



Center on Media
and Child Health

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Internet Addiction

Issue Brief

*Created with support from the
Palix Foundation*



This issue brief describes Internet addiction, reviews associated health risks, and attempts to capture how excessive, compulsive, and/or problematic Internet use affects youth. Articles focusing on typical or average Internet use were excluded. General Internet use and depression are explored in our Depression issue brief.

WHAT IS INTERNET ADDICTION?

Internet addiction is not formally recognized by any organizations worldwide; as a result, no official definition exists in either of those countries. Researchers use a variety of terms to refer to the issue, including Internet Addiction Disorder (IAD),¹ Problematic Internet Use (PIU),² pathological Internet use,³ or compulsive Internet use.⁴ Despite the lack of agreement on how to label it, each of these terms describes the same pattern of behavior: Internet use that interferes with an individual's daily life.

As such, Internet addiction is understood to be similar to other addictive behaviors and impulse control disorders. A commonly used measure of Internet addiction is modeled after a measure used for one of these.⁵ Despite the similarities to more well-defined addictions and the many well-defined risk factors that increase a youth's chance for developing other substance or behavioral addiction disorders, the research on risk factors for Internet addiction is less clear.

DIAGNOSING INTERNET ADDICTION

Young is a pioneer in the field of Internet addiction; her 1998 paper⁵ was one of the first to address the concept of Internet addiction as a clinical disorder. The Young Diagnostic Questionnaire (YDQ), modeled after the DSM-IV criteria for Pathological Gambling, identified 8 diagnostic questions:⁵

1. Do you feel preoccupied with the Internet (think about previous on-line activity or anticipate next

on-line session)?

2. Do you feel the need to use the Internet with increasing amounts of time in order to achieve satisfaction?
3. Have you repeatedly made unsuccessful efforts to control, cut back, or stop Internet use?
4. Do you feel restless, moody, depressed, or irritable when attempting to cut down or stop Internet use?
5. Do you stay on-line longer than originally intended?
6. Have you jeopardized or risked the loss of significant relationship, job, educational or career opportunity because of the Internet?
7. Have you lied to family members, therapist, or others to conceal the extent of involvement with the Internet?
8. Do you use the Internet as a way of escaping from problems or of relieving a dysphoric mood (e.g., feelings of helplessness, guilt, anxiety, depression)?

Individuals who answer "yes" to five or more of these questions are categorized as addicted to the Internet (as is also the case in the Pathological Gambling diagnostic criteria). The follow-up to the YDQ was Young's 20-question Internet Addiction Test (IAT),⁶ a self-reporting tool to help individuals identify whether they may be suffering from Internet addiction.

Since the development of the IAT, several other diagnostic tools have emerged, including the Revised Chen Internet Addiction Scale (CIAS-R)⁷ and the Compulsive Internet Use Scale (CIUS).⁴ All of these measures have been validated,^{4,8,9} but still no consensus exists on a formal tool for diagnosing Internet addiction.

PREVALENCE

Studies from around the world have aimed to measure the reach of this problem. A large portion of those have been conducted in Asian countries, and they cite high

numbers of affected youth. Because Internet addiction is not an official clinical diagnosis in the United States or Canada, however, it is difficult to determine how many youth are affected in those countries. To address this issue, a 2008 editorial¹⁰ argued for the inclusion of Internet addiction in the Diagnostic and Statistical Manual of Mental Disorders, citing statistics from South Korea and China: At that time, 210,000 South Koreans between the ages of 6-19¹¹ and 10 million Chinese adolescents suffered from Internet addiction.¹⁰

WHO IS AT RISK FOR INTERNET ADDICTION?

Internet addicts are not homogeneous, and risk factors vary depending on age, gender, education, preexisting psychological issues, and motivation for using the Internet.¹² Despite the lack of a globally recognized measure, the research is identifying risk factors that may predict this condition.

Psychosocial Predictors

In one longitudinal study,¹³ the authors determined that children and teens who are impulsive, lack emotional regulation, and have lower levels of both social competency and empathy are more likely to become addicted to video gaming (including online gaming). A 2000 article coined the term “communication pleasure,” in which university students who experience pleasure while using the Internet were more likely to become addicted.¹⁴ Five factors comprised the communication pleasure measure: escape, interpersonal relationship, use behavior, intertext, and anonymity. Another study¹⁵ found that young adults who used online games to escape their real-life problems were most likely to become problematic users.

Gender

Some of the research points to males being more susceptible to Internet addiction. Several studies have identified adolescent boys and young adults men as more likely to suffer from Internet addiction and online gaming addiction.¹⁶⁻¹⁹ Some studies only sample young or adolescent males.²⁰ Other studies, however, have found that gender does not significantly predict Internet addiction.^{21,22}

WHAT IS THE RELATIONSHIP BETWEEN INTERNET ADDICTION AND DEPRESSION?

Depression is often believed to be a key indicator of other substance addictions,²³ and the field is also exploring whether such a relationship exists with Internet addiction. The field examining this link is young, and much of what is available skews towards smaller, cross-sectional studies leaving the direction of cause-and-effect relationships not fully resolved.

Comorbidities

There is research to support the idea that Internet addiction exists only in conjunction with other psychosocial diagnoses. As early as the 1990s, research emerged to support the idea that Internet addiction is a symptom of other mental health issues.^{24,25} More recently, a study of adolescents found depression to be

a factor in predicting Internet addiction,²⁶ and another study²⁷ found depression to predict Internet addiction in a two-year follow-up. Part of the reason for that relationship may be that depressed adolescents turn to the Internet as a means of escape from depressive feelings.²⁸

Even Young’s initial research²⁹, which supports the diagnosis, discusses the possibility of problematic Internet use as a symptom of depression. In Pies’ commentary,³⁰ he stated that it is important for healthcare professionals to determine whether Internet addiction is a symptom of a mental health issue such as depression, or whether the depression began after the excessive Internet use. Even with the possibility of underlying disorders, many believe¹ that the unique challenges associated with Internet addiction warrant creating a distinct diagnosis.

Limitations

One of the limitations of the research in this field is that so much of it has been conducted in only one part of the world, perhaps limiting its generalizability. In a 2011 review focusing on Internet addiction and youth,³¹ the authors highlighted the fact that most of the research in the area of youth Internet addiction was performed in Asian countries, and that there were few from elsewhere in the world. More research is needed from more countries, including the U.S. Another limitation is the lack of randomized controlled trials in regards to Internet addiction,³² requiring more studies using rigorous scientific methods.

CONCLUSION

The research studies reviewed in this issue brief highlight several challenges to moving forward in this area. First, until a major health association such as the World Health Organization or the American Psychological Association formally recognizes Internet addiction, the condition will be difficult to diagnose or study. While the APA is taking steps by including *Internet Gaming Disorder* under the “Further Considerations” section of the latest edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), a broader definition of Internet addiction (i.e. one that does not focus strictly on gaming) is still required. Second, the Internet as we know it is constantly evolving; what was once only available through computers can now be accessed through smartphones, televisions, tablets, watches, and even eyeglasses. This rapid technological change can lead to blurred lines between what is considered “the Internet,” which may muddle future domains of research. Third, research is limited on the treatment of Internet addiction. Although treatment centers exist in several countries worldwide, they may operate under varied definitions of Internet addiction. A single definition is needed, as well as resources devoted to understanding the issue more fully.

1. Cash H, Rae CD, Steel AH, Winkler A. Internet Addiction: A Brief Summary of Research and Practice. *Curr Psychiatry Rev.* Nov 2012;8(4):292-298.
2. Caplan SE. Problematic Internet use and psychosocial well-being: development of a theory-based cognitive-behavioral measurement instrument. *Comput. Human Behav.* 2002;18(5):553-575.
3. Byun S, Ruffini C, Mills JE, et al. Internet addiction: metasynthesis of 1996-2006 quantitative research. *CyberPsychol. Behav.* Apr 2009;12(2):203-207.
4. Meerkerk G-J, Van Den Eijnden RJ, Vermulst AA, Garretsen HF. The compulsive internet use scale (CIUS): some psychometric properties. *CyberPsychol. Behav.* 2009;12(1):1-6.
5. Young KS. Internet addiction: The emergence of a new clinical disorder. *CyberPsychol. Behav.* 1998;1(3):237-244.
6. Young KS. *Caught in the net: How to recognize the signs of internet addiction--and a winning strategy for recovery.* John Wiley & Sons; 1998.
7. Chen S, Weng L, Su Y, Wu H, Yang P. Development of a Chinese Internet addiction scale and its psychometric study. *Chinese Journal of Psychology.* 2003;45(3):279.
8. Frangos CC, Frangos CC, Sotiropoulos I. A meta-analysis of the reliability of Young's Internet Addiction Test. Paper presented at: Proceedings of the World Congress on Engineering 2012.
9. Lai CM, Mak KK, Watanabe H, Ang RP, Pang JS, Ho RC. Psychometric properties of the internet addiction test in Chinese adolescents. *J. Pediatr. Psychol.* Aug 2013;38(7):794-807.
10. Block JJ. Issues for DSM-V: internet addiction. *Am. J. Psychiatry.* Mar 2008;165(3):306-307.
11. Choi Y. Advancement of IT and seriousness of youth Internet addiction. Paper presented at: 2007 International Symposium on the Counseling and Treatment of Youth Internet Addiction. Seoul, Korea, National Youth Commission 2007.
12. Douglas AC, Mills JE, Niang M, et al. Internet addiction: Meta-synthesis of qualitative research for the decade 1996-2006. *Comput. Human Behav.* 2008;24(6):3027-3044.
13. Gentile DA, Choo H, Liao A, et al. Pathological video game use among youths: a two-year longitudinal study. *Pediatrics.* 2011;127(2):e319-e329.
14. Chou C, Hsiao M-C. Internet addiction, usage, gratification, and pleasure experience: the Taiwan college students' case. *Computers & Education.* 8/1/ 2000;35(1):65-80.
15. Kuss DJ, Griffiths MD. Internet and gaming addiction: a systematic literature review of neuroimaging studies. *Brain Sci.* 2012;2(3):347-374.
16. Lam LT, Peng Z-w, Mai J-c, Jing J. Factors associated with Internet addiction among adolescents. *CyberPsychol. Behav.* 2009;12(5):551-555.
17. Tsitsika A, Critselis E, Kormas G, et al. Internet use and misuse: a multivariate regression analysis of the predictive factors of internet use among Greek adolescents. *Eur. J. Pediatr.* 2009;168(6):655-665.
18. Wright D, Tone A, Dyck E, et al. SCL-90-R and 16PF profiles of senior high school students with excessive internet use. *Canadian journal of psychiatry.* 2005;50:407-414.
19. Mentzoni RA, Brunborg GS, Molde H, et al. Problematic video game use: estimated prevalence and associations with mental and physical health. *Cyberpsychology, behavior, and social networking.* 2011;14(10):591-596.
20. Spekman ML, Konijn EA, Roelofsma PH, Griffiths MD. Gaming addiction, definition and measurement: A large-scale empirical study. *Comput. Human Behav.* 2013;29(6):2150-2155.
21. Johansson A, Gotestam KG. Internet addiction: characteristics of a questionnaire and prevalence in Norwegian youth (12-18 years). *Scand. J. Psychol.* Jul 2004;45(3):223-229.
22. Kuss DJ, Griffiths MD, Binder JF. Internet addiction in students: Prevalence and risk factors. *Comput. Human Behav.* 5// 2013;29(3):959-966.
23. Boschloo L, Vogelzangs N, Smit JH, et al. Comorbidity and risk indicators for alcohol use disorders among persons with anxiety and/or depressive disorders: findings from the Netherlands Study of Depression and Anxiety (NESDA). *J. Affect. Disord.* Jun 2011;131(1-3):233-242.

24. Griffiths M. Internet addiction: fact or fiction? *The Psychologist*. 1999.
25. Griffiths M. Does Internet and computer" addiction" exist? Some case study evidence. *CyberPsychology and Behavior*. 2000;3(2):211-218.
26. Jang KS, Hwang SY, Choi JY. Internet addiction and psychiatric symptoms among Korean adolescents. *J. Sch. Health*. 2008;78(3):165-171.
27. Ko CH, Yen JY, Chen CS, Yeh YC, Yen CF. Predictive values of psychiatric symptoms for internet addiction in adolescents: a 2-year prospective study. *Arch. Pediatr. Adolesc. Med*. Oct 2009;163(10):937-943.
28. Ha JH, Kim SY, Bae SC, et al. Depression and Internet addiction in adolescents. *Psychopathology*. 2007;40(6):424-430.
29. Young KS, Rogers RC. The relationship between depression and Internet addiction. *CyberPsychol. Behav*. 1998;1(1):25-28.
30. Pies R. Should DSM-V designate "Internet addiction" a mental disorder? *Psychiatry (Edgmont)*. 2009;6(2):31.
31. Moreno MA, Jelenchick L, Cox E, Young H, Christakis DA. Problematic internet use among US youth: a systematic review. *Arch. Pediatr. Adolesc. Med*. 2011;165(9):797-805.
32. King DL, Delfabbro PH, Griffiths MD, Gradisar M. Assessing clinical trials of Internet addiction treatment: a systematic review and CONSORT evaluation. *Clin. Psychol. Rev*. Nov 2011;31(7):1110-1116.