A Comparative Analysis of Internet Addiction and Substance Abuse in Adolescents

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Abstract

Internet Addiction (IA) is an obsessive disorder characterized by abusive internet behaviors which impact multiple facets of a persons’ life. These abusive behaviors include excessive time in chat rooms, playing online games, web surfing, gambling, or engaging in cybersex. Research on IA is currently limited and many of the existing descriptive statistics, assessment tests, and treatment studies have flaws in research, analysis, and long term follow up. Thus a comparative analysis was done to evaluate common threads which may exist between IA and Substance Abuse in adolescents, a topic which is very well researched in contrast. Results of the analysis led to numerous conclusions, ultimately leading to the assertion that IA is too different from currently known obsessive behavioral or addictive disorders to be diagnosed, treated, or studied using existing methods.
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Introduction

The modern world is now filled with technology which gives us unprecedented access to assistance, information, entertainment, transportation, and social interaction. As internet connected devices such as computers and cellphones become more common to own and even easier to find in internet cafes, some have come to call into question the impact which the use of internet may have on the mind and body, not only in the short term but in the long term as well (Mak, 2014). Perhaps the most alarming factor for many is that it seems adolescents are some of the most heavily affected by internet abuse disorders (Mak, 2014). While it is plain to see that prevalence rates of Internet Addiction (IA) have been increasing as technology has continued to develop and become more integrated into our everyday lives, measuring just how many people in the world have a diagnosis of IA is still difficult to determine. Researchers have so far failed to provide a solid definition for IA, leaving the diagnostic criteria and constellation of symptoms open for debate. This has resulted in researchers using varying diagnostic tests on participants in studies which caused much doubt to surround prevalence statistics for IA (King & Delfabbro, 2014). Therefore, while many reports show that prevalence rates vary by country and often represent less than ten percent of a population (Mak, 2014), it is nearly impossible to say with certainty how many people in the world suffer from Internet Addiction.

The phenomenon is simply too modern for research to measure and analyze properly. However, using a comparative analysis of IA and substance abuse in adolescents, a topic which in contrast is much more heavily studied and documented, in order to find common threads between the disorders which may help us understand IA better. Upon completion of this analysis, the expectation is to find that IA is too different from the current addictive disorders to treat it in the same ways. Thus, in order to combat the negative impacts of IA on the population, therapists
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and researchers must stop focusing on making IA fit into the currently understood categories of addiction disorders and treatment guidelines. Instead they must begin looking at clients with IA in a way professionals have not before. This may be one of the few ways in which therapists and researchers will be able to advance the knowledge of IA and begin to effectively prevent and treat the disorder.

Also debated among IA researchers is whether or not to consider IA as a primary addictive disorder, or as a secondary addictive disorder which is comorbid to a psychiatric diagnosis. This is likely due to the studies which found that it is the rule rather than the exception that those with problematic and abusive internet behavior often have one or more comorbid psychiatric disorders (Bozkurt, 2013). Thus, researchers and therapists have struggled to determine if IA is an independent addictive disorder or a secondary disorder which appears with an existing psychiatric disorder.

While the current recommendations for preventing internet related health problems and IA is reducing internet use, treatment is much more complicated. Several studies have been done investigating the various psychological and pharmacological protocols for treating IA, but their results have been questioned by other researchers, and many of the factors which flaw prevalence studies into IA also impact the outcome of treatment studies (King & Delfabbro, 2014). Additionally, future problems could arise from the pharmacological treatment of IA if diagnosis and treatment guidelines are not better defined, allowing exploitation of the diagnosis and possibly over-prescription of pharmaceuticals to patients who do not need them.

Of course, with time and research there will also come legal cases involving IA both in adults and adolescents. Until legal precedents can be set and used to decide future cases it may add a new degree of difficulty to sorting out the global impacts of IA. Although, one aspect of
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society which has not ignored the surge of IA into everyday life is media; mainstream media has
done a strangely efficient job of portraying how technology has infiltrated our lives and begun to
change us. This has served not only to bring humorous self-awareness to watching audiences, but
also to normalize these behaviors in a way that may cause the prevalence rates to continue to
increase.

Given that the world is highly unlikely to relinquish the advantages of technology and
internet access, it is now the work of researchers to determine effective treatments, solid
diagnostics guidelines, and valid, reliable test for measuring and analyzing IA. Technology will
only continue to progress and integrate further into our lives, becoming more engrossing and
interactive with each evolution. It will be important to have the knowledge of IA before these
technologies have a chance to become more addictive.

Literature Review

With the proliferation of internet use and online activities, 27.3% of internet users being
teenagers, there is now a higher demand for research into what has been termed Internet
Addiction. The definition of Internet Addiction is still debated by some, but the common concept
between each is that IA is a form of behavioral addiction. However, no study has determined
whether IA is actually a behavioral addiction or, in fact, an impulse control disorder. In a study
by Wang (2013), the authors first explored the internal consistency reliability and criterion-
related validity of the Internet addiction Diagnostic Questionnaire, using online time and
academic performance as their criterion variables for IA; additionally, they examined prevalence
of IA in the sample, its association with demographic variables, predictors of IA, and the link
between IA and well-being (Wang, 2013).
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The IA DQ, comprised of eight items, was used to measure IA while the Center for Epidemiologic Studies Depression Scale, Rosenberg Self-esteem Scale, and Adolescents’ Satisfaction with Life Scale were used to measure well-being. Statistical analysis showed that 7.5% of the participants met Young’s diagnostic criteria for IA; these participants were also more likely to be male, a senior high school student, own a personal computer, and have computers at home (Wang, 2013). Examination of predictors of IA indicate adolescents who accessed the internet for the first time in an internet bar, and those with lower breadth of extracurricular activities and lower age at first time of internet use, and had a higher risk of becoming addicted to the internet. However, the breadth of online activities that participants engaged in did not significantly affect rates of IA (Wang, 2013). Overall, those who met the diagnostic criteria for IA had significantly different scores for their levels of self-esteem, depression, and life satisfaction, which indicated that they had lower levels of well-being than those without IA. The authors also concluded that the DQ used in their study to determine IA in participants had high internal consistency.

In a study by Ahmadi (2013), an analysis was done of the factors which may play an important role in Internet Addiction (IA) in adolescents. According to the authors, the prevalence of internet addiction among adolescents has become a serious public health concern in Asia, as 56% of the world’s population and 44.8% of its internet users reside there. With 20% of Iran’s population comprised of adolescents, cases such as the ten Korean teenagers who died of cardiac arrest after hours of online game play are evidence that internet overuse is rampant in adolescent populations across the globe.

The authors define IA as an obsessive behavior which may affect life in one or more of the following activities: (a) relationships: spending excessive time in chatrooms, which replace
real life friends and family; (b) money: compulsive online gambling, online trading, and partaking in online auctions; (c) information searching: compulsive web surfing or database searching; (d) gaming: obsessive computer game playing, including multiuser games; (e) sex: addiction to adult chatrooms, cybersex, or pornography on the Internet; (f) downloading: obsessive behavior of downloading media and images (Ahmadi, 2013). In this study, the authors’ aim was to examine the familial, cultural, and personal factors associated with IA with Iranian adolescents.

Participants were given a 50 item questionnaire, the General Health Questionnaire, and assessed using Young’s IA Test (IAT) to determine their level of IA as well as their mental health, family life, academic experience, religious beliefs, and quantity-quality use of virtual spaces (Ahmadi, 2013). Results of the IA portion of the study showed that 20% of participants were occasional or frequent addictive users, while 1.1% were significant addictive users; males also had more addictive behaviors than females. Age was also shown to be linked with IAT results, showing a higher risk of addiction as age increases (Ahmadi, 2013). While level of education did not significantly affect IA, the number of siblings, familial relationships, parental education level, social bonds, and religious variables all had significant correlations with levels of IAT. Ultimately, they concluded that as levels of IA increase, the chance of having some kind of health issue increases by 55.6% and that all four general health aspects, Somatic, Anxiety, Social, and Depression, were affected by the severity of IA (Ahmadi, 2013).

Despite the findings indicating that levels of severe internet addiction were much lower in Iranian adolescents than Chinese or Korean, it is still alarming to find that behavioral, interpersonal, educational, and psychological problems and maladjustments likely cause Internet abuse, and vice versa (Ahmadi, 2013).
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With the rapidly increasing rates of Internet Addiction in adolescent population, Mak (2014) believe that research into the consequences of IA is more important than ever. As adolescence is such a critical time in human development, the links between IA and pandemics like obesity must be investigated. This epidemiological study was population-based and screened and compared the Internet addictive behavior of adolescents from six Asian countries (Mak, 2014).

Results of the study show that prevalence of computer ownership varies, from 51.1% of Hong Kong students to less than 15% of mainland Chinese students, while the prevalence of internet addiction in each country ranges from 1% in South Korea up to 5% in the Philippines, and problematic internet use ranges from 13% in South Korea to 46% in the Philippines. Additionally, the mean CIAS-R scores show that the prevalence of addictive internet use is each country is Philippines (21%), Hong Kong (16%), Malaysia (14%), South Korea (10%), China (10%), and Japan (6%) (Mak, 2014).

This study indicates that addictive internet behavior is common in Asian adolescents, and although there is a higher rate of smartphone use in most Asian countries than in the United States, there are fewer personal computers in Asia. One of the most revealing statements in the article theorizes why these trends of internet use and abuse may be occurring: Neo-Confucianism is one cultural similarity across China, Japan, and South Korea, an ideology which may suppress individualism and the expression of individual creativity. The Internet has provided a space where individuals can conform to their traditional culture while also allowing for an outlet where they can express emotions openly, outside of the family hierarchy system (Mak, 2014).

However, the authors do concede that many of the aspects of the study and its results can be held as instable and difficult to measure in many ways. Some of their statistical results vary from
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previous studies done on the number of adolescents in Asia who meet diagnostic criteria for Internet Addiction; there is also some doubt among the scientific community as to the validity and reliability of the relatively new diagnostic tests for IA. There is also the issue of instability of behaviors in those with internet and gaming addiction which makes assessment of behaviors even more difficult (Mak, 2014). While treatments are being developed for IA, there is apprehension about their efficacy and therefore it is the author’s assertion that proper parental monitoring and addiction prevention are key to maintaining a healthier adolescent population.

In a study by Canan et al. (2014), the authors explore the possible correlations between the epidemic of childhood and adolescent obesity and the changes in eating attitudes and physical activity caused by excessive internet use. The authors allow that there is some confusion as to how to classify internet use-related problems; they can be seen as an addiction, an impulse-control disorder, or an obsessive-compulsive disorder (Canan et al., 2014). Internet addiction involves an individual’s inability to control their use of the Internet, negative consequences of their behaviors, and marked distress or functional impairment while also neglecting physical activity and other responsibilities (Canan et al., 2014). The phenomenon also impacts the global population, no single country or area, while statistics vary widely as to how many adolescents in each society or culture are affected. Given the symptoms which occur with internet addiction, it is understandable that links would be drawn between the disorder and growing rates of adolescent obesity.

The goals of this study were twofold; first, the authors determined the frequency of internet addiction in an adolescent sample, secondly to analyze eating attitudes and BMI as they relate to internet addiction. The results of the first portion of the study showed that sixty-two (6.2%) females and 111 (11.9%) males had symptoms of internet addiction. Additionally, there
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were twenty-eight (2.8%) females and thirty-nine (4.2%) males who exhibited significant
problems due to internet addiction. Interestingly, the authors also examined internet use of
different types and how it can change the impact it has on a person. The results indicated that
Web surfing, watching videos online, talking in chatrooms, and Internet messaging, and playing
online games were significantly associated with increased BMI. In contrast, using the Internet for
academic activities was associated with reduced BMI (Canan et al., 2014). The exceptions were
checking email, reading online news, and shopping which showed to have no association with
BMI. Ultimately, the two factors that were positively related to Body Mass Index were the
duration of weekly internet use as well as their score on the Internet Addiction Test (IAT).

Given the ubiquitous nature of technology and the internet in today’s society, loss of
control is widespread and may lead to negative impacts on psychological wellbeing, peer and
family interactions, academic performance and daily life functions, also known as Internet
Addiction. There is also a high frequency of psychiatric disorders in individuals with IA, thus it
is still unclear whether IA is a primary addictive disorder or a secondary disorder due to other
psychiatric conditions. Among the most common comorbid disorders are mood disorders,
anxiety disorders, substance abuse, and ADHD. However, there is a lack of research in the area
of adolescents and children with IA and comorbid psychiatric disorders; therefore it was the goal
of the authors to fill that gap in their study (Bozkurt, 2013).

Using structured interviews, Young’s Internet Addiction Scale, and the Schedule for
Affective Disorders and Schizophrenia for School Age Children-Present and Lifetime Version-
Turkish Version, the authors evaluated 45 boys and 15 girls, between 10-18 years old. All of the
participants also had problematic internet use with associated academic, social, physical, or
mental health problems or challenges, scored at or above 80 on Young’s IAS, possessed an IQ
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greater than 70, and gave subject and parental informed consent to participate in the study. Those found to have a diagnosis of Autism Spectrum Disorder, mental retardation, neurologic disorder or metabolic disorder were excluded from the study (Bozkurt, 2013).

The results of the statistical analysis showed that all participants had one lifetime psychiatric diagnosis, while 88% of participants had two or more disorders and 65% had three or more disorders. Of the disorders which the participants were diagnosed, 86.7% had a behavioral disorder, 71.7% anxiety disorder, 38.3% mood disorder, 26.7% elimination disorder, 16.7% tic disorder, and 6.7% had a substance abuse disorder. The most common disorders were ADHD, social phobia, and MDD, with the ADHD-combined subtype found significantly more in male subjects while social phobia was more frequent in females (Bozkurt, 2013).

While there is possible referral bias in the sample used in the study, as admitted by the authors, the findings are generally consistent with other studies investigating comorbid psychiatric disorders in individuals with IA. Therefore, it was suggested that examination of comorbid psychiatric disorders be part of a thorough clinical assessment of each IA subject prior to treatment (Bozkurt, 2013).

Treatment of Internet Addiction and addictive internet use are necessary to combat the rising rates of internet use and access across the globe. However, there are doubts that these treatments are effective and just how effective they are; determining the inconsistencies between various trial reports and studies to find the common threads, as well as assess where improvement should be made, were the aim of the authors in the article by King (2014). An analysis of eight research studies showed staggering inconsistencies and flaws in the methods used in many of the studies.
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According to the authors, the first issue with many of these studies is the lack of a clear way to conceptualize the diagnostic features of internet abuse disorders. Many of the studies were found to be using different diagnostic criteria which does not allow for comparison of findings between studies (King, 2014). The authors also found that there were no published materials on IA prevention or treatment which systematically reviewed the efficacy of these trials given that many diagnosed with IA also have one or more psychiatric disorders. Furthermore, while there is now a DSM-5 classification for Internet Gaming Disorder, there are few other absolute definitions for Internet behavioral disorders and still no guidelines from the National Institute for Health and Care Excellence related to internet pathologies (King, 2014).

While drug-based interventions have shown in trials to be extremely effective at reducing IA symptoms, time spent using the internet, and comorbid depression and anxiety, it should be noted that reviews of these studies indicate that adequate follow-up was not done on participants after the conclusion of the studies, and most of the reviewed studies did not adhere to trial reporting standard guidelines raising concerns about their adequacy for meta-analysis (King, 2014). The psychometric measures of therapy outcome that were used in many of the studies were also found to be lacking, and only half of the studies evaluated employed a behavioral measure to monitor internet activity.

As IA becomes a more widespread problem across the globe, there are more studies being done to evaluate the consequences and long-term effects of the behavioral disorder. Despite the proliferation of research, the authors argue that the diagnosis in itself is simply too immature to be able to adequately analyze. All research being done should thus be regarded as preliminary until the methods of diagnosis, testing, and treatment can be solidified an agreed upon.
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The Treatment Improvement Protocol (TIP) series released by the *Center for Substance Abuse Treatment* is a series of best practice guidelines for the treatment of substance abuse. Of the 47 guides in the series, the following three guides were used in this analysis.

The 31st in the series is *Screening and Assessing Adolescents for Substance Use Disorders*, revision consensus panel chaired by Ken C Winters, Ph.D. This guide begins by outlining preliminary screening and comprehensive assessment of adolescents for referral and treatment. Legal issues that are concerned with the screening and assessment of adolescents are then discussed, as well as the protocols for assessing and screening adolescents who are in the juvenile justice system. Four additional appendices are also published with the guide, including a summary of instruments used for screening, assessing, and measuring adolescent substance use disorders and behaviors and a drug identification and testing guide for use in the juvenile justice system scenarios.

The 32nd is Treatment of Adolescents with Substance Use Disorders, revision consensus panel chaired by Ken C Winters, Ph.D. The guide focuses on outlining treatment of substance use disorders in adolescents who require a specific emotional and physiological support which differs from that of adults. As adolescents are in transition, treatment providers must address specific significant factors in an adolescent’s life.

Within the guide there are eight chapters outlining the proper treatment of adolescents with substance use disorders. First discussed is substance use among adolescents and how to tailor treatments to Adolescent’s individual needs. Then general program characteristics, twelve-step-based programs, therapeutic communities, and family therapy are evaluated and described in detail. Finally, the guide provides information on treating youth with distinctive treatment needs, such as homeless, homosexual, bisexual, and transgendered youth as well as youth within
the juvenile justice system. Legal and ethical issues are also addressed as they concern consent to treatment, privacy and confidentiality.

The 27th Comprehensive Case Management for Substance Abuse Treatment, consensus panel chaired by Harvey A Siegal, Ph.D. This guide details the guidelines for proper practice, according to the Substance Abuse and Mental Health Services Administration, when treating and managing cases of substance within the general population as well as clients with special needs and members of protected populations. Information is also provided on environmental assessments, potential conflicts, maintaining quality assurance of case management services, client outcomes, future research, and obtaining funding to provide clients with managed care (Siegal, 1998).

Discussion

Technology and the internet are ubiquitous in today’s modern world, even outside of first world countries. As more people now own personal computers and smart phones, introduce their children to technology earlier, and because little to no stress is put on reducing screen time each day to prevent mental and physical decay, the symptoms of problematic and abusive internet use are becoming more common. This new disorder has been termed Internet Addiction (IA) and the symptoms include spending excessive time online partaking in activities such as chat rooms, obsessive computer game playing, compulsive gambling, web surfing, cybersex or pornography, and obsessive media downloading. Patients with an IA diagnosis find the addiction impacts their lives in many ways; relationships, money, information searching, entertainment, and sexual activity are only the broadest and most obvious areas of impact. While it makes sense that rates of IA will increase, as time progresses and technology becomes more integrated into everyday
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life, it is a current struggle of researchers to determine an accurate prevalence rate for IA sufferers globally.

One of the largest flaws in studying Internet Addiction is that there has so far been no definite diagnostic criteria laid forth for IA. Although the Diagnostic and Statistical Manual-5 has recently added IA to its appendix, researchers still debate the constellation of symptoms and how to properly diagnose IA. Several different tests are available to diagnose IA now, but the validity and reliability of the tests is constantly being called into question. This makes it even more challenging to measure the increase in prevalence as well.

Despite the inability to ascertain accurate descriptive statistics for IA populations, many of the studies that are conducted have risen from the concern over the obviously rising numbers of people diagnosed with an obsessive internet use disorder. As more adults and adolescents are diagnosed, researchers are becoming considerably more worried about the impact this could have on future generations. In the articles by Wang (2014) and Mak (2013), the authors make it clear that one of the primary reasons for analyzing IA in adolescents was to learn more about the potential impacts this new and highly prevalent disorder could have on society in the future. The concern is that adolescents raised with technology and diagnosed with IA may not have the same capacities, emotionally, mentally, or physically, as previous generations. This could influence how humans progress as a society and as a global entity. Thus, it is extremely important to analyze these individual changes from IA, to ensure that treatment can be provided to negatively impactful symptoms.

In Asia, the concerns about prevalence of IA are even stronger, as some researchers have indicated that there are more adolescent internet users and individuals with IA than other places in the world. While this is difficult to determine, due to flaws in diagnostic procedures and
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Sampling methods, studies show that as much as 46% of Philippines internet users have problematic internet behaviors, significantly higher than the estimates for the United States’ rates of IA, between 5% and 20% (Mak, 2014).

Despite these setbacks for researchers, many have continued to pursue studies on IA with future research concepts ready to be tested in the future. However, as the study of IA is so new, there is little other material with which to compare the research results. Thus, in order to attain a more dynamic understanding of IA, an analysis must be done between the research into obsessive internet behavior and a more heavily studied field with which comparisons can find commonalities as well as rule out characteristics of IA which are not consistent. In this way, a rough process of elimination can be done to determine what portions of this disorder can be tested and treated using pre-existing methods, and what must be conceived of in the future to aid patients. For this comparative analysis, IA will be presented against substance abuse, both as they present in adolescents.

Not all who use the internet or other technologies in their day to day life will become an addictive internet user. Certain prevalence factors have been studied in other countries, specifically in Iran and China, where multiple sociocultural facets have been analyzed for their correlation with IA rates. In Iran, it is estimated that 21.1% of adolescents had been a victim of IA in some way, while 1.1% had significant problematic symptoms (Ahmadi, 2013). Gender was the first factor evaluated, showing that males were significantly more likely to be diagnosed with an addictive internet disorder while a comparison of Internet Addiction Test scores and age showed that there was a higher risk of addiction with increasing age. They also identified that while level of education did not significantly correlate with IA, the number of siblings that the individual had was associated with IA; the authors speculate that this is likely due to parental
control decreasing with more siblings, allowing for an adolescent to have less restricted access to internet for longer periods of time (Ahmadi, 2013). A direct association was also found between father’s and mother’s education, with the father’s education level being one of the most important factors of IA, while levels of addiction increased by as much as 29.6% as family bonds diminish. Religion also proved to be an important factor, more influential even than familial relations, which showed a negative correlation to levels of addiction in all three religious variables that were studied (Ahmadi, 2013).

In a similar Chinese study, researchers looked at the predictors which indicated a higher risk of becoming addicted to internet use. Adolescents in the study who accessed the internet for the first time while in a public internet bar or café were at a higher risk of displaying addictive behavior. Additionally, a wider breadth of extracurricular activities and the age at which the internet was experienced also have significant impact on the likelihood of becoming addicted to internet use (Wang, 2013). These predictors could be used to determine the level of risk a patient has of becoming addicted to internet use, perhaps allowing for treatment of problematic habits and symptoms before they become debilitating. In contrast, the psychosocial predictors and indicators for substance abuse include physical or sexual abuse, parental substance abuse, peer involvement in crime or substance use, symptoms of serious psychological problems, and personal involvement in crime or delinquency (SAMHSA, 1999). The predictors for the two disorders are quite different and for good reason; it must be kept in mind that the internet can be likened to food more than drugs.

While the internet, like food, is a ubiquitous tool used daily by billions of people around the world with largely positive results, it can be mishandled by a small population for personally destructive purposes. On the other hand, substances used recreationally for personal enjoyment
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or addiction are not necessarily encountered daily and used safely by others in a normal setting. Thus, the circumstances which surround someone who becomes addicted to internet use are likely very different from those of someone who becomes addicted to recreational drugs. In this aspect, it is safe to say that IA must be evaluated quite differently from the ways that therapists and researchers currently assess and screen substance abuse in adolescents.

However, one of the common factors that marks both internet and substance abuse is a noticeable decline in physical health. A study done examining Body Mass Index, eating attitudes, Internet Addiction, and weekly internet use showed that while there was no significant correlation between eating attitudes and IA, there was an independent association between BMI and IA (Canan, 2014). The most common theory behind the correlation is this: IA is related to increased weekly internet use which theoretically decreases time doing other activities, such as exercise, and also causes a patient to spend more time sedentary. Higher BMI and lack of physical exercise can have a wide impact on physical health, both in the short and long term, such as weight, heart disease, vascular disorders, and musculoskeletal issues. Similarly, the physical impact of abusing substances is great and far reaching; according to the National Institute of Health, drug addiction affects the brain, and increases risk of cardiovascular disease, stroke, cancer, HIV/AIDS, hepatitis and lung disease (NIH, 2012). Physical health evaluations and analysis of changes of physical patterns should be involved in the intervention, prevention, and treatment of IA.

Overall well-being has also been evaluated in one Chinese study, of which the authors were particularly concerned about the widespread negative impact that daily internet use could have on the currently younger generations. Adolescents, in particular, are of concern because researchers are becoming increasingly aware of the number of internet users who are adolescents
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and that these adolescents will ultimately grow to take over the world from the Baby Boomers. Based on an evaluation of 10,988 adolescents between the ages of 13 and 23, using a diagnostic questionnaire for IA, the Center for Epidemiologic Studies Depression Scale, the Rosenberg Self-Esteem Scale, and the Adolescent’s Satisfaction with Life Scale, there were several correlations found between IA and overall happiness and satisfaction with life (Wang, 2013). Results showed that 7.5% of the adolescents in the sample group had obsessive internet use behaviors which qualified them for an IA diagnosis. According to the authors, several indications of decreasing well-being were found to correspond with increases in internet abuse behaviors: decreasing self-esteem, decreasing satisfaction with life, and increased levels of depression (Wang, 2013).

Substance abuse is also associated with a decrease in overall well-being, although the full impact is difficult to measure on any but a case to case basis. Factoring overall life satisfaction into detection and treatment of IA could be helpful but it should be thought of as more of a symptom of the obsessive behaviors, unless a depressive mental state is contributing to the intensity of internet abuse. Despite these factors, working with any obsessive behaviors can be difficult unless there is a way to assess the intensity of the addiction or place the case on a severity continuum.

Not unlike diagnosing IA, it is also difficult at this point to administer tests and exams with can determine quickly if a patient has addictive behaviors and the intensity of their addiction. These tools already exist for substance abuse cases, thus they have logically been altered by researchers in order to test if the criteria also apply to internet abuse. Various questionnaires using diagnostic criteria from the DSM have been coming out since the mid-1990s that tweak the measurement scales used already to record substance abuse and gambling
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addictions. Some have also been created using the diagnostic criteria for gambling from the ICD-10, while others have created their own specialized tests for IA such as Young’s Internet Addiction Test. When evaluating the best questionnaires for use in diagnosing IA, the authors found 360 papers from January 1993 to October 2011. Of these, they studied 14 which fit their criteria for relevance, availability, originality, reliability, and overall construction (Lortie, 2013). Despite what seems to be an abundance of new tools for assessment, there are still serious concerns about the validity and reliability of the questionnaires.

Ultimately, it was concluded that there are flaws within the current tests and tools being used to assess IA. These must be corrected and greater work must be done by the research and psychiatric communities in order to turn the questionnaires into reliable assessment tools. Fortunately, the data collected today by researchers working with current IA tools is not wasted; this information is greatly important to continuing research efforts, bringing attention to the field, and aiding in the development of effective assessments and treatments (Lortie, 2013). Once an evaluation is made of a patients’ obsessive behaviors with internet use, there should also be an examination of any comorbid disorders which also exist.

What little research that does exist on comorbid disorders in patients with IA indicate strongly that IA often goes hand in hand with other psychiatric disorders. In a special study using adolescent patients referred for their diagnosis of IA with various behavioral and emotional problems. Results of extensive psychiatric evaluations showed that 100% of patients had IA with at least one comorbid disorder, while 88.3% had at least two disorders. Behavioral and anxiety disorders were most prevalent by far, followed by mood, elimination, tic and substance use disorders, respectively (Bozkurt, 2013). The most common psychiatric disorder was Attention Deficit Hyperactivity Disorder (ADHD), affecting 83.3% of study participants, while social
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Phobia and Major Depressive Disorder were also prevalent (Bozkurt, 2013). Comorbid psychiatric disorders are also quite common in cases of substance abuse.

In children, the most common behavioral and mental conditions associated with substance abuse are conduct and oppositional disorders, ADHD, unipolar and bipolar depression, and anxiety disorders including posttraumatic stress syndrome from sexual or physical abuse (SAMHSA, 1999). Regardless of whether these comorbid disorders are responsible for the presence of IA or substance abuse, they must be treated in each case in order to aid in the treatment of the primary diagnosis. In this way, the two are quite alike; thus it is reasonable to assume that therapies which focus on the treatment of comorbid psychiatric disorders as well as the addiction disorder will be more effective than those which only treat IA. This information will be very important when preparing future treatments, especially when considering a pharmacological treatment plan.

Many courses of treatment are still available as the testing of treatments for IA is still in its infancy. In an evaluation of eight treatment studies published since 2008, there were several intervention styles used as well as multiple different assessment tools for evaluating IA. Of the eight studies, two used Cognitive Behavioral Therapy (CBT), while the rest used CBT with Bupropion, Bupropion alone, Methylphenidate, Reality Therapy, Multimodal counseling and Online self-help (King, 2014). These studies also used the following assessment tools: Beard’s Diagnostic Questionnaire (BDQ), Internet Overuse Self-Rating Scale (IOSRS), Young Internet Addiction Scale (YIAS), Korean Internet Addiction Scale (K-IAS), Online Gaming Cognition-Addiction Scale (OGCAS), Internet Addiction Scale (IAS-CR), Chinese Internet Addiction Scale (CIAS) and the Young Diagnostic Questionnaire (YDQ). The number of different assessment tools used is, in itself, an issue that must be confronted when conducting research into IA. Given
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that so many of these tests exist so early in the field of IA, many of them are still untested for reliability and validity; with the exception of the Young Diagnostic Questionnaire and the Young Internet Addiction Scale which are largely considered the pioneering tools for IA assessment. Unfortunately, little comparison can be made with substance abuse treatments until more research is done on the efficacies of IA treatment. However, one of the most promising tools for combating abusive internet behaviors may be using pharmacology.

Pharmacology is widely used in the treatment of substance abuse disorders, within the restrictions of the patients’ case. Special attention should also be paid to treating comorbid disorders when administering a pharmacological treatment, especially in those with no-medication orders. It is also helpful for those with comorbid disorders to undergo supplemental counseling on their psychiatric medications. Although there is still some controversy about the risks and effectiveness of some treatments in adolescents, such as stimulants for ADHD and tranquilizers for anxiety (SAMHSA, 1999). This can be directly related to the treatment of IA and comorbid disorders, as ADHD and anxiety are very common in IA and the previously mentioned medications are often prescribed in smaller doses to adolescents to help their symptoms. Thus, treatment of substance abuse using pharmacotherapy is likely one of the best current examples of a therapy that would be effective at treating IA in adolescents. It also has the added benefit of being conservative in the amount of medication that is allowed to be given to a patient. Many of the medications given for these behavioral and anxiety disorders can be highly addictive; it is in the best interest of the adolescent being treated that as little medication is given as possible and that absolute control is had over that administration of the drugs. This will hopefully prevent the over-prescription of addictive medicines to the youth and make sure that IA treatment does not turn into a gateway into substance abuse.
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There is much in the field of internet addiction that can only be determined by more research and the passing of time. It is inevitable that there will be legal cases surrounding incidence involving internet addiction, and if there is no more definitive information about IA by that time then hopefully the money and people needed to discover a determinate diagnostic criteria and treatment will be made available. For now, professionals can only wonder how the legal issues in the juvenile justice system today will impact future cases for internet addicts (SAMHSA, 1999).

It makes it no easier that the internet and technology is becoming increasingly more available to adolescents and children across the globe and purchasing tablets and cell phones for toddlers and kids is becoming normal in America. The electronic babysitter is more popular than ever and the lack of control or constraint over internet and gaming use is only adding to the increasing rates of IA. As children grow up with these devices, they become normalized to them and pop culture perpetuates these ideas that technology should be used continually and without restraint. This ideology is as impactful as placing the devices into their hands, and if anyone has a chance of reversing the influence of obsessive internet behaviors then focus must also be placed on changing how all people look at technology.

Conclusion

Upon completion of the analysis, several points became clear and could serve as a basis for future research. First, IA is more similar to Eating Disorders as far as screening and assessment as well as prevalence are concerned. This is because it can be very difficult to determine what qualifies as normal, problematic, and abusive internet behavior. Next, assessments used for screening and diagnostic criteria must be narrowed down and ensured for reliability and validity.
Physical health must be addressed along with mental health as part of prevention, detection, and treatment of IA. Additionally, high rates of psychiatric comorbidity in behavioral, anxiety, and mood disorders in adolescents with IA indicate that these disorders must be treated prior to, after, or in tandem with IA treatment in order for therapies to be fully successful. Treatment of obsessive or addictive behaviors will likely trigger an increase in feelings of well-being, meaning that behaviors should be treated before psychological symptoms. However, using pharmacological therapies may provide treatment for behavioral and psychological symptoms; emphasis should be put on conservative administration of pharmaceuticals, to prevent introducing another potential addiction. Finally, when research is being done on treatments for IA in the future, special attention should be paid to routine follow up on patients many months and years after the completion of the official study to ensure the efficacy of the therapy.

Ultimately, a comparison of Internet Addiction and Substance Abuse in adolescents has led to the conclusion that the two disorders are far too different for IA to be effectively assessed, treated, or researched using existing methods. In some respects, such as the use of pharmacological treatments, IA may be adequately treated using programs which already exist for those with addiction. In many respects, however, the field of psychology is currently unprepared to handle the onslaught of patients with Internet Addiction.
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