Internet Addiction: A Handbook and Guide to Evaluation and Treatment
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CHAPTER 13

Toward the Prevention of Adolescent Internet Addiction

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INTERNET ADDICTION (IA) is one of the most serious public health problems in Korea. The challenge confronting the nation has been to develop cost-effective strategies to intervene in and prevent IA, especially with regard to adolescents who have been exposed to the Internet from their earliest years. Although there are very few studies on the prevention of IA, it can never be too early to discuss this issue. This chapter presents the clinical features of IA and data on the prevalence of adolescent IA, followed by conceptual models of IA, and finally current prevention efforts and future directions.

INTERNET ADDICTION IN ADOLESCENTS

Early studies utilized case studies to identify Internet addiction (e.g., Black, Belsare, & Schlosser, 1999; Griffiths, 2000; Leon & Rotunda, 2000; Song, Kim, Koo, & Kwon, 2001; Young, 1996; Yu & Zhao, 2004). Although there was no agreed-upon definition of IA, the case descriptions were remarkably similar. Individuals with IA commonly reported a compelling need to devote significant amounts of time to checking e-mail, playing games, participating in online chat rooms, or surfing the Web, even though these activities caused them serious academic and/or work failures, disruptions in daily routines, and family and other interpersonal problems.

The Internet addicts identified by the previous studies were mostly adults and college students. Recently, as the Internet has become an integral part of adolescents' daily lives for both academic and recreational purposes, their excessive Internet use has become a growing concern for parents, mental health professionals, educators, and policy makers. The clinical characteristics

of adolescent addiction to the Internet are quite similar to those presented by adults. The following is from the case of a 16-year-old male high school student, who was self-referred for online counseling.

> Ever since I have become addicted to [StarC], my studies have taken a backseat in my life and naturally my grades have plummeted. Although my friends and family have shown concern, I cannot seem to break free from my obsession with the game and I play all night most nights. . . . Even when I sleep I think about the game, and sometimes I dream that I am a fighter unit in the game. . . . I want to become free from this obsession but I just can't (I usually sit in front of the computer nine hours a day and, on numerous occasions, even 24 hours a day . . .).
>
> I first started using computers during my first year in middle school and started playing computer games, in part due to peer pressure, at that time. In the beginning, I played computer games two to three hours a day, but by the time I got into high school, I sat in front of the computer seven to eight hours a day. If I did not spend at least that much time playing computer games, I could not concentrate on my studies, because my head would be filled with game scenes.

This phenomenon of excessive use has been labeled Internet addiction disorder (Goldberg, 1996), pathological Internet use (Young, 1998), and problematic Internet use (Shapira et al., 2003), among others. Although clinical case studies have converged to suggest the existence of IA, there has been much controversy and disagreement among researchers over the nature of the construct. Many attempts have been made to define it and construct its diagnostic criteria (see Table 13.1). Griffiths (1996) has argued that many excessive users are not Internet addicts and has proposed that six characteristic symptoms are necessary to define a behavior as functionally addictive: salience, mood modification, tolerance, withdrawal, conflict, and relapse. One of the most commonly used criteria is the one used by Young (1998), who modified the diagnostic criteria for pathological gambling in *DSM-IV* to construct diagnostic criteria of pathological Internet use. More recently, Shapira and his colleagues conceptualized problematic Internet use as an impulse control disorder and proposed rather broad diagnostic criteria (Shapira et al., 2003).

Ko and his colleagues made another attempt at formulating a set of diagnostic criteria for IA (Ko, Chen, Chen, & Yen, 2005). Although the definitions and terminology of IA vary among researchers, all variants share the following four features with regard to describing IA: (1) compulsive use, (2) tolerance, (3) withdrawal, and (4) negative consequences (Block, 2008).

Compulsive Internet use refers to the uncontrollable nature of the addict's increasing amount of time spent online. It is often accompanied by a loss of the sense of time passing or a neglect of basic drives ("He does not get out of his computer room even for bathing and meals," "He frequently sits up all through the night," etc.). Tolerance refers to the need to spend increasing amounts of time on the Internet to achieve the same level of excitement or

Table 13.1
Diagnostic Criteria for Internet Addiction as Proposed by Researchers

Researcher	Terminology	Diagnostic Concept	Diagnostic Criteria
Goldberg (1996)	Internet addiction disorder	Substance use disorder	Persistent desire, tolerance, withdrawal, negative consequences
Young (1996)	Pathological Internet use	Impulse control disorder	Preoccupation; unsuccessful efforts to control; persistent desire; tolerance; withdrawal; staying online longer than intended; using the Internet as a way of escaping from problems; lying to conceal Internet involvement; risk of loss of a significant relationship, a job, or an educational or career opportunity
Griffiths (1996)	Internet behavior dependence	Substance use disorder	Salience, mood modification, tolerance, withdrawal, conflict, relapse
Shapira et al. (2003)	Problematic Internet use	Impulse control disorder	Preoccupation, clinically significant distress or functional impairment
Ko et al. (2005)	Internet addiction	Impulse control disorder, behavioral addiction	Preoccupation; recurrent failure to resist impulse; use of Internet longer than intended; tolerance; withdrawal; persistent desire and/or unsuccessful attempts to cut down Internet use; excessive time spent; excessive effort to obtain access to Internet; continued heavy Internet use despite knowledge of having a persistent or recurrent physical or psychological problem; functional impairment

satisfaction that the addict experienced previously (e.g., "In the early days of her computer gaming, she needed only one to two hours to feel satisfied. Now, she plays the game for more than five to six hours at a time, once she begins."). Withdrawal refers to the addict's feelings of anger, tension, irritability, and/or depression when the computer is inaccessible. Some individuals tap their fingers in a manner reminiscent of keyboarding when there is no computer and ruminate about things they have done on the Internet. Negative consequences include alienation from or arguments with family and friends, neglect of

work or personal obligations, low achievement, reduction in physical activity, fatigue, and poor health.

A recent approach viewing addiction problems from a syndromal perspective is perhaps worth noting (Shaffer et al., 2004). Shaffer and his colleagues proposed that each outwardly unique addiction disorder, such as alcohol dependence or pathological gambling, should be conceived of as a distinctive expression of one underlying addiction syndrome. With this broader conceptualization, IA can be understood as a new expression of the addiction syndrome, sharing common manifestations (e.g., tolerance and withdrawal) and sequelae with other addictive disorders. At this early stage of research on IA, it does not seem feasible to test whether IA is truly one expression of the addiction syndrome. However, conceptualizing IA as such provides a useful perspective for understanding the IA phenomenon and developing its treatment and prevention. For example, the high comorbidity rate observed in individuals with IA is often pointed out as evidence against viewing IA as a distinct disorder (Black, Belsare, & Schlosser, 1999). This feature is often observed in both chemical and behavioral addictions (Kessler et al., 1996).

It has also been reported that IA is resistant to treatment and has high relapse rates (Block, 2008). The high relapse rates of alcohol and drug addiction are well documented. For example, about 80% to 90% of individuals entering addiction recovery relapse during the first year after treatment (Marlatt, Baer, Donovan, & Kivlahan, 1988).

From the syndromal perspective, the most effective treatments are multimodal approaches that include both object-specific and addiction-general treatments. In fact, multicomponent preventive intervention has been demonstrated to be very effective for the preclusion of cigarette smoking (Botvin & Eng, 1982), which may have direct implications in the search for an effective treatment and prevention for IA.

PREVALENCE OF IA FOR ADOLESCENTS

This section briefly presents findings from the Korean national survey that used the self-report Korean-Internet Addiction Scale (K-IA) (Kim, Park, Kim, & Lee, 2002), and examines the prevalence of adolescent IA. In 2008, the survey sampled 5,500 people (2,683 youths aged 9 to 19 and 2,817 adults aged 20 to 39) using a stratified sampling method. The Korean-Internet Addiction Scale—Adolescent (K-IA-A), which is composed of 40 items on a four-point Likert scale, has seven subscales, as follows: disturbance of adaptive functioning (nine items), disturbance of reality testing (three items), positive expectance toward the Internet (six items), withdrawal (six items), virtual interpersonal relationships (five items), deviant behaviors (six items), and tolerance (five items). The survey identified high-risk adolescents as those having a total score >94 or having scores on three subscales as follows: disturbance of adaptive functioning >21, withdrawal >16, and tolerance >15. The survey

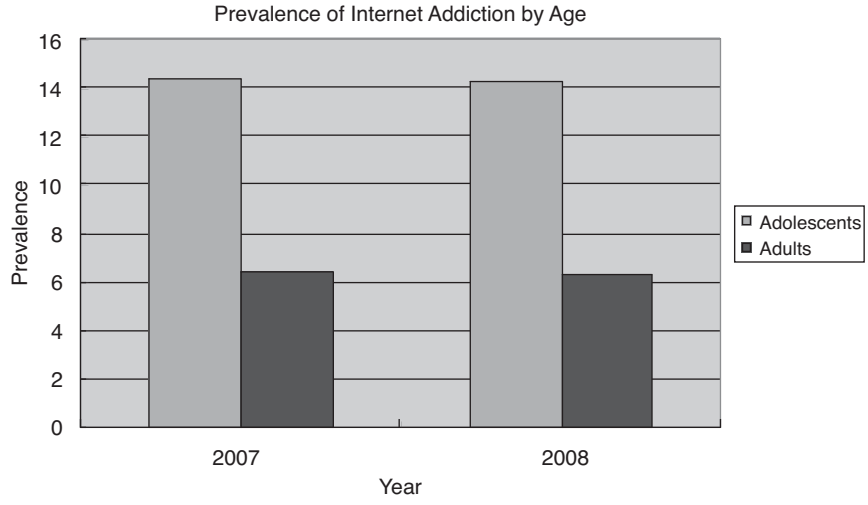

Figure 13.1 Percentages of Internet Addiction Among Adults and Adolescents

also identified adolescents at risk of IA (total score >82 or disturbance of adaptive functioning >18, withdrawal >14, and tolerance >13).

The percentage of high-risk adolescents was 2.3%, compared to 1.3% for adults. At-risk adolescents were estimated to be 12.0%, compared to 5.0% for adults (Korean Agency for Digital Opportunity and Promotion, 2008). See Figure 13.1. When the prevalence rate (high-risk and at-risk group combined) was examined according to age, the prevalence rate was highest among ages 16 to 19 (15.9%). The group with the next highest rate was ages 13 to 15 (15.0%), and the group with the lowest rate was ages 35 to 39 (4.8%). There was a gender difference in the percentages of high-risk and at-risk adolescents. The survey estimated that 3.3% of the boys and 1.1% of the girls were in the high-risk category and 13.6% of the boys and 10.4% of the girls were in the at-risk category. The combined percentage of high-risk and at-risk adolescents from two-parent households was 13.9%, while the corresponding percentage of those from single-parent households was 22.3%.

The survey examined which Internet activity on the Internet the high-risk, at-risk, and normal individuals most frequently engaged in. The information-searching activity frequency was similar among the high-risk (68.8%), at-risk (75.7%), and normal (79.8%) groups. However, frequency of the gaming differed greatly among high-risk (61.5%), at-risk (64.5%), and normal (45.3%) groups. This finding indicated that individuals using the Internet for gaming were at greater risk for developing Internet addiction. When the major activities of adolescents and adults were considered separately, results showed that high-risk adolescents participated in gaming (53.5%) much more often than the normal adolescents did (28.0%). By contrast, high-risk adults' activities

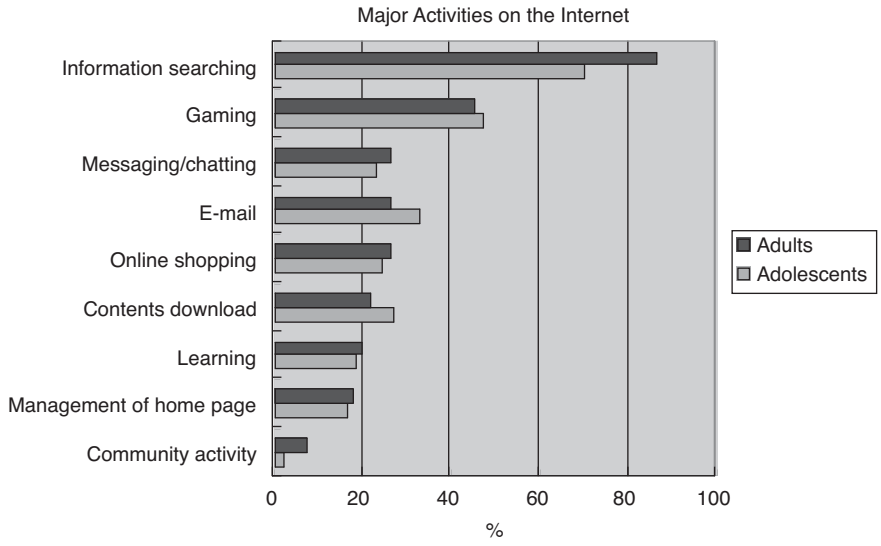

Figure 13.2 Major Internet Activities

included movies, music, and hobbies (58.8%) more often than did the normal adults' activities (28.5%). See Figure 13.2.

CHARACTERISTICS OF HIGH-RISK ADOLESCENTS

Numerous studies have examined the personality traits of individuals who were considered dependent on the Internet, mostly using college students or adult samples. The findings of the previous studies seem to suggest that specific personality traits may predispose individuals to develop IA. Characteristics frequently associated with IA have been identified as depressed mood, impulsivity, sensation-seeking, low self-esteem, shyness, and reduced attentiveness (Ha et al., 2006; Kim et al., 2006; Lee & Kwon, 2000; Lin & Tsai, 2002; Ryu, Choi, Seo, & Nam, 2004). It is also noteworthy that psychiatric comorbidity is common, particularly mood, anxiety, attention-deficit/hyperactivity disorder (ADHD), and substance use disorders (Black, Belsare, & Schlosser, 1999; Ha et al., 2006; Ko, Yen, Chen, Chen, & Yen, 2008).

Depression is one of the vulnerability factors consistently demonstrated in previous studies. Kraut and his colleagues (1998), using a community adult sample, demonstrated that excessive Internet use led to depression even when previous depression scores were controlled for. Such individuals tend to withdraw from interpersonal relations, show reduced amounts of communication with household and family members, and feel lonely (Kraut et al., 1998). Kwon (2005) examined temporal changes in adolescent Internet game addiction and related variables using a prospective design. The study assessed a total of 1,279 middle school students twice, five months apart, on measures of Internet

game addiction, self-escape tendency, negative affect, peer relationships, relationships with parents, and other variables. The multiple regression analysis showed that the first assessment of Internet game addiction, self-escape tendency and negative affect, were predictive of Internet game addiction several months later. None of the relationship variables from the first assessment were able to predict Internet game addiction as of the second assessment.

Although previous studies shed some light on the characteristics of high-risk adolescents, they should be interpreted with caution due to common methodological weaknesses such as small sample size, lack of validated addiction criteria, and use of low cutoff scores. As most of the studies have a cross-sectional design, it is also difficult to determine whether those characteristics are the risk factors or the negative consequences of excessive Internet use. More empirical data is definitely needed to aid in identifying high-risk adolescents.

THE CONCEPTUAL MODEL OF INTERNET ADDICTION

Effective prevention requires a conceptual model that connects risk factors, mediating processes, and maladaptive behaviors. Most of the research on IA appears to lack a theoretical basis, despite the number of studies conducted in the field. Davis (2001) proposed a model of the etiology of IA[1], using the cognitive-behavioral approach The main assumption of the model was that IA resulted from problematic cognitions coupled with behaviors that maintain maladaptive responses. This chapter reviews the cognitive-behavioral approach and also briefly considers another model of IA, based on Baumeister's (1990) escape from self theory (Kwon, Chung, & Lee, 2009).

Cognitive-Behavioral Model

Using a diathesis-stress model, Davis (2001) proposed that the distal cause of IA was the underlying psychopathology (e.g., depression, social anxiety, substance dependence), and the stressor was the introduction of the Internet, suggesting that underlying psychopathology did not in itself result in symptoms of IA but were a necessary element in its etiology. He claimed a key factor in experiencing the Internet and associated new technology is the reinforcement an individual receives from the event. He also suggested that stimuli, such as the sound of a computer connecting with an online service or the tactile sensation of typing on a keyboard, could result in a conditioned response. Such secondary reinforcers could act as situational cues contributing to the development and maintenance of IA. It seems reasonable to assume that the presence of some psychopathology places people at increased risk for

[1]Davis (2001) used the term *Pathological Internet Use* (PIU), but PIU is referred to here as IA, to maintain consistent terminology.

developing IA. However, more research is needed to identify psychopathology associated with IA. Ko and his colleagues (2008) demonstrated that social phobia did not predict IA, controlling for depressive disorders and adult ADHD. Furthermore, the distal cause of IA needs to be expanded to include neurobiological and psychosocial antecedents to advance his model.

Davis (2001) assumed that the most central factor of the cognitive-behavioral model of IA was the presence of maladaptive cognitions. He classified maladaptive cognitions into two subtypes–thoughts about the self and thoughts about the world—which he viewed as sufficient proximal causes for IA. He further assumed that cognitive distortions such as rumination, self-doubt, low self-efficacy, and negative self-appraisal tended to contribute to, intensify, or maintain IA.

Although many important aspects of the model remain untested, the cognitive-behavioral model proposed by Davis seems to provide a useful framework for developing intervention and prevention programs. Davis suggested that cognitive restructuring should be an essential therapeutic component for intervention in and prevention of IA. The behavioral component of cognitive behavioral therapy (CBT) for IA would include keeping a record of Internet use, thought listing exercises, and exposure therapy (Davis, 2001).

ESCAPE FROM SELF THEORY

Like other addictive problems, IA can be placed somewhere on a continuum of self-destructive behaviors and thus understood as an attempt to eliminate self-estrangement and the accompanying negative mood state. It has often been assumed that the Internet may serve the purpose of an escape from real-life difficulties (Armstrong, Phillips, & Saling, 2000; Young, 1998). However, the escape hypothesis has been neither elaborated nor empirically tested. Kwon, Chung, and Lee (2009) tried to understand the process of escape using Baumeister's escape from self theory (1990).

The steps that Baumeister suggested are probably involved in escaping from the self are as follows. First, individuals are faced with a reality that does not meet their high expectations, such as failures, setbacks, or other disappointing results. When current difficulties are attributed to the self, the individual becomes acutely aware of himself or herself as inadequate, incompetent, unattractive, or guilty. Second, a negative affect, such as depression, anxiety, or suicidal guilt, arises from the unfavorable comparison of the self with self-standards. Third, the person responds to this uncomfortable state by trying to escape from meaningful thoughts into a relatively numb state of cognitive deconstruction. The term *cognitive deconstruction* is defined as a mental state characterized by present-oriented time perspective, denial of the future, absence of distal goals, and very concrete thinking. Finally, the consequences of this deconstructed mental state may contribute to an increased willingness to attempt suicide. In other words, suicide emerges as an escalation of the

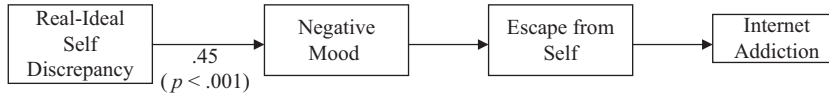

Figure 13.3 Escape from Self Model of Internet Addiction

person's wish to escape from meaningful awareness of current life problems and their implications about the self.

Previous studies demonstrated that a tendency to escape from the self could be a major factor in accounting for a diverse range of behavioral problems among adolescents, such as "huffing" (the use of inhalants), drinking, running away, and impulsive suicide (Lee, 2000; Shin, 1992). As with other addictive problems, IA can be regarded as belonging to self-destructive behaviors in a broad sense. Kwon, Chung, & Lee (2009) demonstrated the validity of Baumeister's escape theory with regard to IA. They constructed and tested a path model, as illustrated in Figure 13.3, using structural equation modeling (SEM) on the observed variables. The fit indexes of the model were good, and all the path coefficients were significant, supporting the validity of the model.

This finding implied that escaping from the self could be a process leading to IA. When individuals suffer from real/ideal self discrepancy, they evaluate themselves as incompetent, unworthy, and inadequate. As a result, these persons become depressed, anxious, or defeated. At this point, such individuals can choose either to struggle to solve the problem or to attempt an escape from painful reality. When the Internet is adopted as a way to escape from oneself and is repeatedly visited, the individual's false sense of power, achievement, and connection, obtained through Internet activities, deepens, which will escalate the person's indulgence in the Internet. Although it should be recognized that the escape from self model presents only one possible path leading to IA, the present findings have important implications for the treatment and prevention of IA for both adults and adolescents. Implications for adolescents are highlighted here. First, adolescents who are afflicted with negative self-evaluation and negative mood could be susceptible to IA, especially when parents focus only on academic success and do not provide adequate supervision. Second, intervention programs should target not just changes in Internet use but also changes in the adolescent's behavioral and cognitive tendency to escape from the self. Finally, implementing programs that are geared toward improving adolescents' problem-solving and coping skills may be a promising avenue for effective prevention.

PREVENTION: THE PRESENT AND THE FUTURE

Using data from 2008, the Korean government estimates that approximately 168,000 Korean adolescents (2.3% of young people aged 9 to 19) suffer from IA and require treatment. Surveys done in many countries have also shown that IA has become an increasing mental health problem among adolescents

(Johansson & Götestam, 2004; Liu & Potenza, 2007; Siomos, Dafouli, Braimiotis, Mouzas, & Angelopoulos, 2008). Until now, many clinicians working in this field have struggled to find ways to treat IA effectively. It seems quite reasonable that there has been a great deal of emphasis on treating those with IA. However, there are urgent needs that we should place a high priority on developing prevention programs. First, most efforts to treat IA have been only partially successful. The first stage, motivating individuals with IA to seek treatment, is very hard to achieve since they tend to deny their problems. Unless they are referred by parents or teachers to participate in the treatment program, they seldom seek professional help on their own or show up for their appointments. Second, due to the prevalence of this problem, even the best program to treat IA can accommodate only a small fraction of those suffering from it. It has been noted that the number of people needing services continues to grow, while resources for providing such services have not been expanded. Third, once IA has evolved into a debilitating form, it is not only resistant to successful treatment but also has a high relapse rate. To make things worse, individuals entering recovery from IA are exposed to the Internet all the time, everywhere. It is an enormous challenge for them to maintain their therapeutic gains. Prevention is therefore an important option for solving this problem.

For these reasons, there appears to be some consensus that prevention is the preferred choice among approaches for dealing with excessive Internet use. Clinicians, educators, and policy makers all seem to agree that treatment strategies for tackling IA need to be complemented by preventive strategies that address risk factors before the addiction evolves into a debilitating form. Although the rising need for prevention is not debatable, no agreement has been reached regarding when, how, and to whom to direct preventive efforts.

Current Prevention Approaches

A number of studies have highlighted the danger that excessive Internet use may pose to students as a population group (Widyanto & Griffiths, 2006; Yang, 2001). This population is deemed to be vulnerable and at risk given the accessibility of the Internet and the flexibility of their schedules. Any practitioners who have worked with severe IA have argued strongly for early identification and prevention. Given the urgent need, the simplest and easiest approach, a knowledge-based educational approach, has so far been preferred and implemented, and it has been partially successful in reducing the prevalence of IA. However, this approach's long-term effect remains to be documented, and major gaps remain between what the prevention programs should aim for and state-of-the-art practices.

Providing Knowledge and Information

Current approaches to the prevention of IA have relied heavily on the provision of factual information concerning the adverse consequences of excessive

Internet use. As a basic step to promote prevention, educators invite experts to give presentations to students, which usually include factual information on IA, and provide some advice about how to control Internet use. This knowledge-based educational approach has been based on the assumption that youngsters become addicted to the Internet because they lack knowledge of its negative consequences. Such an approach had a certain intuitive and logical appeal, especially in the days when IA was a new phenomenon. However, merely providing information about the extreme negative consequences of excessive Internet use is, by itself, of marginal value as a prevention strategy.

This does not mean that such information and knowledge cannot play an important role in IA prevention. To the contrary, some knowledge may be a useful component of IA prevention programs. For example, most youngsters typically underestimate their level of dependence on the Internet and normalize it as a temporary indulgence that they can grow out of anytime they want to. Certain anecdotal information, with vivid details, appeals to youngsters and is helpful in correcting misperceptions and myths about IA. It is important that the information and knowledge included in prevention programs is selected for meeting the needs of the target population. The vehicle for providing the information and knowledge is also critical. The younger generation is more attentive and responsive when new information is delivered through up-to-date audiovisual media than via old-style PowerPoint slides.

Identification of High-Risk Adolescents

The rate of IA for adolescents (ages 9 to 16) is twice that for adults (over 16). There are many reasons why adolescents are more susceptible to IA. First, and most important, they lack the cognitive and emotional abilities necessary to control themselves. It is likely that frontal cortex and other neurobiological systems responsible for executive control and emotional regulation are not fully developed. More research is needed in this area to determine the neurobiological basis of IA. Second, adolescents are more involved in Internet games than are any other age groups. Internet gaming can be very reinforcing to youngsters because of their interactivity and the sense of belongingness, competence, and power they provide. Online gaming can also be rewarding because of the inherent value of the stimulation and amusement they offer.

Those who use the Internet for gaming have been shown to be at greater risk for developing IA, as demonstrated by survey findings. Indeed, the rate of gaming differed greatly among high-risk (61.5%), potential-risk (64.5%), and normal (45.3%) adolescents. This finding was more pronounced among adolescents than among adults. The high-risk adolescent group engaged in online gaming at twice the rate of normal adolescents (53.5% versus 28.0%). Another factor that may play some role in inducing adolescents in Korea and other Asian countries to utilize the Internet is their stressful lives, with its high academic pressure. Typical school days of adolescents are mostly confined to academic activities, without many extracurricular activities, because college

entrance examinations are very competitive. The Internet is therefore a major outlet for youngsters who are stressed out due to academic pressures.

For these reasons, adolescents are the main target group of prevention efforts. Unfortunately, very few longitudinal studies are available to aid in the identification of high-risk adolescents. Currently, as a quick method for identifying high-risk adolescents, a self-report questionnaire assessing IA is administered to students at the beginning of the academic year, and those who score high are either referred to counseling or monitored by teachers. Although there is a high probability that adolescents with high scores on such a measure of IA are likely to develop IA, this approach is not without caveats. First, some youths do not want to disclose the fact that they use the Internet excessively and do not answer the questionnaire honestly. Therefore, too much reliance on self-report measures may fail to identify "fake good" compulsive Internet users. Second, the basic question of who are high-risk adolescents needs to be addressed. A high-risk group, in the true sense, consists of those who do not show problem behaviors yet but are likely to develop dysfunctional behavior later. The current method, administering a questionnaire assessing IA, is limited in its ability to identify high-risk adolescents unless they develop an early form of one or more dysfunctional behaviors. There is a need for more empirical data, indicating who the high-risk adolescents truly are. For example, there is data showing that the prevalence of IA among youngsters from single-parent households is higher than for youngsters from two-parent households. It is not yet clear whether growing up in a single-parent family constitutes a risk factor or the lack of parental supervision associated with single-parent households is the risk factor.

PREVENTION PROGRAMS

The current prevention approaches include a mixture of behavioral and cognitive strategies designed to change Internet use patterns and enhance self-control. A cognitive-behavioral group program is often used to reduce youngsters' heavy and compulsive use of the Internet. One example is the Self-Management Training (SMT) developed by Kwon and Kwon (2002).

The main objectives of the SMT program are as follows: (1) to provide youngsters with accurate information concerning the prevalence of IA, its progress pattern, and related factors; (2) to encourage them to self-monitor their use of the Internet and identify environmental and psychological antecedents for engaging with the Internet for a longer period than they intended; (3) to promote behavior changes related to Internet use, such as setting rules regarding Internet use, reducing Internet time step-by-step, planning other activities in advance, and getting support from others; and (4) to teach youngsters how to cope with stress and increase other pleasurable or mastery activities. This program consists of six weekly 90-minute sessions, administered to groups consisting of seven to nine students. This psychoeducational program puts greater emphasis on self-directed behavior changes

with regard to Internet use than on enhancing personal and social competence. To examine its efficacy, a randomized control trial was conducted, and preprogram, postprogram, and three-month follow-up assessments were administered. The SMT program was shown to be effective in reducing time on the Internet and enhancing self-control but less effective at decreasing the severity of Internet addiction. Lee (2001) developed a similar but improved program that included parent training and cognitive restructuring. This nine-session game-control program (GCP) was reported to be effective in reducing both time spent online and the severity of IA (see Table 13.2).

Table 13.2
Overview of Treatment Sessions of the Game-Control Program

Session	Objectives and Content
Sessions 1–2	Provide orientation and teach self-monitoring. • Provide a full description of the program. • Explore short-term and long-term effects of heavy Internet use. • Teach how to keep daily records of Internet use. • Write a self-contract limiting the Internet use.
Parent session 1	Provide information about Internet addiction. Teach how to cope with the child's Internet use.
Sessions 3–5	Encourage to write daily records and teach time management. • Identify antecedents of staying online longer than intended. • Determine self-rewards for staying online only as planned. • Search for alternative pleasure activities. Identify negative thoughts and teach how to change them. • Label cognitive errors. • Change self-defeating thoughts with self-enhancing thoughts. Encourage to set up long-term goals and develop steps to fulfill them. • Share each participant's life dream. • Discuss how to improve self-image.
Sessions 6–7	Identify major stressors and teach coping strategies. • Understand relationship between stress and Internet use. • Demonstrate and practice relaxation techniques. • Teach active coping strategies. Resolve interpersonal conflicts. • Teach communication skills. • Teach how to initiate and keep social contacts. • Teach how to be assertive.
Sessions 8–9	Review and consolidate what has been achieved through the program. Prepare for future challenges.
Parent session 2	Discuss what has been changed and what remains to be changed. Develop strategies to cope with remaining problems.

Based on these programs, preventive strategies using cognitive-behavioral techniques are now widely used. The Korean Agency for Digital Opportunity and Promotion (KADO) published a guide booklet for teachers on preventing IA. The DREAM approach is as follows. (1) In the first step, the Danger assessment, problematic Internet behaviors and school adjustment are assessed. (2) In the next step, Return, students are motivated to return to the normal use of the Internet. To facilitate this, teachers help students evaluate the benefits and costs of excessive Internet use and provide incentives for change. (3) In the Evaluation step, students receive a systematic evaluation on psychosocial factors such as mood, self-esteem, interpersonal relationships, and family environment. (4) In the Appreciation step, the student's strengths and assets are appreciated and utilized to facilitate self-directed behavior changes. (5) In the final step, Miracle, students take concrete actions to fulfill their short-term and long-term goals. Students are encouraged to perceive even a small change as a miracle. The efficacy of this approach has not been examined yet. Some other techniques, such as Internet holidays and weekend camps, are also in use but lack empirical data on their efficacy.

IMPLEMENTATION

As stated earlier, the typical school-based prevention approach includes a universal one- to two-hour, schoolwide, knowledge-enhancing educational presentation on the subject combined with a 10- to 12-session brief intervention for high-risk individuals. As prevention programs, these current school practices are far from ideal in scope, intensity, and duration. Many environmental realities in schools limit the possibilities for administering a comprehensive program that teaches important information, skills, and positive attitudes and focuses on the promotion of healthy Internet use and well-being. For students who intend to enter competitive universities, Korean schools put the highest priority on building academic competence. Therefore, programs that promote personal and social competencies receive only superficial attention from students, parents, teachers, and school administrators. Quite naturally, students are not enthusiastic about staying longer at school to participate in additional programs. In addition, teachers don't have adequate support when implementing prevention programs. Given the achievement-oriented zeitgeist, it is often pointed out that there is not enough time during the school day and year to accommodate longer and broader prevention programs. Therefore, without systems-level supports, comprehensive programs have little chance of being integrated into the current school curriculum.

GOVERNMENT FUNDING AND SUPPORT

In a country where there is a dearth of mental health resources, the big challenge in prevention is to secure funding and other resources. The Korean government is keenly aware of the heavy human and social costs

of IA, especially for adolescents, the most vulnerable population. Until now, government funding has been focused on setting up counseling centers and training counselors to meet the high demand for IA intervention. Since the first special clinic (the Center for Internet Addiction Prevention & Counseling [IAPC]) geared to provide counseling for IA was established in 2002, more than 80 affiliated counseling centers have begun offering counseling to youngsters with IA. The IAPC has offered an IA counselor training program for teachers, counselors, and other mental health professionals since 2002. The program consists of 40-hour courses presenting basic knowledge about IA, rapport-building techniques for use with adolescents, and other relevant counseling techniques, mostly cognitive-behavioral. About 1,000 counselors have completed the courses and received IA counselors' certificates. These government-supported centers and trained counselors could play a pivotal role in providing preventive programs along with intervention programs. However, to develop a strong scientific basis for future preventive programming efforts, more funding needs to be secured for research to advance the quality of IA prevention programs and to stimulate investigation of IA.

FUTURE DIRECTIONS IN PREVENTION

In response to the urgent need to reduce the high rate of IA among adolescents, preventive interventions have been hastily designed and administered on a small scale in Korea. Current prevention programs are mostly narrow-band, targeting primarily adolescents who already present some features of IA. They aim to provide information and knowledge, encourage self-monitoring of Internet use, facilitate behavior changes, and enhance self-control. These preventive programs have demonstrated some short-term effects, but there have been no systematic, controlled, longitudinal field studies to evaluate the long-term effects. The difficult initial steps toward IA prevention have been taken, but there is a long way to go before effective prevention programs will be developed. Legislation should also be seriously considered to prohibit children from using the Internet for long hours. This section discusses some considerations for guiding the development and implementation of prevention programs.

Prevention Addressing Fundamental Causal Processes

Current prevention programs target the high-risk adolescents who spend more than three to four hours daily on the Internet. The primary goal of this intervention is therefore for the adolescents to reduce their time on the Internet and develop alternative leisure activities. These programs use behavioral and cognitive techniques to change the contingency of Internet use, correct misperceptions and exaggerated expectations, and encourage other extracurricular activities. Given the brevity of such preventive interventions, these strategies are well targeted and produce short-term benefits. However, they should not

be considered sufficient for reducing IA, since they deal with only proximal and Internet-specific IA risk factors. All addictive problems have a high relapse rate, and IA is no exception. To have an enduring impact and prevent relapse, IA prevention programs should address fundamental causal processes. The syndromal conceptualization of addiction suggests that an effective treatment of addiction should address general addiction vulnerabilities. Previous research on school-based prevention programs also implies that a comprehensive program dealing with general vulnerabilities has greater potential than discrete, ad hoc, short-term interventions do (Weissberg & Elias, 1993). It would be not only desirable but also cost-effective, from a long-term perspective, for IA prevention programs to enhance youngsters' personal and social competence, so that they develop a subjective sense of role fulfillment and social effectiveness as they deal with daily tasks, responsibilities, and challenges.

NEED FOR BROADER MULTIMODAL PROGRAMS

There is a growing consensus that a broad-based approach to prevention is needed to address risk factors that are common to many youth problems (DeFriese, Crossland, MacPhail-Wilcox, & Sowers, 1990; Elias & Weissberg, 1989; Weissberg, Caplan, & Harwood, 1991). The literature supports this consensus, indicating that high-risk problem behaviors such as substance abuse, delinquency, and dropping out of school co-occur (Jessor, 1993) and that common risk and protective factors contribute to the development of these behaviors (Dryfoos, 1990). Previous studies have demonstrated that a tendency to escape from the self is a common risk factor underlying many youth problems (Lee, 2000; Shin, 1992). It has also been demonstrated that Internet addiction is significantly correlated with depression and suicidal ideation among South Korean high school students (Ryu, Choi, Seo, & Nam, 2004).

These findings converge to suggest that a broad-based approach dealing with risk factors underlying not only IA but also other related youth problems is more promising than are narrow-based approaches focusing on just one outcome. In this vein, life skills training (LST), the multicomponent preventive intervention shown to be effective in the prevention of cigarette smoking (Botvin & Tortu, 1988), is a good IA prevention model. Broader-based substance abuse prevention programs like LST are successful because they not only provide youngsters with skills for resisting social pressure to use tobacco, alcohol, and other drugs, but they also enhance personal and social competence. Such programs, enabling youngsters to cope effectively with life demands and challenges, can prevent youngsters from seeking escape from the self and the offline environment and are likely to be successful in IA prevention.

NEED FOR PREVENTION PROGRAMS TARGETING YOUNGER AGE GROUPS

It is widely agreed that early identification is crucial for successful IA treatment (Kim, 2001). People are starting to use the Internet at younger and

younger ages, in Korea and other countries. The most recent survey of fourth graders by the Korean Ministry of Health and Welfare estimated that 2% of all fourth graders were high-risk and required treatment or basic counseling (Korean Ministry of Health and Welfare, 2009). To make things worse, elementary school children's most frequent Internet activity is gaming, which is known to have the greatest addiction-causing potential of all Internet activities (Ko et al., 2005; Yang, 2001). Considering that children in elementary school have a limited capacity for self-control, it is very likely that early exposure to Internet gaming increases their risk of addiction. It increases especially when both parents go to work and the children are left unsupervised. The highest-risk group of preadolescents may be those who spend long hours on Internet gaming without parental supervision. When children reach adolescence, risk factors are likely to become more varied and complicated. For example, during the early adolescent years, particularly those marking the transition to middle or junior high school, adolescents who have difficulty adjusting to a new school environment may indulge in Internet use in an attempt to cope with depressed mood or tension. Therefore, it is crucial to identify risk factors of specific developmental periods and tailor prevention programs to address specific risk factors of each age group.

Significant Duration and Dosage

Currently, most schools adopt very brief prevention programs lasting eight to 12 sessions. It is argued that schools cannot devote their limited resources to longer and more intensive programs. However, research findings converge to suggest that preventive intervention needs to be of significant duration and intensity to show an effect (Weissberg & Elias, 1993). For example, Bangert-Drowns's (1988) meta-analysis examining the effects of school-based substance abuse education demonstrated that "substance abuse education has, for the most part, failed to achieve its primary goal, the prevention of drug and alcohol abuse" (p. 260). Of 33 programs he reviewed, 29 lasted less than 10 weeks. Brief duration and low dosage were regarded as two of the primary reasons for negative outcomes. Reviews on the findings of health-focused, school-based prevention programs also showed that 40 to 50 hours were needed to produce stable behavioral effects (Connell, Turner, & Mason, 1985). Brief (i.e., less than one year) programs can produce short-term behavioral gains, but it is unrealistic to expect them to have an enduring impact. Overall, there is a growing body of literature suggesting that multiple years of intervention produce larger and more lasting benefits than a single year does (Connell, Turner, & Mason, 1985; Hawkins, Catalano, & Miller, 1992).

Although research findings highlight the direction that prevention programs should follow, development and implementation of programs with significant duration and intensity require the serious commitment and support of policy makers, school administrators, and researchers.

PARENT TRAINING AND UTILIZATION OF VOLUNTEERS

Given the schools' limited resources, the integration of school-based programs with parent training and volunteers' ongoing support is crucial for achieving long-lasting effects. Most adolescents use the Internet at home. Therefore, parental supervision based on caring, mutual relationships is of critical importance. The goal of parent training is to teach communication and conflict resolution skills and provide support for parents' efforts to deal effectively with adolescent offspring. Parents need these skills to negotiate Internet hours, monitor adolescents' activities without hurting their privacy, and encourage offline extracurricular activities. Volunteers can also play a critical role in educating youngsters to use the Internet in constructive ways. Within the prevention literature, strong arguments have been made for the use of nonprofessional change agents, based on effectiveness and cost considerations. Undergraduate student volunteers can be excellent change agents for many reasons. First, they are developmentally close to the adolescents. Second, they may have had many personal experiences with Internet use. Third, they can be role models in many areas other than Internet use. Therefore, parents and college student volunteers are important resources for IA prevention.

NEED FOR EMPIRICAL RESEARCH

Every aspect of prevention should be based on empirical research. Coi and his colleagues (1993) concluded that "nowhere in the mental health enterprise is the interplay between science and practice more crucial than in the domain of prevention." When it comes to improving IA prevention, lack of empirical data is the biggest obstacle. First, researchers need to specify the fundamental causal processes that prevention should address. Second, more empirical data is needed to aid in identifying high-risk individuals. Third, once prevention programs are developed and administered, their effects should be carefully evaluated. The responsibility for evaluating the outcomes of such programs rests mostly on the shoulders of researchers using appropriate samples, measures, and designs. However, good research on prevention cannot be performed in the lab. Conducting such research requires sustained collaboration among researchers, educators, and fund providers, and the findings could provide instructive leads about ways to conceptualize, design, and implement prevention programs.

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