics* was the first stage involved in Internet overuse. As previously mentioned, Hall and Parsons, (2001) see Internet acting out as merely a maladaptive coping style, not as an etiology.

Griffiths admits however that his explanation does not apply well to the case studies of individuals who play the fantasy games or can't stay off chat rooms. He admits the "altered state of consciousness" (Griffiths, 2000, p. 539) reported by these people, may in fact be unique to the Internet agent. Griffiths, (1999) admitted that a small proportion of Internet users (2 to 3 percent) were seriously addicted.

Placement of Pathological Internet Use in the DSM IV

Types and Efficacy of Treatment as an Indicator

Several treatment centers have been developed for those feeling they are addicted to the Internet. Kimberly Young, (1998) founder of the Center for Online Addiction, proposes a series of 9 Recovery Strategies (with additional strategies targeted to families of addicts, children, and employers) highly similar to those prescribed to persons recovering from substance dependence.. Young's participants are taught to: (1) recognize what they're missing (reduction in prior activities), (2) become cognizant of hours spent, (3) develop and use time-management techniques, (4) find support in the real world, (5) recognize addictive triggers (feelings and stimuli that elicit cravings), (6) carry positive reminder cards, (7) take concrete steps (to solve other life problems), (8) listen to the voices of denial (recognize stonewalling, minimizing, blaming, excusing, rationalizing), and (9) confront loneliness. Further treatment

strategies later added, included assessing the *type of Internet application* to be the focus of treatment, the *reason* for the excessive use (i.e. security blanket), inclusion of family in counseling, and support group involvement. (Young, 1999) Young, (1998) and Orzack, (cited in Cromie, 1999; Seaman, 1998) have not wavered from their belief that (unlike substance dependence) moderation is the key to Internet recovery, unless a specific application must be avoided, or the person has a history of addictive behavior in other areas where moderation has never been possible.

Other treatment centers providing services include: The Institute for Addiction Recovery at Proctor Hospital in Peoria, Illinois; (Harvard) McLean Hospital in Belmont, Massachusetts; University of Texas, Austin; and Counseling Center, University of Maryland. (Holden, 1997; Young, 1998, 1999) Colleges like Ohio State University (Young, 1998) and the University of Washington (Kandell, 1998) are beginning to recognize and deal with the problem by limiting students to number of hours of Internet use.

Employees are being referred to Employee Assistance Counselors (EAP's), and varieties of people are accessing therapists specializing in addictions, and self help groups like Alcoholics Anonymous and Gamblers Anonymous. (Young, 1998) The "Internet Addiction Support Group" was formed in 1996 on the Internet itself, (Oreilly, 1996; Young, 1998) although that support group has been criticized as akin to "taking an alcoholic to an A.A. meeting in a bar." (Seaman, 1998) In a study of 35 therapists who responded to an online survey, Young, et al., (1999) found that patients were being treated with traditional methods to 5 types of Internet related problems. They discovered patients complaining of cyber-sexual related problems were being treated with sex-offender therapy techniques. Patients with low self-efficacy who become compulsive about the social aspects of the Internet were treated with cognitive-behavioral and interpersonal techniques. Patients carrying on-line affairs were treated with marital and family therapy. Finally, patients who primarily used the Internet as an anesthetic agent to cope with stress, depression, and anxiety, were treated with pharmacological and psychotherapeutic means. The comorbid nature of problematic Internet use, according to Kandell, (1998) requires that the underlying issues be dealt with rather than simply removing computer. Basically, three types of therapy are being most utilized to treat maladaptive Internet use; cognitive behavioral therapy, 12-step addiction programs, and expressive arts therapy. (Yang, 2000, cited in Hall and Parsons, 2001)

With what may be considered as an indicator of this phenomenon as a legitimate addictive disorder, those responding to the etiology have employed mostly typical treatment strategies used in chemical dependency, and other addictive/impulse control disorders (cognitive-behavioral therapy, support groups, psychopharmacology, psychotherapy, art therapy, family therapy, and relapse prevention). While in the mainstream addictions treatment community, (substance dependence and gambling) total abstinence is considered the preferred method. But the goal of moderation, as suggested by writers like Young, and Orzack, is not uncommon. Out of control habits in areas such as eating, sex, and shopping, are activities that one cannot abstain totally from. Our present technological, societal, functioning, likely places the use of computers along those same lines requiring moderation.

Relatedness to Impulse Control Disorders

As mentioned, many researchers and writers such as Fabian, et al., (2001) have concluded that Internet addiction is a new subtype of previously reported psychiatric disorder. Clearly in the literature, writers have embraced the impulse control disorders in the DSM-IV, as the area most likely to include Internet addiction, being reluctant to relate the phenomenon to chemical substances. The terse language applying dependence and abuse only to drugs, medications, and toxins appears to have influenced strict limitations to this area. Young, (1996a) leaned toward the impulse control disorders, hypothesizing, based on findings in her

initial research, that people are *not addicted to the Internet*. Her data she felt, seemed to indicate that specific applications that involve increased levels of highly interactive features, appear to be those that people have trouble controlling (recalling that impulse control disorders involve a failure to resist an impulse, drive, or temptation)

Beard and Wolf, (2001) modified Young's criteria (which required the presence of any 5 of 8 criteria) paralleling criteria for pathological gambling. They pointed out that the first five criteria evaluating preoccupation, progression, relapse, withdrawal, and tolerance may be applied to various non-addictive agents (such as a mother's ties to her infant). The following three should be considered separately they say, with at least one required to be present: use despite consequences, lying about use, and using for the purpose of escape or relieving negative feelings. In this way, the impulse control disorder is a valid problem as evidenced by consequences.

Relatedness to Chemical Dependencies

While Beard and Wolf, (2001) point out that physical withdrawal separates Internet dependence from chemical dependence, it does not take into account several substance dependencies that do not include physical withdrawal categories. Those include dependencies to caffeine, cannabis, hallucinogens, inhalants, and phencyclidine. (DSM-IV, 1994) Physical withdrawal is therefore not a requirement to consider an agent a dependence. Further, tension relief, not pleasure, is a major feature of addictions such as OCD, or of repetitive behaviors such as trichotillomania (hair pulling), repeated scab-picking, tics or Tourette's syndrome. (Marks, 1990) Research on Internet use quite clearly makes the case that reinforcers such as stimulation, euphoria, and pleasure, are present in Internet addiction (as well as relief, escape, etc.). Internet addiction in this light, matches chemical dependencies as well or perhaps better than impulse control disorders.

Marks, (1990, p. 1391) "surmises that it is harder to give up a pleasurable, than a neutral or unpleasant activity." And substance abuse, according to Marks, (1990) involves not only chemical, but behavioral addictive properties, as conditioning to cues connected to their non-chemical routines (preparation, administration, social milieu). He makes the case of identical cue conditioning to non-chemical addictions. "Addicted consumers have an emotional vacancy that they are compelled to fill with something...virtually *any substance or activity* that will alter, numb or erase that consciousness becomes acceptable." (Hirschman, p. 178)

Conclusions

From the study of the literature, it can be said that there are some identifiable and consistent characteristics in people who excessively use the Internet, and there are other characteristics that vary from study to study. Age of users tends to vary according to study (although college age people consistently rank as the highest user group). Gender varies according to studies, although gender specific applications have been clarified (males prefer more specific applications, while females prefer more flexible, social applications). There also seems to be high variance in studies reporting numbers of persons affected (ranging from 3 to 80 percent). We may however ascertain, that persons who develop problems with excessive use of the Internet tend to be loners, or lonely people. They tend to be more introverted, less social, and there appears to be significant evidence that they have lowered self esteem. As a possible indicator of Internet overuse as a valid addiction, treatment centers have been developed that are specifically targeted to this phenomenon, and are employing traditional interventions, widely accepted as the treatments of choice for addictions.

While the term addiction is not mentioned in psychiatric diagnoses, authors made a good case for its existence. Theories vary as to addiction being applied to dependency, compulsion, or impulse control. Marks, (1990) made a solid argument that an agent that meets the

requirement for a push toward pleasure, and a pull toward relief, should meet the requirements as an “addictive agent.”

Core components considered by several writers as necessary for the presence of addiction have been cited and described. Assuming that there is a valid and justifiable basis to these criteria, (which certainly appears to be the case) the various facets of the Internet have well fit, and matched these core requirements. It seems therefore reasonable from these two perspectives, to validate the phenomenon associated with the behavior and etiology of problematic Internet use as “Internet addiction.”

Grohol's, (1999) position that nearly anything can meet these core requirements must be addressed at this point, before any attempt at legitimizing Internet addiction can be made. Grohol appears to minimize the effects of the core components, relating such behaviors as reading or sewing, that persons can develop salience, tolerance, withdrawal, etc., to. Such minimizations do not account for the wrecked lives in terms of lost marriages and families, lost jobs, sleep deprivation, and other effects to users' physical and mental health cited in numerous studies, involving thousands of people. His position of the Internet as merely a “social agent” is again a minimization that we may compare to that of alcohol. People go to bars to drink and socialize, yet it is not socialization that causes the negative life effects, but rather the compulsive use of the medium (alcohol).

Grohol and Griffiths' objections that: (1) the Internet is merely a leisure activity that can get out of hand (like anything else), and (2) the Internet is only an outlet for existing addictions, must be answered before the phenomenon can be considered a separate and distinct addiction. The most compelling evidence supporting a new and independent etiological problem lies with the characteristics unique to the unique to the Internet.

This writer, as a clinician of 23 years, remembers the advent of the “crack-cocaine epidemic” in the mid-1980's. Four characteristics of crack-cocaine distinguished it from all other addictions (even powdered cocaine): (1) the rapidity of addiction, (2) the unique ways it made people behave (stealing from family members, cleaning out entire bank accounts, deplorable acts uncharacteristic of the user, binging until complete resource or physical exhaustion), (3) the almost complete loss of self control when triggered, (4) the rapidity with which the addiction spread among the population. No one questioned whether or not crack-cocaine was addictive, because of the uniqueness and power of the characteristics. This writer views the etiology behind the Internet along these same lines.

Users of alcohol, drugs, gambling, sex, relationships, food, or virtually any addictive agent imaginable, must retain their actual identity and physically interact in some way with real people in the real world around their addictive agent. As we have seen, this is not so, as it applies to the Internet. Users are anonymous, disinhibited, and unconstrained, with no identified barriers to behavior that might otherwise be considered unwise or unhealthy. The dissociative potential of the Internet serves as a unique reinforcer found in (probably) no other addictive agent. It is difficult to imagine someone like an alcoholic's addiction, allowing him or her to live a life as whatever sex, body type, intellect, geographic location, vocation, or other, as he or she likes.

Finally, the element of de-stigmatization adds a dimension that this writer sees as separate and distinct. Computers are found nearly everywhere, and are inexpensive to have in one's home. The presence of a “great computer set up” in your home, is viewed the same as a “great car in your driveway.” And the more you use it, the cooler, smarter, more savvy, or more hard working you are. It is hard to imagine such edification (or denial) being attributed to having a crack pipe, blackjack table, case of liquor, or sexual paraphernalia, proudly displayed in your living room. Having established the presence, and independent nature of Internet addiction, the next step would be to find a suitable place in the areas of psychiatric diagnostic categories in which it is best suited. The uniqueness of the etiology of Internet addiction makes this task

difficult. The Internet is disinhibiting and anonymous. It causes abnormally rapid relationships, and provides the user with an abnormal sense of control and irresponsibility. The time distortion, dissociation, and sense of freedom, boundlessness, and belongingness, cannot be compared to categorized disorders like alcohol dependence or compulsive gambling. Internet addiction seems to cut across the classifications of chemical disorders and impulse control disorders as well.

Beard and Wolf, (2001) made a reasonable attempt at modifying criteria to better diagnose Internet addiction by requiring that a *problem* be present. In its introductory chapter, the DSM-IV, (1994) explains the process by which disorders have been titled, described, and classified. The authors describe a team of work groups... utilizing experts in their respective fields...as to evidence and opinion...to participate as *consensus* scholars. While empirical knowledge is well cited as *a basis* for the DSM-IV's development, it reads that it was the expertise of the members to identify and organize the disorders. The major objection by authors, to classify the Internet as an addictive disorder, has rested on the absence of empirical support. But as the authors of the DSM-IV have written, expert opinion has served as a driving force behind validating and classifying disorders.

Perhaps it is time in the (anticipated) DSM-V, to reclassify dependencies and impulse control disorders to a general category of addictions. As we have seen, chemical disorders are not unique in the presence of euphoric stimuli, and do not all include the presence of chemical withdrawal. As we have also seen, impulse control disorders are not entirely consistent, as pathological gambling (and perhaps kleptomania and pyromania) involves both excitement, (pull) and relief (push). Yet intermittent explosive disorder, and trichotillomania do not.

A category of "addiction disorders" to describe chemical and non-chemical agents which may be pathologically misused for purposes of stimulation and relief might be a more accurate method of classification. Impulse control disorders may then remain consistent as relief seeking.

Finally, an issue not attended to in any of the literature reviewed, is the potential addictiveness of technology *yet to be developed*. It may be premature to place the term "Internet addiction" in the DSM-IV and other addiction literature, since some technology even more pathological may be waiting to affect people. For that reason, the term "technological addiction" might be preferable as a broad category in which excessive use of television, CB radios, video games, the Internet, and innovations we can only imagine, can be appropriately diagnosed.

Considerations for Future Research

From initial speculation in 1994, to theory in the late 1990's and present, a plethora of writers and researchers have raised many of the same issues of concern. More time, attention, and careful research to establish the validity of this proposed phenomenon appears to comprise the greatest concern. (Beard and Wolf, 2001; Cooper and Sportolari, 1997; Griffiths, 2000; Pratarelli & Browne, 2002; Young, 1996a) The major question asked, is that if there are people addicted to the Internet, what are they addicted to (e.g. typing, the computer, the anonymity)? (Griffiths, 2001; Beard and Wolf, 2001) First, there seems to be the need for a standard and accepted diagnostic instrument and criteria. (Griffiths, 2001; Young, et al., 1999) This includes a required answer to the former question; is the Internet addictive specifically, is it some aspect of technology, or is it just the means to carry addictions out?

Second, writers seem to agree that any overlapping psychiatric disorders should be identified in patients complaining about their Internet use, and dealt with as a primary treatment prior to diagnosing an Internet Disorder. (Kandell, 1998; Young, 1997) Along these lines, the question remains as to whether Internet use is comorbid in terms of pre-existing conditions leading to acting out on the Internet, or whether the instrument itself is the catalyst for comorbid

psychological problems. It seems reasonable to assume that proper diagnosis and treatment cannot proceed without furthering this issue. As previously mentioned, before and after studies of Internet users may lend evidence to this question.

Third, the proliferation of Internet use in private business, education, and industry, will require a public policy response regarding marketing, promotion, and use as it relates to mental health. (Young, et al., 1999)

Fourth, effective treatment methods resulting from empirical studies should be made widely available to those affected. (Young, et al., 1999)

Patients presenting with problems which included the Internet, was what interested this writer in producing this study of the literature. A curious number of cases, once delved into, were showing a catalytic effect of the Internet to problems such as depression, family conflict, job problems, and marital affairs. Patients often did not identify the Internet as their problem, but as information was sifted through, problematic Internet use gradually emerged. Clinicians should be asking questions about patients' use of technology in their clinical assessments. Including such questions as part of the substance abuse portion of the assessment might be most appropriate. Clinicians should most carefully look for engagement in the highly socially interactive Internet modes, such as chat rooms, and MUDS. They should also pay attention to who patients are interacting with: ex-paramours, children, or new, highly attractive Internet friends. Patients may often not realize they have an Internet related problem due to the beliefs of normality stated earlier. It is incumbent upon the clinician to "tease out" such underlying problems as a delivery of quality, effective, care. As Young pointed out, denial of the problem may rest in clinicians as well. In this writer's practice, such clinical interventions as behavior therapy (utilizing positive reinforcers and aversive consequences), craving management techniques, relapse prevention, cognitive behavioral therapy, and family of origin work, have been utilized on a case by case basis with Internet over-users.

This writer recommends that patients feeling a problem with the Internet, access mental health professionals *specializing in the treatment of varieties of addictions*. Such persons are likely accustomed to treating behavioral as well as chemical addictions, and possess a greater likely-hood of objectivity toward this phenomenon. Finally, more exposure, preferably publications in periodicals reviewed by a majority of clinicians (such as the Journal of Social Work) would help to promulgate the idea of problematic Internet use to a large number of clinicians and treatment centers.

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