



Julián Melgosa

Behavioral Addictions: A Growing Trend

The matter is serious. Christian students from principled families, enrolled in Adventist schools and colleges, and attending church regularly, are at risk for addiction. Not only the danger of substance addiction, but addicted to acceptable and accessible commodities such as food, the Internet, or games. Those of us working with young people in educational settings have often encountered promising and good-hearted young adults who struggle with behavioral addictions. If provided with a non-judgmental environment, they pour out their frustration with tears and halting words. They talk about their inability to quit or reduce their behavior; they feel sorry for themselves and afraid for their future. As an educator, my heart breaks for them as I see them wanting to be free from this trap, do well in their classes, please their parents and teachers, and succeed academically and professionally. Their desired goals are blocked by a seemingly insurmountable behavioral barrier.

Behavioral addictions, defined as persistent and recurring problematic consequences that occur due to the practice of a particular addictive behavior,¹ are a difficult and sensitive topic with many ramifications. Teachers, principals, and other school personnel often encounter this problem without warning and consequently feel unprepared to interact positively with children or young adults who struggle. Some dismiss the problem, or even ignore it, hoping that this is a developmental hiccup that will go away with time. Some hasten to send messages of disapproval and surprise—“Can a man scoop fire into his lap without his clothes being burned?” (Proverbs 6:27, NIV),² or ask: “How could you get into this mess?” But the truth is that these young people don’t know why they got into the mess. Instead, they desperately need to know how to get out of it.

How? Instead of looking at the past or searching for the reasons, affected youth need opportunities to talk to someone who listens and is willing and ready to offer assistance. They need our

prayers, and they need us praying with them—ongoing prayer, embedded in the daily routine. They also need a hopeful vision. Teachers, principals, parents, and friends can remind them, with full conviction, that God understands them and promises a bright future, even if it is painful now—“The God of all grace, who called you to his eternal glory in Christ, after you have suffered a little while, will himself restore you and make you strong, firm and steadfast” (1 Peter 5:10). They need to be assured that they can rely on their heavenly Father: “Call on me in the day of trouble; I will deliver you, and you will honor me” (Psalm 50:15). Promises like these will

encourage young people in their struggle with behavioral addictions, especially those receptive to Scripture.

They also need a clear demonstration of love and support. “There is no fear in love. But perfect love drives out fear, because fear has to do with punishment” (1 John 4:18). Parents, teachers, school staff, and friends may feel afraid—and, of course, the individual trapped in the addiction also feels frightened. But, by the grace of God, we have to remind ourselves that love drives out fear. They need love, and they need support.

Are prayer, a hopeful view, and plenty of love and support sufficient? They can be in a number of cases, but many others require additional intervention. As this special issue shows, behavioral addictions are complex enough to necessitate skilled help. And that is why teachers and principals, parents, and friends often need to insist that the affected young person obtain treatment from a mental-health specialist with specialized knowledge and experience to treat the individual successfully.

This special issue of the *JOURNAL* is devoted to the important topic of behavioral addictions, sometimes referred to as non-chemical addictions. Our church has historically prepared young people to avoid addiction to alcohol, nicotine, and other drugs, and overall, it has done a good job.³ However, behavioral addictions have caught educators by surprise, and this kind of addiction has be-



Continued on page 47

Editorial Continued from page 3

come a significant risk with a sizable incidence in Adventist schools, colleges, and universities.⁴ The authors present an overall description of the most common behavioral addictions, their effects on conduct, and the subsequent difficulty of breaking habits that produce obsession, compulsion, and withdrawal symptoms when not used.

The articles presented in this issue discuss the topic from a variety of perspectives. My lead article provides a definition and scope for understanding behavioral addiction. Austin C. Archer explains the neurobiological and spiritual implications, and Tron Wilder and Steven Baughman propose school-wide strategies for addressing the issue. And for each of the most common forms of behavioral addiction found in Christian educational settings, various authors explain how they emerge and can be addressed: food [Leslie R. Martin and Shelley S. McCoy], Internet games [Linda L. Ivy], Internet use [Mary E. Varghese and Carlos Fayard], pornography [Brad Hinman], and exercise [Tammy Bovee and Amanda Gunn].

It is our intention that this issue serve as an instrument to help education personnel become more informed about the topic of behavioral addictions and provide a good introduction to each form of addiction. Beyond that, it offers suggestions about providing support, care, and taking action when the reader finds a student in need. Above all, this issue recommends that we prepare to refer students to the most qualified professional available. With divine guidance and proper training, education personnel can receive a clear understanding of this growing problem, obtain inspiration on how to help those who struggle with addiction and the empowerment to act on behalf of those who need help.

Julián Melgosa, Ph.D., is Associate Director of Education at the General Conference Department of Education in Silver Spring, Maryland, and also serves as the Associate Editor for the International edition of *The Journal of Adventist Education*. Dr. Melgosa trained as a teacher and psychologist at the University of Madrid, Spain, and completed his doctorate in educational psychology at Andrews University in Berrien Springs, Michigan. He has worked as a teacher, school psychologist, professor of education, pro-

fessor of psychology, and counselor in Spain, England, the Philippines, and the U.S.A. Dr. Melgosa has written a variety of widely distributed applied psychology books for the lay community. His interests include the interface of psychology and religion/spirituality, mind-body interactions, and the factors affecting successful aging. The JAE staff express heartfelt appreciation for the many hours Dr. Melgosa devoted to selecting topics and authors, providing input on article content, and promptly responding to the editor's questions during the planning and production of this issue.

NOTES AND REFERENCES

1. American Psychiatric Association, *The Diagnostic and Statistical Manual of Mental Disorders*, 5th ed. (Washington, D.C.: American Psychiatric Association, 2013).

2. Scripture quotations credited to NIV are from *The Holy Bible, New International Version*. Holy Bible, New International Version®, NIV® Copyright © 1973, 1978, 1984, 2011 by Biblica, Inc.® Used by permission. All rights reserved worldwide.

3. Adventist Recovery Ministries, North American Division of Seventh-day Adventists: <http://www.adventistrecovery.org/article/33/resources/addiction-resources>; Health Ministries: <http://healthministries.com/search/node/addiction>; Substance Abuse Special Issue, *The Journal of Adventist Education* 76:2 (December 2013/January 2014).

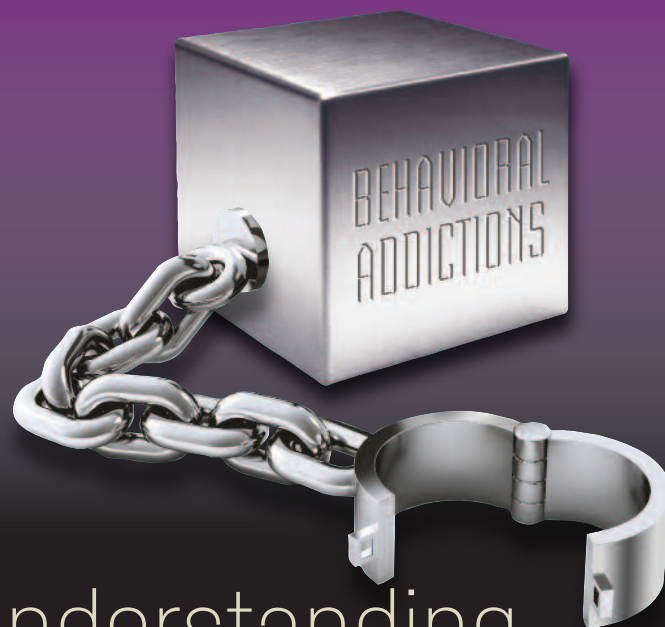
4. This statement is based on conversations with mental-health and education professionals, and the fact that students enrolled in Adventist schools also represent the general population in which an increase in behavioral addiction is occurring worldwide. Studies exist addressing the prevalence of behavioral addiction in several countries. For additional information, see Steve Sussman, Lisha Nadra, and Mark Griffiths, "Prevalence of the Addictions: A Problem of the Majority or the Minority," *Evaluation and the Health Professions* 34:1 (March 2011):3-56; Daria Kuss, Mark D. Griffiths, and Jens F. Binder, "Internet Addiction in Students: Prevalence and Risk Factors," *Computers in Human Behavior* 29:3 (May 2013):959-966. *Behavioral Addictions: Criteria, Evidence, and Treatment*, 1st ed. (Cambridge: Academic Press, 2014), Kenneth Paul Rosenberg and Laura Curtiss Feder, eds., is an edited compilation of studies of the incidence of behavioral addiction in various countries. See also Alexandre B. Laudet et al., "Characteristics of Students Participating in Collegiate Recovery Programs: A National Survey," *Journal of Substance Abuse Treatment* 51 (April 2015):38-46; and Samuel R. Chamberlain et al., "Behavioral Addiction—A Rising Tide?" *European Neuropsychopharmacology* (August 2015): doi: 10.1016/j.euroneuro.2015.08.013.

DEAR SUBSCRIBER,

THE JOURNAL OF ADVENTIST EDUCATION® wants your input! Kindly take a few minutes to complete our 2016 Reader Satisfaction Survey at <https://www.surveymonkey.com/r/jae2016>. We want to know what you think so that we may serve you, our readers. Cut and paste the link into your browser, read the brief introduction, and then select "Start." Your anonymity will be preserved, and no identifying information will be collected. We look forward to hearing from you!

Thank you in advance for your valuable feedback.

JAE Editorial Staff



Understanding **BEHAVIORAL ADDICTIONS**

- “I have only recently admitted to myself that I’m addicted to shopping. Every time I pass by a store, I have to go in, and it’s like I completely lose control of myself.”
- “I spend hours on Facebook, mostly doing nothing, getting stuck in stupid discussions.”
- “I’m in my late teens and struggling. I am obsessed with sex to the point that it’s interfering with my day-to-day life. I feel aroused much of the time, or if I’m not currently aroused, the most ridiculously tiny triggers will set it off, like certain words in normal conversation.”
- “I spend many hours a day playing computer games, and when I am not playing, I am thinking about the next time I will be playing.”
- “I finally acknowledged my food addiction when I admitted to myself that for much of my life, but increasingly during the past few years, I have hidden food, planned access to the hidden food, and have been eating in secret. Everyone else I know loves food as much as I do, but they don’t cave in to the slightest pang of hunger and run to the refrigerator.”

The messages above provide a small sample of real statements taken randomly from behavioral-addictions forums on the Internet. While the posters likely differ in age, culture, and gender, all of the messages share a common theme: the surrender of personal choice to satisfy a need. Addiction threatens individual freedom and represents a clear barrier to well-being. Teachers, administrators, and school personnel must inform

themselves about this topic in order to better prepare to take action on behalf of the young people under their care.

Addiction Redefined

Historically, *addiction* has been associated with substance abuse. The only official exception made since the 1980s has been pathological gambling.¹ The American Psychiatric Association’s current manual, the *Diagnostic and Statistical Manual of Mental Health* [DSM-5],² labels the pathology as

Gambling Disorder, which it combines with the substance-related disorders, but giving it a distinctive code [312.31]. This disorder has been extensively investigated, and inclusion in the category of “addiction” is widely accepted by the psychiatric community. The only other behavioral addiction included in the manual is *Gaming Disorder*, but it is not currently coded or officially classified. However, the DSM-5 includes gaming disorder in

BY JULIÁN MELGOSA

a small chapter called “Conditions for Further Study,” indicating that this syndrome is likely to be included in the main section once sufficient data have accumulated. Defining *addiction* is, of course, further complicated by the different definitions and types of addiction in locations outside the Euro-American context.

If a behavior as problematic as Internet gaming addiction only appears on the DSM-5’s waitlist, how long will it be until other emerging problematic behaviors are fully recognized? Types of behavioral addictions are expanding, as evidenced by the overview of potential addictions presented by Ascher and Levounis.³ For this particular issue of the JOURNAL, we have chosen addictions that seem to be most commonly found among K-12 and college-age students: gaming, pornography, the Internet, food, and exercise. Others have also received a great deal of attention,⁴ such as texting, kleptomania, sex, love, shopping, tanning, and work, but are not addressed in this issue.

The Definition and Scope of Behavioral Addictions

Behavioral addiction is defined as persistent and recurring problematic consequences that occur due to the practice of the particular addictive behavior. Most of the criteria utilized by the DSM-5 for substance-use disorders also apply to these types of behavior: excessive practice, time absorption, craving, social impairment, health/mind/legal complications, interference with normal daily activities, and withdrawal symptoms.

Although public opinion is not the criterion for defining addictions, chemical and behavioral addictions are perceived differently by most people. For example, in a study conducted in Canada with a sample of 4,000 participants, Konkoly Thege et al.⁵ found that addiction liability and character flaws were the two most important features differentiating substance-related from behavioral addictions. That is, alcohol, tobacco, marijuana, and cocaine were judged to have the potential for greater legal consequences and physiological damage than non-chemical addictions, while problematic behavior related to gambling, eating, shopping, viewing pornography, video gaming, and work was associated with character flaws.

It is important to bear in mind that this perception may cause educators to judge students with behavioral addictions more

harshly than those with chemical addictions because the first group is perceived as more morally deficient than the second group. In reality, both types of addictions occur because of an interaction of psychobiological processes, which are ultimately governed by individual choice.

In fact, certain individuals appear to be more prone to lack of impulse control than others, regardless of the type of addiction, whether chemical or non-chemical. One confirmation of this comes from research conducted in Italy by Di Nicola and associates⁶ on a clinical sample of 95 outpatient subjects ages 18 to 65, which found a significant rate of co-occurrence between alcohol-use disorder (also referred to in the literature as alcoholism or alcohol dependence) and behavioral disorders relating to gambling, shopping, sex, exercise, and Internet addiction. This finding indicates a growing trend in the understanding of addictions, which appear to constitute a single underlying disorder with multiple expressions.

The similarity between chemical and behavioral addictions is remarkable. Ascher and Levounis⁷ refer to four core symptoms that are common to all addictions, whether to substances like cocaine or to behaviors like playing online games:

1. *Tolerance.* Users need increasingly higher doses or additional time spent performing the behavior in order to obtain comparable effects.
2. *Withdrawal.* Users experience highly uncomfortable symptoms when they discontinue the substance or stop the behavior.
3. *Obsession.* Whether the person is addicted to texting, smoking, or other behaviors, he or she devotes excessive focus, attention, and preoccupation planning, searching for the items needed, and carrying out the behavior. Also, the activity consumes excessive amounts of time.
4. *Consequences.* The addiction causes significant impairment to at least one area of human functioning: health, relationships, spirituality, work, school, and/or finances. Additionally, certain related behaviors, like stealing money for gambling, may have legal consequences.

In addition to these generalizable common features, others frequently occur in both forms of addiction: (a) seeking the behavior even

though it is known to cause harm; (b) compulsion or excessive repetition of the behavior associated with diminished self-control; (c) unsuccessful attempts to stop the behavior; (d) excessive expenditure of resources, especially time and money; (e) lying/other forms of deceit in order to hide the behavior or to obtain additional resources; (f) denial of the problem to family or close friends once they suspect or discover its existence; and (g) depressive symptoms such as lack of pleasure in otherwise likable activities, low motivation, insomnia, feelings of worthlessness, inability to concentrate, and even suicidal thoughts.⁸

Gender differences have been found in the prevalence of behavioral addictions. In a five-year longitudinal study, a team of researchers from the University of Calgary, Alberta, discovered that addiction to food and to shopping was more than three times as common in females as in males. And excessive sexual behavior (defined as preoccupation and over-involvement with sex—inclusive of pornography—that has caused significant financial loss and social or relationship problems within the past 12 months) was almost four times higher in males than in females.⁹

The Costs of Behavioral Addictions

The adverse consequences of behavioral addictions may become as severe as those of substance addictions. First, young people who are addicted to Internet (or computer) games, pornography, exercise, texting, and the like, experience diminished control over the behavior. The loss of empowerment puts them in particular danger, since it may cause them to feel driven by the addictive behavior and deprived of the necessary will and motivation to govern their lives.

Another area of imminent risk is relationships. Family and friends will perceive a deterioration of rapport with the addict, whose isolation, lies, excuses, mood changes, and personality alterations interfere with social interactions. Those in positions of authority (e.g., parents and teachers) will place pressure upon the youth to produce results (e.g., improve grades, rebuild broken relationships with family or peers, etc.). Those without authority (e.g., friends and classmates) are likely to withdraw and leave the individual isolated.

Addictions almost always have financial implications. The first steps are usually free, but the need for more advanced experiences

leads to online orders, purchase of additional items, subscriptions, etc. And even when the addiction does not require substantial financial transactions, the excessive time consumption translates into some form of economic loss.

Any type of behavioral addiction, even in its early stages, will cause mental-health problems. Young people engaged in the cycles of addictive behavior tend to experience mood changes, guilt, remorse, frustration at their inability to change, and the realization that their patterns of behavior have changed from before the behavior started. Most likely, altered sleep patterns will settle in, personal care will be abandoned, and lack of exercise (unless the addiction is to exercise) will ensue, often causing physical and emotional problems.

Certain types of addiction, like gambling, shopping, kleptomania, or pornography, may lead to legal consequences of a civil or criminal nature, particularly if the addiction is severe. Over time, the addiction can develop such power that it drives the person to commit illegal acts such as stealing, lying, or using physical force to satisfy the craving.

Lastly, there are also losses in terms of the addicted person's spiritual experience. The time and effort devoted to the addiction will diminish the motivation for spiritual/religious practices and affect the person's relationship with God.

We need to remember that God's power is available to enable anyone to overcome the power of addiction and to work through the influence of professionals and other individuals. Psalm 124:7 and 8 (NIV)¹⁰ uses a figure of speech that could be applied to addictions: "We have escaped like a bird from the fowler's snare; the snare has been broken, and we have escaped. Our help is in the name of the Lord, the Maker of heaven and earth."

Why Is It So Difficult to Free Oneself From an Addiction?

In old Roman society, when a citizen incurred high debt and was unable to amortize it, he or she became *addictus*—enslaved by the imprudent behavior. Typically, the person was condemned to slavery for years or for life, depending on the size of the debt. The creditor(s) would take the debtor (*addictus*) to the public market, where his or her name would be announced, along with the amount of the

debt. This practice provided an opportunity for friends or family to offer the necessary assets to free the debtor. If after 60 days, no one could cancel the debt, the creditor(s) acquired the right to sell the *addictus* as a slave or to keep him or her for their own services.

Notice that the original meaning of the Latin word *addictio* ("addiction") was not associated with alcohol or other substances, but referred to borrowing and spending without the ability or intent to pay back. In contemporary terminology, people who engage in compulsive spending are suffering from a behavioral addiction. Only centuries later was *addiction* applied to the "compulsive drug-taking condition."¹¹

Addictive behaviors are so difficult to overcome because of the neurobiological processes that support them. Areas of reward in the brain, such as the nucleus accumbens and the amygdala, are associated with the acquisition and maintenance of rewarding experiences that appear to be strengthened by (1) using certain substances or (2) participating in certain behaviors [see Austin C. Archer's article on page 8].



What to Do About Behavioral Addictions

This special issue of the JOURNAL includes articles devoted to specific addictions and offers suggestions about preventative and palliative actions for each. In general terms, prevention for any type of addiction should include: psychoeducational programs to inform students about the nature and scope of behavioral addictions; seminars/workshops for education personnel and parents to involve them in prevention and to help them effectively communicate with their children and adolescents; a variety of extracurricular activities (particularly those that involve physical exertion); and school policies that support these programs as well as ensure a reasonable amount of control over risky behaviors. Altruistic behaviors (e.g., community service, volunteering, etc.) are also excellent ways to prevent all types of addictions and sustain the recovery process.

Given the similarities between chemical and behavioral addictions, treatment options can effectively be borrowed from the first and

applied to the second. Epstein, Griffin, and Botvin¹² suggest a number of strategies to prevent alcohol abuse and treat adolescents affected by alcohol. These include decision-making skills, problem-solving strategies, social skills, self-efficacy, and psychological wellness. Similar approaches have been effective in treating behavioral addictions as well.

Twelve-step programs¹³ have provided outstanding assistance to those who struggle with addiction to help them abandon problem behaviors and avoid relapses. These programs make ample room for divine intervention and thus can be especially beneficial to believers. Cognitive-behavioral therapy has been found to be highly effective in helping addicts maintain sobriety through the use of self-instruction, stopping destructive thought, goal-setting, activity plans, etc. These are often the core interventions of a professional psychotherapist.

Conclusion


Christians recognize that divine power is a crucial element in overcoming any kind of addiction. Shaffer, the author of the *Overcoming Addiction* report from Harvard Medical School, has identified 10 facts about addictions. One of them is that “recovering from addiction arises from finding meaning in life.”¹⁴ This language, while not specifically referring to spirituality, makes it clear that a decisive factor in recovery is seeing life as having an ultimate meaning and embracing the presence and influence of a supernatural power [“a Power greater than ourselves,” in the words of the 12-Step Program].¹⁵

The apostle Paul revealed his own struggle with behavioral choices: “For I do not do the good I want to do, but the evil I do not want to do—this I keep on doing” (Romans 7:19, NIV). Although he appears to have been talking about sin, addictive behaviors seem to follow a similar process.

The principal solution presented by Paul is that of strengthening personal choice: “‘I have the right to do anything,’ you say—but not everything is beneficial. ‘I have the right to do anything’—but I will not be mastered by anything” (1 Corinthians 6:12, NIV). Again, we see an appropriate application of this core principle of good and evil [here referring to sexual immorality] to addictive behaviors in general.

Teachers and administrators can become powerful agents to prevent this difficult problem. They should understand that, to be effective,

professional help should be sought early rather than after the addiction becomes entrenched. Adults in the school environment should help guide young people to the right kind of services. Furthermore, they must seize the multiple opportunities that occur throughout the school day to relate with youth and communicate messages of trust, affection, hope, and acceptance that will aid in prevention and recovery for those lured by addictions.

It remains clear that addiction, whether chemical or behavioral, is the perpetuation of an ongoing, obsessive desire to engage in specific activities that are unwholesome and detrimental to wholistic development. This is where the “Power greater than ourselves” becomes especially necessary and efficacious. Let us remember that Jesus, through the many tools that psychological and behavioral therapy has developed and by His direct intervention upon the individual’s mind, can provide the kind of living water that quenches thirst and removes the craving for addictive behaviors and substances. As He explained to the woman at the well: “Everyone who drinks this water will be thirsty again, but whoever drinks the water I give them will never thirst” (John 4:13, 14, NIV). 

This article has been peer reviewed.



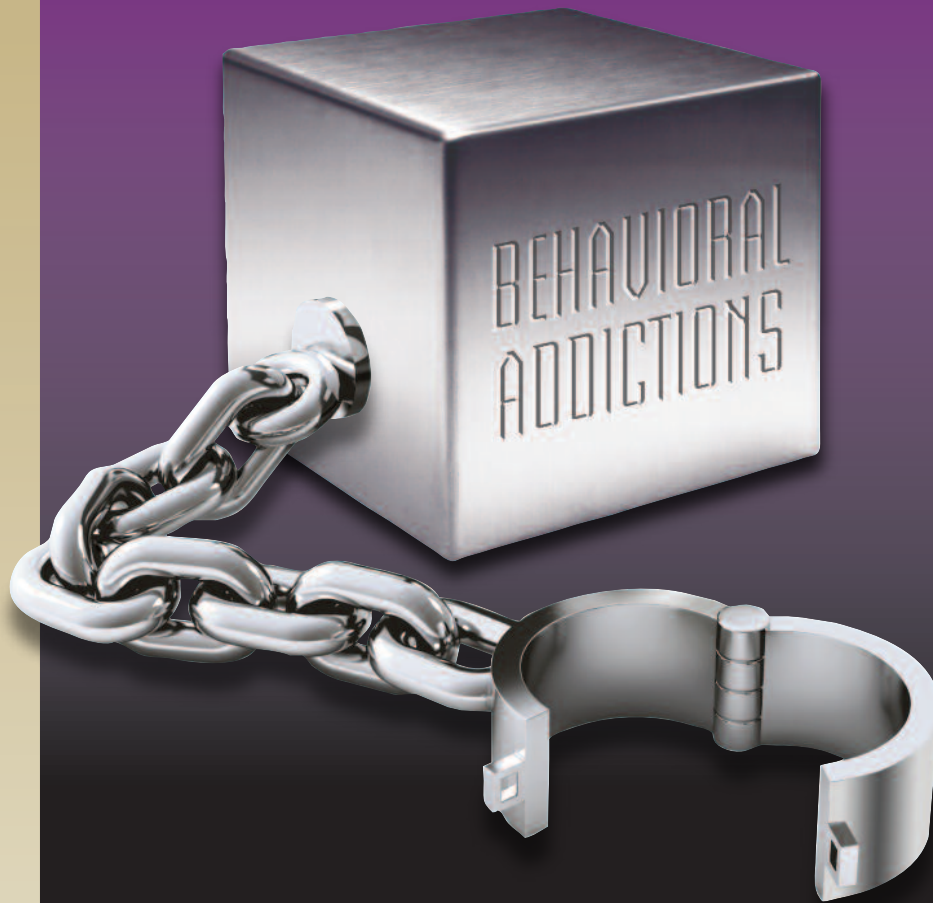
Julián Melgosa, CPsychol (BPS), Ph.D., is Associate Director of Education at the General Conference of Seventh-day Adventists in Silver Spring, Maryland. He

also serves as the Associate Editor for the International edition of THE JOURNAL OF ADVENTIST EDUCATION. Dr. Melgosa trained as a teacher and psychologist at the University of Madrid, Spain, and completed his doctorate in educational psychology at Andrews University in Berrien Springs, Michigan. He has worked as a teacher, school psychologist, professor of education, professor of psychology, and counselor in Spain, England, the Philippines, and the U.S.A. Dr. Melgosa has written a variety of widely distributed applied psychology

books for the lay community. His interests include the interface of psychology and religion/spirituality, mind-body interactions, and the factors affecting successful aging.

NOTES AND REFERENCES

1. Nady el-Guebaly et al., “Compulsive Features in Behavioural Addictions: The Case of Pathological Gambling,” *Addiction* 107:10 [October 2012]:1726-1734. doi: 10.1111/j.1360-0443.2011.03546.x.
2. American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders*, 5th ed. (Washington, D.C.: American Psychiatric Association, 2013).
3. Michael S. Ascher and Petros Levounis, *The Behavioral Addictions* (Washington, D.C.: American Psychiatric Publishing, 2015).
4. Ibid.
5. Barna Konkoly Thege et al., “Social Judgments of Behavioral Versus Substance-related Addictions: A Population-based Study,” *Addictive Behaviors* 42 [March 2015]:24-31. doi: 10.1016/j.addbeh.2014.10.025.
6. Marco Di Nicola et al., “Co-occurrence of Alcohol Use Disorder and Behavioral Addictions: Relevance of Impulsivity and Craving,” *Drug and Alcohol Dependence* 148 [March 2015]:118-125. doi: 10.1016/j.drugalcdep.2014.12.028.
7. Ascher and Levounis, *The Behavioral Addictions*, op. cit.
8. Ibid.
9. Barna Konkoly Thege et al., “Natural Course of Behavioral Addictions: A Five-Year Longitudinal Study,” *BMC Psychiatry* 15:1 [January 2015]:58-79. doi: 10.1186/s12888-015-0383-3.
10. Psalm 124:7, 8 (NIV). Scripture quotations credited to NIV are from *The Holy Bible, New International Version*. Holy Bible, New International Version®, NIV® Copyright © 1973, 1978, 1984, 2011 by Biblica, Inc.® Used by permission. All rights reserved worldwide.
11. Charles P. O’Brien, Nora Volkow, and T-K Li, “What’s in a Word? Addiction Versus Dependence in DSM-V,” *The American Journal of Psychiatry* 163:5 [May 2006]:764, 765. doi: 10.1176/appi.ajp.163.5.764.
12. Jennifer A. Epstein, Kenneth W. Griffin, and Gilbert J. Botvin, “Positive Impact of Competence Skills and Psychological Wellness in Protecting Inner-city Adolescents From Alcohol Use,” *Prevention Science* 3:2 [July 2002]:95-104.
13. Adventist Recovery Ministries of the North American Division of Seventh-day Adventists provides information on how to connect with a recovery program or treatment center: <http://www.adventistrecovery.org/article/33/resources/addictionresources>.
14. Howard J. Shaffer, *Overcoming Addiction: Paths Toward Recovery* [Harvard Medical School Special Health Report] (Cambridge, Mass.: Harvard Medical School, 2011): <http://www.health.harvard.edu/addiction/overcoming-addiction-paths-toward-recovery>. Accessed January 22, 2016.
15. Ibid.



Biological Aspects of **ADDICTIVE BEHAVIOR**

Addiction is a multifaceted topic that has been studied from multiple perspectives and talked about in a variety of ways. Most of the discussion has focused on the compulsive ingestion of a chemical substance, whether legal and socially accepted, such as caffeine, alcohol, and various prescription drugs; or illegal and considered socially unacceptable, like heroin or methamphetamines. In recent years, the definition of addiction has moved beyond chemical substances to include other types of compulsive behavior or activities, such as gambling or the viewing of pornographic images.

It is quite likely that the characteristics of many of these behavioral compulsions resemble those associated with chemical addictions. Behaviors that have been linked to addictions in the psychological literature include gambling,¹ Internet use,² indoor tanning,³ exercise,⁴ pornography,⁵ and food,⁶ though the evidence is mixed for at least some of these.⁷

This article will provide an overview of the biological processes that accompany chemical addictions and review the evidence that these processes also accompany behavioral addictions. I will then suggest reasons why these behaviors are so resistant to change, and discuss the role of choice in the ways in which these addictions manifest themselves. I will finally suggest how neurological processes and faith might intersect as we consider the phenomenon of addiction. But first, a working definition of addiction.

What Is an Addiction?

Traditionally, addiction has been associated with the ingestion of a chemical substance. For example, Hyman defined addiction as “compulsive drug use despite negative consequences,”⁸ which causes individuals to increasingly narrow their attention to the task of obtaining and ingesting the drug, and/or recovering from the use of said drugs, despite

BY AUSTIN C. ARCHER

competing family needs, failing health, and potential and actual threats to their freedom. However, Marks⁹ makes room for a much broader and more encompassing definition, allowing for the inclusion of behavioral addictions—any repetitive routine with a frequency or intensity that leads to restricted behavior. Alavi et al.¹⁰ recognize that the definition of addiction can be controversial, yet they also view dependence on a substance or activity as the central feature.

The World Health Organization (WHO)-sponsored International Classification of Diseases (ICD-10) has shown a preference for the term *dependence* rather than *addiction* and defines a dependence syndrome as “a cluster of physiological, behavioural, and cognitive phenomena in which the use of a substance or a class of substances takes on a much higher priority for a given individual than other behaviours that once had greater value.”¹¹ The statement goes on to list criteria for diagnosis: (a) strong desire or compulsion, (b) physiological withdrawal when use has ceased, (c) evidence of tolerance, (d) progressive neglect of alternative pleasures or interests, and (e) persistent use even in the face of harm. The recently released fifth edition of the American Psychiatric Association’s *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5), includes the category of “Substance-related and Addictive Disorders” with similar criteria as the ICD-10 and does not use the term *dependence* at all. However, in this latest edition, gambling is listed for the first time as being addictive, while Internet games, though not listed as addictive, are flagged for further study.¹² So it seems fair to say that a consensus is developing to include not only chemical substances, but also certain behaviors within any working definition of addiction.

It should be noted that not all compulsive behaviors are addictions. As Marks¹³ indicates, many of our daily survival behaviors like eating, drinking, and even sex are behaviors in which the desire to engage in them increases over time, and this desire is reduced once the act is completed, then returns after a few hours or days. Yet we do not call these behaviors addictions unless they become dysfunctional and go beyond the functional need to sustain life or well-being. Nor do we include non-purposeful dysfunctional behaviors, such as Tourette’s syndrome or other compulsive disorders.¹⁴ Thus, by definition, addictions include only behaviors that are still under voluntary, though diminished, control.

Neurological Processes in Addiction

First, some background. All behavior, as far as we know, involves the

transmission of information through nerve cells and from one nerve cell to another. The nerve cells are often found in bundles called nuclei, and form pathways or nerves made of bundles of axons. Information transmission occurs in two ways. First, transmission within nerve pathways is by electrical impulses along individual axons. Next, transmission from one cell to another involves chemical substances called neurotransmitters that carry these messages by activating protein structures in the nerve cell called receptors. Common neurotransmitters include dopamine, serotonin, gamma amino butyric acid (GABA), opioid peptides, and glutamate.¹⁵

Whenever we do something that makes us feel good or satisfies some innate desire, whether to taste a piece of cheesecake or receive a sum of money, the resultant pleasure comes from the activation of reward systems in the brain. These systems involve areas in the cortex (orbito-frontal and insula) as well as subcortical areas such as the nucleus accumbens and the amygdala, together called the mesocorticolimbic (or hedonic) circuit (see Figure 1). These structures include circuits for a variety of neurotransmitters such as endogenous opioid peptides and dopamine.¹⁶ This occurs when the behavior is normal and functional, as well as when the behavior is dysfunctional.

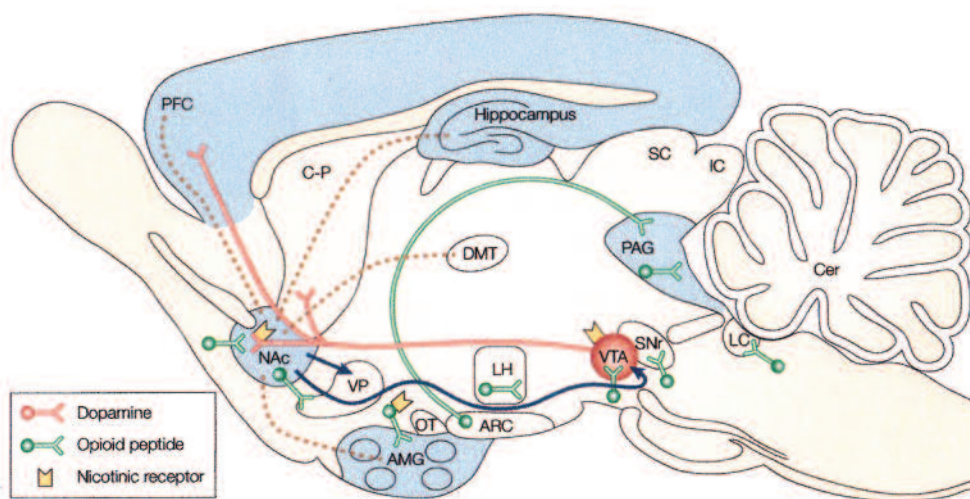


Figure 1. Key Neural Circuits of Addiction

Dotted lines indicate limbic afferents to the nucleus accumbens (NAc). Blue lines represent efferents from the NAc thought to be involved in drug reward. Red lines indicate projections of the mesolimbic dopamine system thought to be a critical substrate for drug reward. Dopamine neurons originate in the ventral tegmental area (VTA) and project to the NAc and other limbic structures, including the olfactory tubercle (OT), ventral domains of the caudate-putamen (C-P), the amygdala (AMG), and the prefrontal cortex (PFC). Green indicates opioid-peptide-containing neurons, which are involved in opiate, ethanol, and possibly nicotine reward. These opioid peptide systems include the local enkephalin circuits (short segments) and the hypothalamic midbrain β -endorphin circuit (long segment). Blue shading indicates the approximate distribution of GABA_A receptor complexes that might contribute to ethanol reward. Yellow solid structures indicate nicotinic acetylcholine receptors hypothesized to be located on dopamine- and opioid-peptide-containing neurons (ARC, arcuate nucleus; Cer, cerebellum; DMT, dorsomedial thalamus; IC, inferior colliculus; LC, locus coeruleus; LH, lateral hypothalamus; PAG, periaqueductal grey; SC, superior colliculus; SNr, substantia nigra pars reticulata; VP, ventral pallidum).

Reprinted by permission from Macmillan Publishers Ltd.: Eric J. Nestler, “Molecular Basis of Long-term Plasticity Underlying Addiction,” *Nature Reviews Neuroscience* 2 (February 2001):121.

A review of research on pleasure by Berridge and Kringelbach¹⁷ suggests that reward involves at least three related aspects: (1) the feeling of pleasure or liking, (2) the motivation (or wanting) to obtain what is liked, and (3) the learning, or behavior change, that results from obtaining a reward. Humans experience different subjective feelings of liking, depending on the object. Thus, the pleasurable feelings associated with a sexual orgasm, an opioid drug, or a beautiful piece of music may seem different. Yet, according to Berridge and Kringelbach, these all seem to arise from activity in the mesocorticolimbic circuit.¹⁸

According to Kalivas and Volkow,¹⁹ addiction to drugs appears to progress through three stages. In the first stage, the rewarding effects of the drug are accompanied by the release of dopamine into the nucleus accumbens, which seems to be more related to the “wanting” or motivational aspect of the reward system than the “liking” aspect.²⁰ This dopamine release is also associated with short-term changes in gene expression in the neuron itself. The gene changes are temporary because the protein produced is unstable and persists for only a few hours.²¹ So the pleasant feeling caused by the drug endures briefly, and addiction has not yet begun.

Continued drug use takes the individual to the second stage, transitional to addiction. In this stage, repeated activation of the dopamine receptor influences the accumulation of a more stable protein (called Δ FosB). The increased presence of Δ FosB protein appears to be related to more permanent structural changes in the cells of the nucleus accumbens, the hippocampus, and other structures in the reward system. Among these changes is an expanded branching in the dendritic tree and proliferation of dendritic spines, producing increased rewarding effects of the drug (see Figure 2).

The final stage (or end-stage) of drug addiction involves increased vulnerability to relapse caused by further changes to the nervous system’s cellular structure. Paradoxically, these changes become greater with increased periods of withdrawal. These changes in the cell “convert vulnerability to relapse from temporary and reversible into permanent features of addiction.”²² As a result, the addicted person finds it harder and harder to quit with each failed attempt to do so. This is described by Olsen²³ as the hijacking of the reward system, leading to the dysfunctional effects associated with these drugs.

The evidence now suggests that this process applies as well with a variety of rewarding behaviors under certain conditions. Twenty-five years ago, Marks²⁴ argued that, based on the ICD definition of a dependence syndrome, “the urge of behavioural addicts to engage in their behavioural routine, and the discomfort ensuing if prevented from completing it, respectively resemble the craving and the

withdrawal symptoms of substance abusers.”²⁵ He further noted that some withdrawal symptoms are the same across the two categories, while others are substance-specific. More apropos to this discussion, he argued that some brain mechanisms are common to the establishment and maintenance of all addictions, whether behavioral or substance-related. Grant et al.²⁶ also claim that evidence increasingly indicates that behavioral addiction and substance use disorders share common features both in terms of cognition and neurotransmitter systems.

If addiction is caused by the extraordinary effect of dopamine on the reward system by drugs, do ordinary behaviors produce those effects as well? Clearly, not all rewarding behavior produces addictive effects—only the ones that produce artificially high rewards transcend those of ordinary day-to-day events. Only activities such as gambling, gaming, and pornography produce such high dopamine secretions as to result in addiction. It also appears that some individuals are genetically programmed for an addictive response. This is further supported by the finding that behavioral and substance addictions are often found in the same individual²⁷ and in people who are genetically related.²⁸

Addiction and Choice

Describing addiction in chemical and mechanistic terms, and observing the consequent resistance to change associated with addictions, would naturally lead one to ask whether, in fact, addicted persons have any choice in the matter. Or might personal choice in some way modify

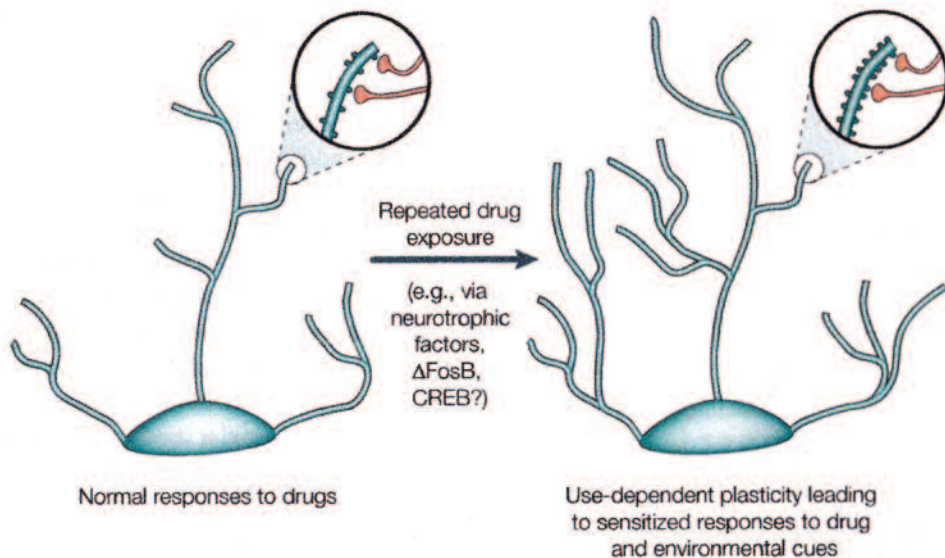


Figure 2. Regulation of Dendritic Structure by Drugs of Abuse

The figure shows the expansion of a dendritic tree after chronic exposure to a drug of abuse, as has been observed in the nucleus accumbens and in the prefrontal cortex. The areas of magnification show an increase in dendritic spines, which is postulated to occur in conjunction with activated nerve terminals. Such alterations in dendritic structure, which are similar to those observed in other examples of synaptic plasticity such as long-term potentiation, could mediate long-lived sensitized responses to drugs of abuse or environmental cues.

Reprinted by permission from Macmillan Publishers Ltd: Eric J. Nestler, “Molecular Basis of Long-term Plasticity Underlying Addiction,” *Nature Reviews Neuroscience* 2 (February 2001):126.

those neurological processes? There are two aspects to the issue of choice in addictions: [1] the choice to engage in a particular behavior that eventually becomes addictive; and [2] the choice to continue to engage in a behavior after addiction has become established.

With regard to the initial choice to engage in behavior that is potentially addictive, one can argue that individual freedom is unimpaired prior to addiction; therefore, he or she bears full responsibility whether to act or not to act. Yet even at this stage, genetic factors seem to intervene, influencing voluntary choice. A Minnesota study of twins reared apart indicated a strong correlation in religious beliefs among identical twins and much weaker or nonexistent correlations among fraternal twins.²⁹ Similarly, a Dutch study found that sensation-seeking behaviors were also tied to hereditary factors.³⁰ As Gene Heyman has argued, “religious beliefs are voluntary; genes affect religious beliefs; [therefore] genes affect voluntary behavior.”³¹

However, genetic influence does not mean absence of choice. A closer examination of the Minnesota study shows that even among the identical twins, the variance explained is less than 50 percent, meaning that factors other than genes, including choice, explain more than half of the variance. Therefore, although genes may make certain behaviors more likely to occur, there is much room for individual choice to determine whether to engage in potentially addictive behaviors.

The role of choice after an addiction has set in is even more interesting, since addiction is often defined in terms of the compulsion to engage in a particular behavior.³² As discussed earlier, addiction involves changes in the brain that tend to reduce impulse control and increase the craving (or wanting) for the reward that comes with a particular behavior. This increased craving may be accompanied by withdrawal effects that negatively reinforce the behavior. Yet, Heyman insists that “addiction is a disorder of choice.”³³ He argues that the data show that most persons who meet the criteria for addiction are able to quit by age 30; most quit without professional help; and the reasons for quitting include legal concerns, economic concerns, and the desire for respect, especially from family members. He concludes “the correlates of quitting are the correlates of choice not compulsion.”³⁴

Heyman’s argument, though persuasive, contains the defect of being unnecessarily binary. Addiction involves neither total compulsion nor unfettered choice. Rather, because of the changes to the reward systems described earlier, addiction involves a disruption of the mechanisms of

Christians have the explicit promise that a “way of escape” from every temptation is provided if we trust in God who “is faithful.” One can think of few temptations more powerful than those represented by behavioral addictions. This promise, and others like it throughout Scripture, provide the assurance that reliance on God and trust in His faithfulness can be a powerful resource for overcoming the most enslaving addiction.

choice, with factors such as withdrawal making choice more difficult, increasing the likelihood of self-destructive behavior, although this is not an inevitable result. Yet, just as the brain is changed by addictive behavior, changes to the brain also occur by the exercise of voluntary behavior. Thus, brain plasticity also ensures the opportunity for recovery.

The Role of Faith

Heyman reports that addicts often say that they quit drugs because “they wanted to be a better parent, make their own parents proud of them, and not further embarrass their families.”³⁵ In each of these cases, the addict made a choice. Since these motivations are likely to be enhanced by religious faith, it may be expected that religious faith could be a valuable pathway to ending addiction. Accordingly, Hansen³⁶ has reported that faith-based treatments have been helpful in the treatment of addiction in Puerto Rico. Researchers have shown the efficacy of prayer and meditation on self-regulation and self-control.³⁷ A number of studies have shown the effects of meditation³⁸ and mindfulness³⁹ on brain plasticity. However, McCullough and Willoughby noted that

a range of activities are encompassed by the terms *prayer* and *meditation*, and that not all such activities are likely to have the same salutary effects.⁴⁰ One might add that none of these activities is specifically Christian, and some can be readily identified with religious practices connected to other religious traditions. A degree of caution is therefore warranted in interpreting the extant research.

However, the evidence provides reason for hope that, although addiction involves definite and profound changes to brain structure and function, the human brain is created with the capacity for change, and that change can come through the exercise of choice, aided by religious practices such as prayer, meditation, and dependence on divine power.

Christians have the explicit promise that a “way of escape” from every temptation is provided if we trust in God who “is faithful.”⁴¹ One can think of few temptations more powerful than those represented by behavioral addictions. This promise, and others like it throughout Scripture,⁴² provide the assurance that reliance on God and trust in His faithfulness can be a powerful resource for overcoming the most enslaving addiction. ✍

This article has been peer reviewed.

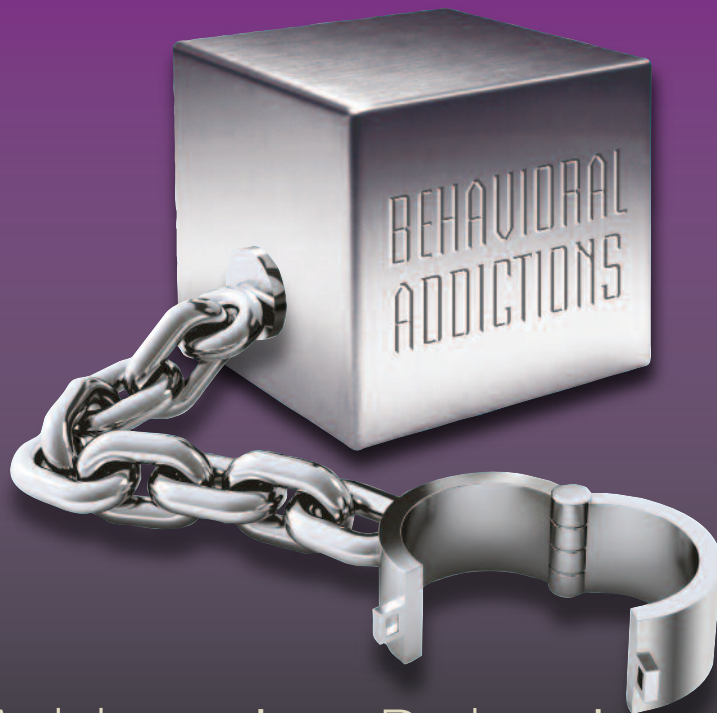
Continued on next page



Austin C. Archer, Ph.D., is Professor of Psychology and Education at Walla Walla University (WWU) in College Place, Washington. He received bachelor's and Master's degrees from Andrews University in Berrien Springs, Michigan, and a Ph.D. in learning and cognition from Indiana University in Bloomington, Indiana. Since 1991, he has taught statistics and research, as well as educational, cognitive, and biological psychology at WWU. He has also published articles on teaching and learning, and constructivism. His current research interests are in the cognitive science of learning and of religion.

NOTES AND REFERENCES

1. R. I. Brown, "Gambling Addictions, Arousal, and an Affective/Decision-making Explanation of Behavioral Reversions or Relapses," *The International Journal of the Addictions* 22:11 (May 1987):1053-1067. doi: 10.3109/10826088709027469; Nady El-Guebaly et al., "Compulsive Features in Behavioral Addictions: The Case of Pathological Gambling," *Addiction* 107:10 (October 2012):1726-1734. doi: 10.1016/j.biotechadv.2011.08.021; Luke Clark and Eve H. Limbrick-Oldfield, "Disordered Gambling: A Behavioral Addiction," *Current Opinion in Neurobiology* 23:4 (August 2013):655-659. doi: 10.1016/j.conb.2013.01.004.
2. Kathryn Yung et al., "Internet Addiction Disorder and Problematic Use of Google Glass™ in Patient Treated at a Residential Substance Abuse Treatment Program," *Addictive Behaviors* 41 (September 2014):58-60. doi: 10.1016/j.addbeh.2014.09.024.
3. Derek D. Reed, "Ultra-violet Indoor Tanning Addiction: A Reinforcer Pathology Interpretation," *Addictive Behaviors* 41 (February 2015):247-251. doi: 10.1016/j.addbeh.2014.10.026.
4. Sergey Krivoschekov and O. N. Lushnikov, "Psychophysiology of Sports Addictions [Exercise Addiction]," *Human Physiology* 37:4 (July-August 2011):509-513. doi: 10.1134/S0362119711030030.
5. Clark Watts and Donald Hilton, "Pornography Addiction: A Neuroscience Perspective," *Surgical Neurology International* 2:1 (February 2011):19. doi: 10.4103/2152-7806.76977.
6. Kent C. Berridge and Morten L. Kringelbach, "Neuroscience of Affect: Brain Mechanisms of Pleasure and Displeasure," *Current Opinion in Neurobiology* 23:3 (June 2013):294-303. doi: 10.1016/j.conb.2013.01.017. See also Ann E. Kelley and Kent C. Berridge, "The Neuroscience of Natural Rewards: Relevance to Addictive Drugs," *The Journal of Neuroscience* 22:9 (May 2002):3306-3311.
7. Kristen Weir, "Is Pornography Addictive?" *Monitor on Psychology* (April 2014): <http://www.apa.org/monitor/2014/04/pornography.aspx>. Accessed July 16, 2015.
8. Steven E. Hyman, "Addiction: A Disease of Learning and Memory," *The American Journal of Psychiatry* 162:8 (August 2005):1414-1422.
9. Isaac Marks, "Behavioural (Non-chemical) Addictions," *British Journal of Addictions* 85:11 (October 1990a):1389-1394.
10. Seyyed Salman Alavi et al., "Behavioral Addiction Versus Substance Addiction: Correspondence of Psychiatric and Psychological Views," *International Journal of Preventive Medicine* 3:4 (April 2012):290-294.
11. World Health Organization, *Management of Substance Abuse* [2015]: http://www.who.int/substance_abuse/terminology/definition1/en/. Accessed June 7, 2015.
12. American Psychiatric Association, *Highlights of Changes From DSM-IV-TR to DSM 5* [2013]: <http://www.dsm5.org/Documents/changes%20from%20dsm-iv-tr%20to%20dsm-5.pdf>. Accessed July 15, 2015.
13. Marks, "Behavioural (Non-chemical) Addictions," op. cit.
14. _____, "Reply to Comments on 'Behavioural (Non-chemical) Addictions,'" *British Journal of Addictions* 85:11 (November 1990b):1429-1431.
15. Neil V. Watson and S. Marc Breedlove, *The Mind's Machine: Foundations of Brain and Behavior*, 2nd ed. (Sunderland, Mass.: Sinauer Associates, Inc., 2016).
16. K. S. LaForge, V. Yuferov, and M. J. Kreek, "Opioid Receptor and Peptide Gene Polymorphisms: Potential Implications for Addictions," *European Journal of Pharmacology* 410:2-3 (2000):249-268. doi: 10.1016/S0014-2999(00)00819-0.
17. Berridge and Kringelbach, "Neuroscience of Affect," op. cit. See also A. E. Kelley and K. C. Berridge, "The Neuroscience of Natural Rewards: Relevance to Addictive Drugs," *The Journal of Neuroscience* 22:9 (May 2002):3306-3311.
18. Ibid.
19. Peter W. Kalivas and Nora D. Volkow, "The Neural Basis of Addiction: A Pathology of Motivation and Choice," *American Journal of Psychiatry* 162:8 (August 2005):1403-1413. doi: 10.1176/appi.ajp.162.8.1403.
20. Berridge and Kringelbach, "Neuroscience of Affect," op. cit.
21. Eric J. Nestler, "Molecular Basis of Long-term Plasticity Underlying Addiction," *Nature Reviews Neuroscience* 2 (February 2001):119-128.
22. Kalivas and Volkow, "The Neural Basis of Addiction," op. cit., p. 1408.
23. Christopher M. Olsen, "Natural Rewards, Neuroplasticity, and Non-Drug Addictions," *Neuropharmacology* 61:7 (December 2011):1109-1122. doi: 10.1016/j.neuropharm.2011.03.010.
24. Marks, "Behavioural (Non-chemical) Addictions," op. cit.
25. Ibid., p. 1391.
26. J. E. Grant et al., "Introduction to Behavioral Addictions," *American Journal of Drug and Alcohol Abuse* 36:5 (September 2010):233-241.
27. Ibid.
28. Donald W. Black et al., "Family History and Psychiatric Comorbidity in Persons With Compulsive Buying: Preliminary Findings," *American Journal of Psychiatry* 155:7 (July 1998):960-963; Judson A. Brewer and Marc N. Potenza, "The Neurobiology and Genetics of Impulse Control Disorders: Relationships to Drug Addictions," *Biochemical Pharmacology* 75:1 (January 2008):63-75. doi: 10.1016/j.bcp.2007.06.043.
29. Niels G. Waller et al., "Genetic and Environmental Influences on Religious Interests, Attitudes, and Values: A Study of Twins Reared Apart and Together," *Psychological Science* 1:2 (1990):138-142.
30. R. D. Stoel, E. J. De Geus, and D. I. Boomsma, "Genetic Analysis of Sensation Seeking With an Extended Twin Design," *Behavior Genetics* 36:2 (March 2006):229-237.
31. G. M. Heyman, *Addiction: A Disorder of Choice* (Cambridge: Harvard University Press, 2009), p. 173.
32. Hyman, "Addiction: A Disease of Learning and Memory," op. cit.
33. Heyman, *Addiction: A Disorder of Choice*, op. cit., p. 173. The argument is augmented in Heyman's "Addiction and Choice: Theory and New Data," *Frontiers of Psychiatry* 4:31 (May 2013):1-5. doi: 10.3389/fpsy.2013.00031.
34. Heyman, *Addiction: A Disorder of Choice*, ibid., p. 173.
35. _____, "Addiction and Choice: Theory and New Data," op. cit.
36. H. Hansen, "Faith-based Treatment for Addiction in Puerto Rico," *Journal of the American Medical Association* 291:23 (June 16, 2004):2882.
37. M. E. McCullough and B. L. B. Willoughby, "Religion, Self-Regulation, and Self-Control: Associations, Explanations, and Implications," *Psychological Bulletin* 135 (2009):69-93. doi: 10.1037/a0014213.
38. G. L. Xiong and P. M. Doraiswamy, "Longevity, Regeneration, and Optimal Health: Does Meditation Enhance Cognition and Brain Plasticity?" *Annals of the New York Academy of Sciences* 1172 (2009):63-69.
39. R. J. Davidson et al., "Alterations in Brain and Immune Function Produced by Mindfulness Meditation," *Psychosomatic Medicine* 65:4 (July 2003):564-570. doi: 10.1097/01.PSY.0000077505.67574.E3.
40. McCullough and Willoughby, "Religion, Self-Regulation, and Self-Control," op. cit., p. 84.
41. See 1 Corinthians 10:13 (ESV). All Scripture texts in this article are quoted from the English Standard Version. Scripture quotations marked ESV are from *The Holy Bible*, English Standard Version, copyright © 2001 by Crossway Bibles, a division of Good News Publishers. Used by permission. All rights reserved.
42. See also James 4:7 and Hebrews 2:18, as well as the implied promise of deliverance found in the prayer of our Lord in Matthew 6:13. Ephesians 6:11 to 18 also provides a list of spiritual disciplines that can serve as a protective shield against temptation.



Addressing Behavioral Addictions in Adolescents: Creating a School-wide Culture of **PREVENTION**

It is the phone call that no school administrator wants to make, but unfortunately, it is becoming more and more frequent. These calls combine equal parts concern for the student's welfare and frustration at not knowing the best way to handle a difficult situation:

Mr. Jones, this is Principal Smith.¹ I am calling to schedule a meeting with you regarding Simon and his future at our school. When we met at the beginning of the semester, our

concern was about the frequency with which Simon was engaging in Internet gaming and his two violations of the school's acceptable-use policy by visiting inappropriate Websites. We shared reports from his residence-hall dean and teachers. The dean reported that Simon frequently played games throughout the night. His teachers reported that he often missed his 8:30 a.m. class and if he attended the others, would sleep through them.

At that first meeting in September, with the help of the school counselor, we worked out a behavior plan for Simon that included

removing the game console from his room, limiting his Internet use, and his agreeing to attend his classes on time. At our second meeting in November, we notified you that a game console had been found in Simon's room, he persisted in playing into the early hours of the morning, and continued to miss his classes.

We added weekly meetings with the school counselor to his behavior plan. He has skipped these weekly follow-up meetings, has not been showering or leaving his room,

BY TRON WILDER and STEVEN BAUGHMAN

and for the third time has violated the school's acceptable-use agreement. We are concerned that his behavior may be indicative of a deeper problem. He is combative and resistant, and unfortunately we do not have adequate professional resources to help him. We think it is time to seek help from a mental-health professional.

The concern on the other end of the line is palpable. The parental response may range from exasperated frustration about not knowing what else to do if their son or daughter can't attend the local Adventist school, a resigned "Thanks for all that you've done; we understand the decision," or even an outright hostile, combative argument about how the school has "failed" the teen in question. Regardless of the response, the administrator is often left feeling as if more could have been done, but frustrated about not knowing what. What, then, is the best course of action for educators when a student is struggling with a behavioral addiction?

While they may not always develop into addictions, behaviors such as overeating, excessive technology use, or repeated viewing of pornography are all growing issues that school administrators must be prepared to address. And while behavioral addiction is a newly emerging concept, understanding what it is and how Adventist schools, despite their limited resources, can create a preventative culture can help prepare our educators to better meet their wholistic goals of balanced mental-physical-spiritual student development.

Behavioral Addiction in Adolescents

Before determining how to address behavioral addictions, it is important to understand what types of actions fall into this category. While addictions have been traditionally understood as dependence on substances such as drugs or alcohol, experts are increasingly finding that, when engaged in compulsively, activities like those listed above, along with other behaviors such as shopping, working, or even exercising, can grow into a "non-chemical" or "behavioral" addiction.² "Behavioral addiction" is defined as "the use of repetitive actions, initiated by an impulse that can't be stopped, causing an individual to escape, numb, soothe, release tension, lessen anxiety or feel euphoric."³ Although behavioral addiction was proposed as a new category in the recent revision of the

Diagnostic and Statistical Manual of Mental Disorders (DSM-5),⁴ there is currently no diagnostic model that includes the criteria necessary to identify behaviors as addictions in a clinical setting. Nonetheless, behavioral addictions are increasingly being recognized as treatable forms of addiction.⁵

Many behaviors to which people can become addicted are essential day-to-day activities such as eating, recreation, and technology use. However, as has occurred with many of God's good creations, Satan has corrupted useful activities, turning them into activities with potentially harmful social, mental, and physical consequences. This is particularly a matter of concern with high school and college students, who are especially vulnerable to addictive behaviors.⁶ Among adolescents, the most common and problematic addictive behaviors include food, gambling, exercise, sex/pornography, spending, the Internet, and video/computer games.⁷

Students struggling with behavioral addictions may also have problems with underlying issues such as depression, loneliness, social impairment, aggression, or distractibility that cause them to resort to addictive behaviors as a way of coping.⁸ In fact, more often than not, individuals identified as having behavioral addictions are also diagnosed with another co-occurring disorder.⁹ Unfortunately, the incidence of adolescent mental-health problems like these is not likely to decrease any time soon, as mounting pressure to be successful in school and a debilitating fear of failure continue to plague students in increasing measures.¹⁰

As many faculty members and administrators can attest, these behavioral addictions are, with frightening rapidity, affecting students in Seventh-day Adventist schools. One group of researchers studying students ages 13-19 attending Adventist day, boarding, and self-supporting schools in the North American Division concluded that more than 25 percent of the students they surveyed reported wrestling with issues such as getting insufficient exercise; poor sleeping habits; being shy; feeling lonely, depressed, or sad; and having poor eating habits, among a variety of other issues that could all potentially lead to poor coping skills and an increased likelihood of developing behavioral addictions.¹¹

Successful Approaches for Adventist Schools

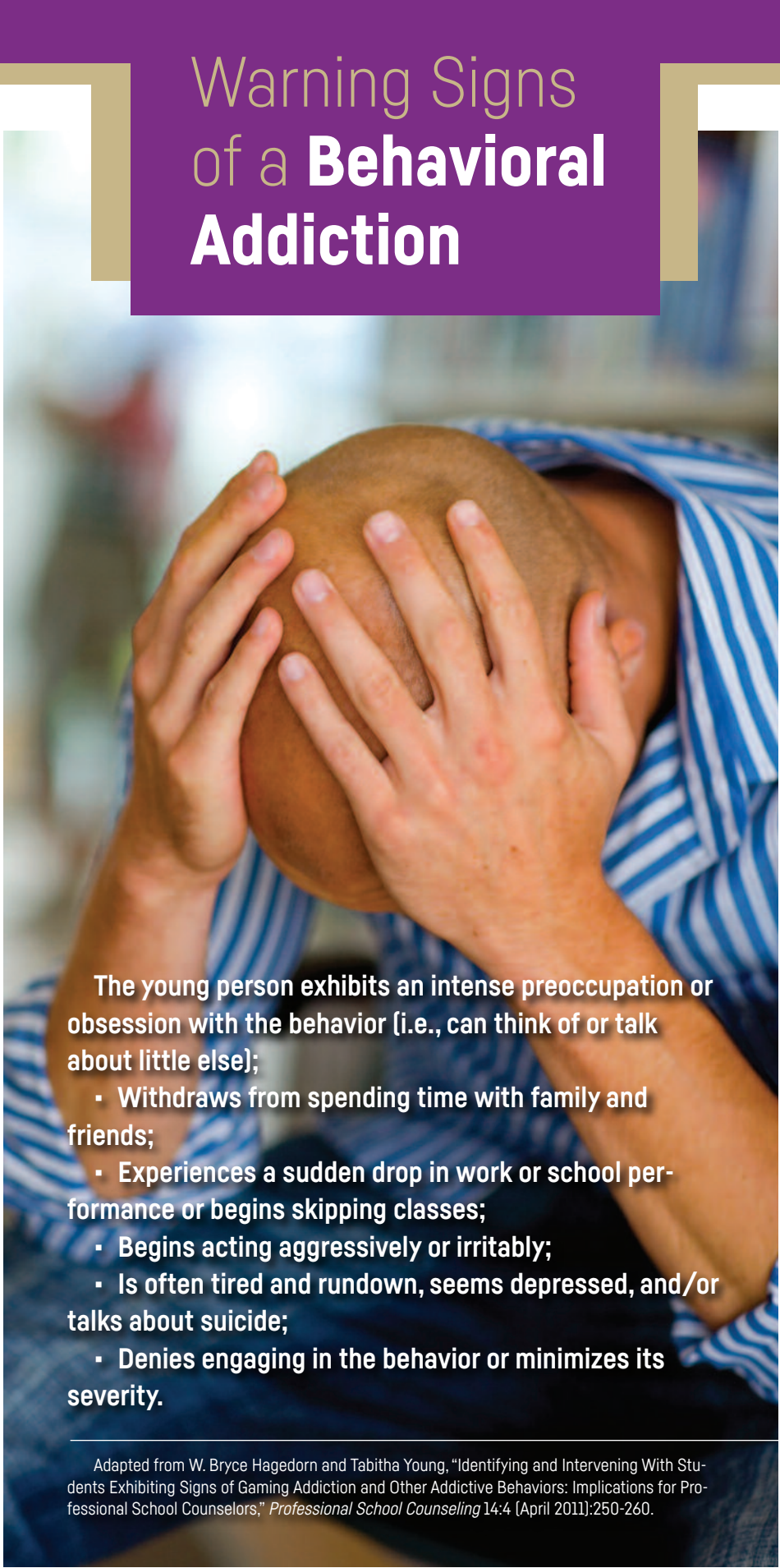
Many schools, including Seventh-day Adventist institutions, are ill prepared to handle the growing problem of behavioral addictions due both to a lack of trained personnel, as well as a lack of understanding about how to respond to addictive behaviors.¹² Because of this lack of resources and training, a typical response in many Adventist schools may likely involve a well-intentioned but under-trained group of staff members meeting to address a behavioral addiction as if it can be fixed by a short suspension from classes and a student's promise to never engage in the behavior again. This disciplinary approach is often reactive and rooted in the traditional, punitive method of handling misbehavior such as drinking or smoking on campus.

While addictive behaviors are certainly harmful, behaviors such as Internet use or excessive exercising are not dealt with effectively through fear-based abstinence messages. In fact, while relatively little research has analyzed punitive approaches to behavioral addictions specifically, research indicates that these approaches have not effectively addressed addictive substance use in schools.¹³ Instead, students need to understand addictive behavior, and be taught with solid, research-based approaches that increase awareness, support, and education in addressing these types of addictions.¹⁴ Additionally, educators must seek to address the underlying causes of the addictions, rather than focusing solely on the behaviors.

Prevent Rather Than Punish

What then should Adventist educators do to help students struggling with behavioral addictions? First, it is critical to remember the essential purposes for which Adventist schools were founded. Adventist educators are charged with training their students "to be thinkers, and not mere reflectors,"¹⁵ while remembering the dangers of students becoming "assimilated to the world rather than to the image of Christ."¹⁶ Balancing these two responsibilities can be challenging and even frustrating at times, but both are essential in helping students develop strong characters. With this fundamental perspective in mind, Adventist educators can develop and implement programs that proactively help and encourage students as they are developing

Warning Signs of a **Behavioral Addiction**



The young person exhibits an intense preoccupation or obsession with the behavior (i.e., can think of or talk about little else);

- Withdraws from spending time with family and friends;
- Experiences a sudden drop in work or school performance or begins skipping classes;
- Begins acting aggressively or irritably;
- Is often tired and rundown, seems depressed, and/or talks about suicide;
- Denies engaging in the behavior or minimizes its severity.

Adapted from W. Bryce Hagedorn and Tabitha Young, "Identifying and Intervening With Students Exhibiting Signs of Gaming Addiction and Other Addictive Behaviors: Implications for Professional School Counselors," *Professional School Counseling* 14:4 (April 2011):250-260.

their characters, rather than expecting students to already possess the maturity and determination to make the right decisions about behaviors that could lead to addiction.

Research results from the 2002 National Longitudinal Study of Adolescent Health¹⁷ indicated that one way to prevent students from engaging in harmful behaviors is to ensure that they feel connected to the school. Being proactive and responding appropriately when students first begin to show signs of a behavioral addiction¹⁸ are key factors in helping them feel connected to the mission of a school.

Educational institutions should implement supportive policies, such as offering more counseling and educational resources, in-school and after-school interventions to reduce anxiety and stress, and positive behavior mentoring.¹⁹ Furthermore, creating a warm and welcoming school climate allows students to sense sincere support from staff members and increases their willingness to talk to adults without fear of punishment.²⁰ For more information on strategies and actions school administrators can take to increase school connectedness, visit http://www.cdc.gov/healthyyouth/protective/pdf/connectedness_administrators.pdf.²¹

Proper Training and Support

A quality program designed for use in a school setting must include proper staff training and support to enable them to identify and interact with students exhibiting potential signs of addictive behaviors.²² Because the majority of Adventist K-12 schools do not have the budget to hire full-time school counselors,²³ the responsibility for caring for the emotional and mental-health needs of students often falls to the faculty and staff. This presents a difficult challenge for teachers with little training in how to effectively deal with students' mental-health needs and who are already overwhelmed with the demands of working at understaffed schools. The author of a previous article in *THE JOURNAL OF ADVENTIST EDUCATION* on making mental health a priority in Adventist schools²⁴ proposed several steps that school administrators can take to improve the mental-health services offered at our schools. Several of these suggestions can be modified to deal with behavioral addictions, especially in schools with limited training and/or resources.

1. Provide workshops by trained profes-

signals to help teachers recognize the warning signs and help students at risk for behavioral addictions. (One helpful resource is found at <http://www.mentalhealthfirstaid.org/>.)

2. Consider employing a school counselor or contracting with a mental-health professional who can provide ongoing education and support for school staff on how to deal with addictive behaviors. [A “roving counselor” could be coordinated at the conference level to help offset the costs for local schools.]

3. Investigate community resources to which students struggling with behavioral addictions can be referred.²⁵ [Note that effective treatment for behavioral addictions often involves similar approaches to those employed for substance abuse such as 12-step programs, motivational enhancement, psychosocial treatments, cognitive behavioral therapy, and medication.]

4. Create a school-wide behavior-support system. [For resources and information, see <http://www.pbis.org/school/swpbis-for-beginners>.]

5. Ensure that behavioral addictions and appropriate measures of addressing them are included in the student handbook. This shows that the school is committed to the wholistic development of each student.

Peer Support Programs

While most educators who work with teenagers and young adults realize that the peer group is a major factor in adolescent behavior, they often perceive its influence negatively. Peer pressure has widely been seen as the starting point of all sorts of adolescent problems such as addiction, sexual experimentation, and even suicide.²⁶ Therefore, school staff typically respond by attempting to exert more control over peer relationships.²⁷ Educators thus fail to recognize the potential of peer supports to empower and encourage young people struggling with many types of problems. Peer-support programs can be an incredibly effective method of positively utilizing peer influence.²⁸

Rather than isolating and ostracizing struggling students, and possibly increasing the likelihood of addictive behaviors, peer-support programs enlist the aid of student leaders to develop ways to connect students to the school culture. When implemented appropriately, peer-support programs have proved ef-

- **Peer Leadership in Higher Education: New Directions for Higher Education** by Jennifer Keup, ed. [San Francisco, Calif.: Jossey-Bass, 2012].

- **Mental Health First Aid** is an in-person training that teaches how to help people developing a mental illness or in crisis: <http://www.mentalhealthfirstaid.org/cs/>.

- **School-wide Positive Behavior Support (SWPBIS) for Beginners** is a systems approach to change through teaching behavioral expectations in the same way as a core curriculum subject. This approach is typically adopted by an entire school or school district and includes training sessions for teachers: <http://www.pbis.org/school/swpbis-for-beginners>.

- **Peer Leadership: Helping Youth Become Change Agents in Their Schools** by Lorraine Tiven [Washington, D.C.: Anti-Defamation League, 2002] is a detailed resource guide for implementing a peer-support program. Download the entire document at http://www.partnersagainsthate.org/publications/Peer_Leadership_Guide.pdf.

- **Fostering School Connectedness: Improving Student Health and Academic Achievement** [U.S. Department of Health and Human Services, 2009] provides information on strategies and actions school administrators can take to increase school connectedness: http://www.cdc.gov/healthyyouth/protective/pdf/connectedness_administrators.pdf. Websites accessed January 22, 2016.

fective in improving school climate and peer relationships, decreasing violent behavioral incidents, lowering suspension rates, and empowering students to act responsibly.²⁹ By adapting the peer-support model to meet students’ specific needs, these programs may actually help prevent addictive behaviors from becoming more serious.³⁰ For a detailed resource guide to implementing a peer-support program, see http://www.partnersagainsthate.org/publications/Peer_Leadership_Guide.pdf.³¹

Family Support

School staff must involve family members early in the resolution process when adolescents are struggling with addictive behaviors. Because students dealing with addictions may not recognize their need for help, referrals for treatment often come from others such as parents or teachers. Occasionally, these students may view the school and parental involvement as an intrusion into their personal lives, so if educators and families do not work together in a positive and productive way, treatments are unlikely to succeed. Family counseling, education about addictive behaviors, as well as strategies for coping with anger and loss of trust represent important aspects of successful treatment.³²

Ongoing, open communication between students and faculty and between faculty and parents is essential to ensure that potential problems are addressed, although everyone must recognize that dealing with addiction is a continual process. When a student is re-

ceiving intensive community-based support, the principal should keep in contact with both the student’s family and, as possible, care providers to see what additional steps school personnel should take to help the student dealing with the behavioral addiction. When the treatment plan is to be implemented at school, parents should form an integral part of the execution. Further, resources should be provided to enable parents to provide support in the most helpful way at home.

Self-identity and Spiritual Support

Finally, an effective approach to behavioral addictions will provide students the opportunity to better develop their self-identity and spiritual values.³³ Students should be taught the importance of prayer and reliance on divine help as they walk the path to recovery, and every effort should be made to direct them to counselors or behavior therapists who are willing to include these components as part of the treatment. Navigating through this tumultuous developmental period is an extremely challenging and complex task for any adolescent, so teaching coping skills will help empower all teens. “Successful treatments must not only address the [addictive] behavior but also help an adolescent navigate the normal developmental tasks of identity formation that are often neglected while [the behavior] is being used as a means of coping with life’s problems. Treatment should focus

on effective problem solving and the social skills necessary to build self-esteem.”³⁴ This, along with the support of a counselor or therapist who is willing to include the belief system as part of the treatment, are significant components of spiritual support.

Seventh-day Adventist institutions should be places where students can find the support and encouragement they need to struggle with problematic behaviors, including addictions. In fact, research indicates that because of their religious philosophy, Seventh-day Adventist schools may have a significant advantage in addressing behavioral addictions, as religious devotion has been shown to be a significant protective factor against adolescent addictions.³⁵ Although innate sinful human nature should not be seen as justifying misbehavior, there can be great comfort in recognizing that “all have sinned, and come short of the glory of God” (Romans 3:23, KJV). As one Adventist researcher has pointed out, there can be a tendency for Adventists to depict people struggling with addiction as “morally weak” and to assert that if they would only pray harder, they wouldn’t have the problem.³⁶ Adventist school staff must be diligent in protecting students from internalizing a sense of worthlessness, and instead should use the real challenges they are experiencing as “teachable moments” to help them better cope with the temptations and struggles of sin as they seek to develop a character that better reflects the Creator.

Conclusion

Ultimately, every Seventh-day Adventist school will face situations involving behavioral addictions. Administrators thus must develop plans and policies that assist students dealing with these types of behaviors in research-based, preventative ways rather than the traditional punitive measures schools have generally implemented. Schools should develop training programs for staff and faculty to help them identify warning signs of addictive behaviors and investigate resources on how to handle these situations when they arise. School faculty, staff, administrators, students, and families should work together to create a school environment that promotes safe discussion of addictive behaviors with which students may be struggling. Finally, and perhaps most importantly, a program should be in place that supports stu-

dents struggling with addictive behaviors in a way that facilitates their personal growth, identity, and spiritual development and prepares them for “the joy of service in this world and for the higher joy of wider service in the life to come.”³⁷ ✍

This article has been peer reviewed.



Tron Wilder, Ph.D., is an Associate Professor in the School of Education and Psychology at Southern Adventist University in Collegedale, Tennessee. Prior to joining the faculty at Southern, he served in several public school districts in Tennessee and Georgia as a school psychologist, where his work focused on assessing students with emotional, behavioral, and learning difficulties and working with teachers and parents to develop plans to assist students experiencing difficulties. Dr. Wilder is passionate about reaching and teaching students with a variety of learning styles.



Steven Baughman, M.Ed., has been the Principal at Indiana Academy in Cicero, Indiana, since 2013. He previously spent 10 years teaching English and history at Highland Academy in Portland, Tennessee.

NOTES AND REFERENCES

- Names are pseudonyms.
- Reef Karim and Priya Chaudhri, “Behavioral Addictions: An Overview,” *Journal of Psychoactive Drugs* 44:1 (March 2012):5-17. doi: 10.1080/02791072.2012.662859.
- Ibid., p. 5.
- American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders*, 5th ed. (Washington, D.C.: American Psychiatric Association, 2013).
- Jon E. Grant et al., “Introduction to Behavioral Addictions,” *American Journal of Drug and Alcohol Abuse* 36:5 (September 2010):233-241. doi: 10.3109/00952990.2010.491884.
- R. Andrew Chambers, Jane Taylor, and Marc N. Potenza, “Developmental Neurocircuitry of Motivation in Adolescence: A Critical Period of Addiction Vulnerability,” *American Journal of Psychiatry* 160:6 (June 2003):1041-1052; John L. Evenden, “Varieties of Impulsivity,” *Psychopharmacology* 146:4 (October 1999):348-361. doi: 10.1007/PL00005481.
- W. Bryce Hagedorn and Tabitha Young, “Identifying and Intervening With Students Exhibiting Signs of Gaming Addiction and Other Addictive Behaviors: Implications for School Counselors,” *Professional School Counseling* 14:4 (April 2011):250-260.
- Mark Griffiths and Ian Sutherland, “Adolescent Gambling and Drug Use,” *Journal of Community and Applied Social Psychology* 8:6 (November/December 1998):423-427.
- Seyyed Salman Alavi et al., “Behavioral Addiction Versus Substance Addiction: Correspondence of Psychiatric and Psychological Views,” *International Journal of Preventive Medicine* 3:4 (April 2012):290-294.
- Arielle Eiser, “The Crisis on Campus: American Psychological Association Is Working With Congress to Address Serious Mental Health Problems on College Campuses,” *Monitor on Psychology* 42:18 (September 2011): <http://www.apa.org/monitor/2011/09/crisis.campus.aspx>. Accessed February 1, 2016.
- Ellen Crosby, Shirley Freed, and Elvin Gabriel, “Personal Problems of Seventh-day Adventist Academy Students,” *Journal of Research on Christian Education* 15:1 (Spring 2006):77-93. This study surveyed students in 14 Adventist academies in the United States (day, boarding, and self-supporting) in the regular classroom setting, using the Personal Problems Checklist for Adolescents (PPC-A). The study, based on student self-report, analyzed differences between male and female and age groups 13 to 14 and 18 to 19.
- Hagedorn and Young, “Identifying and Intervening With Students Exhibiting Signs of Gaming Addiction and Other Addictive Behaviors,” op. cit.
- National Institutes of Health, “Preventing Violence and Related Health-risking Social Behaviors in Adolescents: An NIH State-of-the-Science Conference.” Conference Overview presented at Natcher Conference Center, Bethesda, Md., October 13-15, 2004: <https://consensus.nih.gov/2004/2004youthviolencepreventionos023html.htm>; Clea A. McNeely, James M. Nonnemaker, and Robert W. Blum, “Promoting School Connectedness: Evidence From the National Longitudinal Study of Adolescent Health,” *Journal of School Health* 72:4 (April 2002):138-146.
- Maressa Hecht Orzack and Deborah S. Orzack, “Treatment of Computer Addicts With Complex Comorbid Psychiatric Disorders,” *Cyberpsychology and Behavior* 2:5 (October 1999):465-473; Kimberly S. Young, “Internet Addiction: Symptoms, Evaluation, and Treatment,” in L. VandeCreek and T. Jackson, eds., *Innovations in Clinical Practice: A Source Book* (Sarasota, Fla.: Professional Resource Press, 1999), vol. 17, pp. 19-31.
- Ellen G. White, *Education* (Mountain View, Calif.: Pacific Press Publ. Assn., 1903), p. 7.
- _____, *Counsels for the Church* (Mountain

View, Calif.: Pacific Press Publ. Assn., 1957), p. 83.

17. McNeely et al., "Promoting School Connectedness," op. cit.

18. Hagedorn and Young, "Identifying and Intervening With Students Exhibiting Signs of Gaming Addiction and Other Addictive Behaviors," op. cit.

19. Marsha Rosenbaum, "A Reality-based Approach to Teens and Drugs," *NASP Communiqué* 33:4 (2004).

20. Gail Taylor Rice, "Warmth: The Missing Ingredient in Adventist Schools," *The Journal of Adventist Education* 55:4 (April/May 1993): <http://circle.adventist.org/files/jae/en/jae199355040406.pdf>.

21. U.S. Department of Health and Human Services, *Fostering School Connectedness: Improving Student Health and Academic Achievement*: http://www.cdc.gov/healthyyouth/protective/pdf/connect-edness_administrators.pdf. Accessed February 1, 2016.

22. Chien Chou, Linda Condron, and John C. Beland, "A Review of the Research on Internet Addiction," *Educational Psychology Review* 17:4 (December 2005):363-388. doi: 10.1007/s10648-005-8138-1.

23. Lennard A. Jorgensen, "The Roving Counselor: An Innovative Answer to School Guidance Needs," *The Journal of Adventist Education* 58:1 (October/November 1995):34-37.

24. Grant Leitma, "Making Mental Health a Pri-

ority in Schools," *ibid.* 76:4 (April/May 2014):32-41.

25. Grant et al., "Introduction to Behavioral Addictions," op. cit.

26. Donna Gaines, "America's Dead End Kids," in Stephanie Urso Spina, ed., *Smoke and Mirrors: The Hidden Context of Violence in Schools and Society* (Boulder, Colo.: Rowman and Littlefield, 2000), pp. 107-128.

27. Ricardo D. Stanton-Salazer and Stephanie Urso Spina, "Adolescent Peer Networks as a Context for Social and Emotional Support," *Youth & Society* 36:4 (June 2005):379-417.

28. Sue Alford, *Peer Programs: Looking at the Evidence of Effectiveness, A Literature Review* (August 2011): <http://www.advocatesforyouth.org/publications/publications-az/1856-peer-programs-looking-at-the-evidence-of-effectiveness-a-literature-review>. Accessed February 1, 2016.

29. Karen Sheehan et al., "Adapting the Gang Model: Peer Mentoring for Violence Prevention," *Pediatrics* 104:1 (July 1999):50-54; Veerle Stevens, Paulette Van Oost, and Iise De Bourdeaudhuij, "The Effects of an Anti-bullying Intervention Programme on Peers' Attitudes and Behaviour," *Journal of Adolescence* 23:1 (February 2000):21-34; Reece L. Peterson and Russell Sciba, "Creating School Climates That Prevent School Violence," *Preventing School Failure* 44:3 (Spring 2000):122-129.

30. David R. Black, Nancy S. Tobler, and John P. Sciacca, "Peer Helping/Involvement: An Efficacious

Way to Meet the Challenge of Reducing Alcohol, Tobacco, and Other Drug Use Among Youth?" *Journal of School Health* 68:3 (March 1998):87-93.

31. Lorraine Tiven, *Peer Leadership: Helping Youth Become Change Agents in Their Schools and Communities* (Washington, D.C.: Anti-Defamation League, 2002): http://www.partnersagainsthate.org/publications/Peer_Leadership_Guide.pdf. Accessed February 1, 2016.

32. Young, "Internet Addiction: Symptoms, Evaluation, and Treatment," op. cit.

33. Mary J. Didelot, Lisa Hollingsworth, and Janet A. Buckenmeyer, "Internet Addiction: A Logotherapeutic Approach," *Journal of Addictions & Offender Counseling* 33:1 (April 2012):18-33.

34. Angela Browne-Miller, *The Praeger International Collection on Addictions* (Westport, Conn.: Praeger Publishers, 2009), vol. 1, p. 334.

35. Christian Smith, "Theorizing Religious Effects Among American Adolescents," *Journal for the Scientific Study of Religion* 42:1 (February 2003):17-30.

36. Curtis VanderWaal, "Adventists and Addictions," *AdventSource* (2015): <http://www.adventsource.org/as30/plusLine.article.aspx?id=703&um schk=1&umschk=1&umschk=1>. Accessed February 1, 2016.

37. White, *Education*, op. cit., p. 13.

THE BIBLE AND SCIENCE

A new reference presenting an Adventist perspective about creation and evolution.

FREE

ILLUSTRATED

Consisting of 17 written discussions on 1268 PowerPoint slides, and 14 accompanying dialogues on 28 minute videos. Answers to common and complex questions. Designed for students and teachers. Free download.

NEW

Prepared by Ariel A. Roth, scientist, teacher, researcher, author; who has been active in the creation-evolution controversy for over half a century.

TO ACCESS, simply go to:

www.sciencesandscriptures.com

Also referenced through CIRCLE and other leading SDA webpages.





The *Diagnostic and Statistical Manual of Mental Disorders* [DSM-5] of the American Psychiatric Association recognizes one behavioral addiction: Gambling Disorder.

All other behavioral addictions are identified either as “Conditions for Further Study” or “Behavioral Addiction Not Otherwise Specified.”

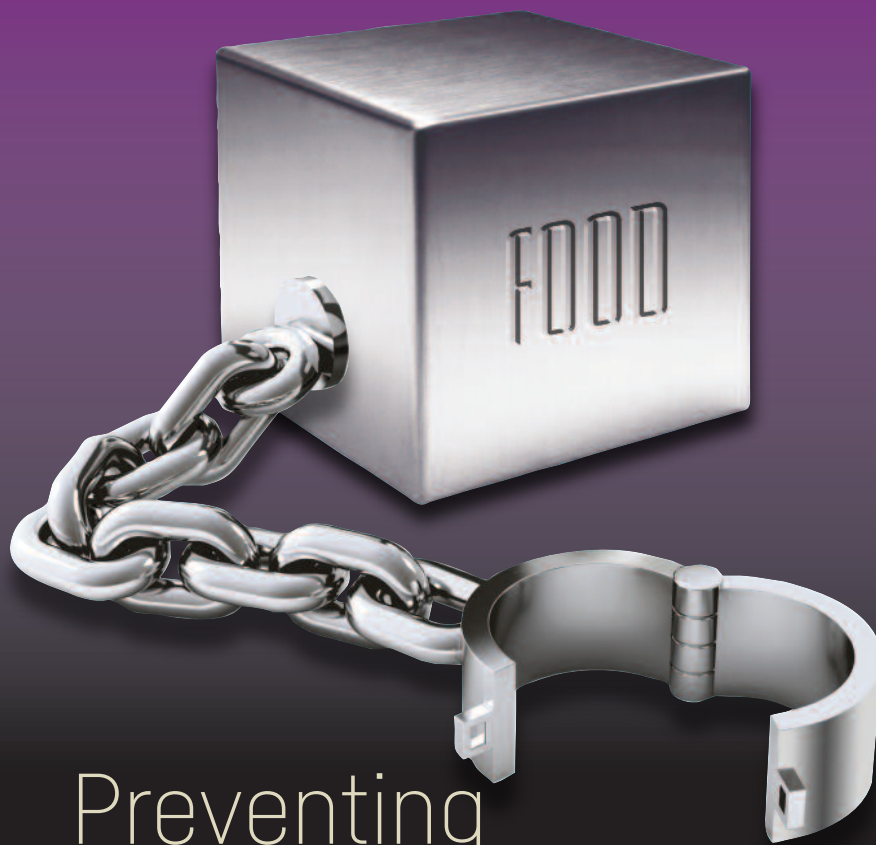
These conditions require more research and clinical observation before being considered for inclusion in the manual as official disorders. These include, but are not limited to:

- Computer and Video Games
- **Exercise***
- **Food and Eating***
- Indoor Tanning
- **Internet Gaming***
- **Internet Use***
- Love
- Plastic Surgery
- **Pornography***
- Risky Behavior
- Sex
- Shopping
- Social Media
- Work

Addictions marked with an asterisk are discussed in the following articles and are considered to be ones primarily addressed in school settings.

REFERENCE

American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders*, 5th ed. (Washington, D.C.: American Psychiatric Association, 2013).



Preventing **FOOD ADDICTION** in Adolescents

Devon¹ is 12 years old and loves sweets—he trades the nutritious items in his lunch for candy, cookies, or other sugary delicacies whenever he can and spends a good portion of the money he earns doing chores to feed his unhealthy cravings. His parents make sure that he eats some vegetables and has adequate protein in his diet. They don't allow sugary drinks in the home but are unaware of the extent of his sugar intake because much of it occurs during school and after-school activities. Devon is of average weight. When he spent two weeks at his grandmother's house last summer, he had no sweets at all because she lives in a rural area and shuns "junk food." He enjoyed the time at his grandmother's house, but upon returning home, he eagerly began to indulge in his favorite treats again! Devon isn't worried about his diet or his weight; these issues aren't even on the radar screen for this pre-teen.

Fifteen-year-old Kayla, too, has a passion for sweets. Although convinced that she eats too much sugar, she doesn't seem to be able to

change her diet. She eats a healthy breakfast every day and at meals when other people are present, but Kayla frequently eats sweets in secret, embarrassed by the amount she consumes. She describes her feelings when indulging in sweets as "amazing and guilty at the same time." Although gorging herself on sweets does satisfy her craving for a while, she feels that her cravings the day after a binge are even greater than before, trapping her in a vicious cycle of craving, eating, and guilt. Although Kayla is only vaguely aware of it, this cycle is beginning to interfere with her scholastic performance, as her mind is increasingly preoccupied with food and worries about gaining weight. Kayla does weigh more than she should for her height and body type, but is not obese. At her last annual checkup, however, the doctor warned that her blood pressure was creeping higher than the ideal, and she asked Kayla about her diet (Kayla was embarrassed so she wasn't entirely truthful). In contrast to Devon, Kayla thinks about food and weight-related issues frequently and worries that her cravings may only become more difficult to control in the future.

BY LESLIE R. MARTIN and SHELLY S. MCCOY

The Nature of Food Addiction

What is food addiction? Do Devon and Kayla qualify as “addicted”? These questions are more complicated than they appear. Data suggest that much of what we casually refer to as “food addiction” may not actually qualify as addictive behavior. Instead, these cravings may be better explained in terms of a complex set of psychological processes that combine with pleasurable characteristics of certain foods themselves and socially defined perceptions about appropriate levels and ways of consuming those foods.² However, those who identify themselves as “food addicted” do report many of the same behaviors used to diagnose sub-

stance-abuse disorders. Because similar neural-activation patterns appear in substance abuse and addictive-like eating, some researchers have argued that certain over-consumptive eating behaviors should indeed be characterized as addictions.³

The best data regarding food addiction exist for foods high in sugar and fat. Although these foods are not addictive per se, their pleasurable qualities coupled with socially defined restrictions that encourage a restraint-binge pattern of consumption foster the behavioral and neural qualities that may be defined as addiction.⁴ Inconsistencies in the empirical data indicate that it is premature to apply classical addiction mod-



els to food consumption,⁵ but the addiction-like consumptive patterns are nonetheless meaningful. Not only are these patterns linked to obesity and other physical health problems, but they also simultaneously correlate to mental-health disorders such as depression.⁶ This makes them key foci for health-improvement efforts,⁷ particularly during adolescence.

The terms “food addiction” and “obesity” are often linked in popular literature and media reports, which has led to the view that all obese people struggle with food addictions. This is not the case. Individuals with food addiction may be of normal weight or even underweight.⁸ Although obese individuals struggle with balancing calorie intake and output, it is estimated that only about one-quarter of obese people in clinical samples meet the criteria of the Yale Food Addiction Scale (YFAS) for food addiction.⁹ These individuals, because of their addiction-like cravings for some foods, may be at particular risk for chronic obesity and thus be especially difficult to treat. Children who engage in addiction-like consumption may be at particularly high risk, as their eating patterns are being established early in life, and the cumulative negative effects of poor diet will accrue throughout their lifetimes. Indeed, research on the development of obesity over the course of a lifetime indicates that its cause begins very early in development, with some research even supporting prenatal influences on obesity.¹⁰

In an effort to identify children at high risk of food addiction, researchers developed a children’s version of the YFAS.¹¹ It includes questions such as the following:

1. “If I cannot find a food I want, I will try hard to get it (e.g., ask a friend to get it for me, find a vending machine, sneak food when people aren’t looking).”
2. “I eat so much that I feel bad afterwards. I feel so bad that I do not do things I like (e.g., play, hang out with friends).”
3. “When I do not eat certain foods, I feel upset or sick.”
4. “The way I eat causes me problems (e.g., problems at school, with my parents, with my friends).”

Based on these and other indicators in the YFAS-C, Devon does not appear to be food-addicted, although some of his habits could certainly use adjustment to prevent future problems. Kayla, however, is at higher risk—she is experiencing health problems related to her eating and her emotional states are tightly linked to food, so she fears losing control of her food consumption. Markers such as these should signal to parents,

Despite the subtleties and complexities of identifying the differences among food addiction, BED, and unhealthy but non-disordered eating patterns, school administrators can nonetheless play an important role in shaping young people’s food choices and decisions. Most directly, schools can initiate more healthful school cafeteria offerings and replace the unhealthy snacks often sold in on-campus vending machines with healthier alternatives that limit or avoid sugary, high-fat, and high-carbohydrate food choices.

teachers, and school administrators that the young person’s eating patterns reflect deeper-rooted psychological or emotional disturbances that need to be addressed, and mere lectures about altering his or her food intake will not resolve the problem.

Prevention and School-wide Action

Effective prevention and treatment strategies for eating pathologies depend on accurate definitions that are consistent with clinical criteria. “Food addiction” does not appear in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5),¹² though the concept has been used in clinical settings (e.g., the YFAS-C). However, in the most recent edition of the DSM-5, Binge Eating Disorder (BED) was added as a diagnostic category, defined as an eating pathology marked by ongoing episodes of overeating followed by a sense of lack of control.¹³ Based on this definition, Kayla may meet the criteria for BED, though it is less clear whether she is also food addicted.

Food-addiction research on animals and human adults has burgeoned in recent years, but less work has been conducted on food addiction per se (as opposed to BED) among children and adolescents.¹⁴ Whereas some individuals with BED may en-

gage in addictive-like behaviors (e.g., an inability to control oneself despite knowledge of deleterious effects of the behavior, withdrawal-like symptoms including moodiness and anxiety), other binge eaters do not meet criteria for addiction.¹⁵ Thus, although Kayla displays signs of BED, determining the frequency of her bingeing episodes is important to identifying whether she has the disorder. According to the DSM-5, a diagnosis of BED requires that bingeing occur, on average, once per week for more than three months. It is not identical to overeating, which is less severe, less frequent, and not linked with physical and psychological problems.¹⁶

Despite the subtleties and complexities of identifying the differences among food addiction, BED, and unhealthy but non-disordered eating patterns, school administrators can nonetheless play an important role in shaping young people’s food choices and decisions. Most directly, schools can initiate more healthful school cafeteria offerings and replace the unhealthy snacks often sold in on-campus vending machines with healthier alternatives that limit or avoid sugary, high-fat, and high-carbohydrate food choices. A recent review of the literature shows that implementing policies regarding selling healthier foods and beverages (outside of the school meal program) increases consumption of these items.¹⁷

Research also suggests that there is a considerable degree of continuity in obesity from childhood to adulthood; thus, school-based programs promoting healthy lifestyle choices should begin in elementary school and continue throughout high school and college. Excellent online resources are available to help school administrators implement healthful changes. Particularly good are the Cornell University Center for Behavioral Economics in Child Nutrition Program's Smarter Lunchrooms Movement (<http://smarterlunchrooms.org>); the Alliance for a Healthier Generation's Healthy Schools Program (<https://schools.healthiergeneration.org>), and the Yale Rudd Center for Food Policy and Obesity's Rudd 'Roots Parents (<http://ruddrootsparents.org/school-food>), which is targeted at parents, making it an especially useful tool for opening conversations with families.

Positive Relationships Help Sustain Healthy Eating Habits

Relationships at school can also be important facilitators of healthy eating. The teacher-student relationship, in particular, is a powerful vehicle for change and a unique source of support for young people. By providing a positive environment both inside and outside the classroom, teachers can help facilitate positive behavior by their students. Research shows that when students feel a sense of connectedness to their schools, they are less likely to participate in a range of unhealthy and risky behaviors,¹⁸ and school achievement has also been identified as a protective factor against disordered eating behaviors.¹⁹ Thus, the influence of a teacher may be twofold—fostering a sense of belonging/connection and encouraging positive scholastic outcomes, both of which have demonstrated links to healthier eating. An excellent document on increasing school connectedness is available from the Centers for Disease Control and Prevention (<http://cdc.gov/healthyyouth/protective/pdf/connectedness.pdf>).

Furthermore, a trusted teacher can serve as the liaison between school psychologists and school nurses, who play vital roles in identifying and treating eating disorders. As part of a regular health curriculum, teachers should include information on eating disorders (and perhaps even a brief screening such as the YFAS-C previously described that could then be shared with the nurse or psychologist). Administrators might also consider holding workshops that focus on developing life skills, including problem solving, communication, and stress management (or including these as part of the formal health curriculum). Although there are likely important individual differences among adolescents with food addiction (as with other addictive behaviors), recent research suggests that impulsivity helps explain the link between addictive behaviors and unhealthy outcomes such as unhealthy body mass index (BMI).²⁰ Although preliminary, this finding suggests that early identification of symptoms linked to food addiction, like impulsivity, can be helpful.

Finally, schools should consider providing families and students with a list of community professionals whose expertise includes helping young people battling any kind of eating pathology. A helpful place to start searching for information about eating pathologies is The National Eating Disorders Association's Website,²¹ which includes a toll-free, confidential information and referral helpline.

Strategies

Mental-health professionals, both inside and outside of the school system, can employ a number of strategies to address children's and

teens' eating pathologies. Childhood and adolescent obesity have been linked to parental obesity. As such, young people benefit most when weight-related programs are directed at the whole family. School psychologists and counselors should include families in interventions when possible, and teachers and other staff can include families in general health, nutrition, and wellness programs. Although the focus of this article is food addiction, the principles regarding healthy eating apply more generally, so involving the family can be an effective approach.²²

Another strategy for treating maladaptive eating behaviors addresses underlying psychological influences, such as stress, which affect the physiological processes that regulate food intake.²³ In addition to the biological changes of puberty, adolescents experience major environmental changes both within and outside the family context that are potentially stressful and can trigger maladaptive eating behaviors. For example, peer relations, identity development, and dating interests intensify during this period, making school an ideal place for teaching effective strategies for coping with stress. Adolescents may turn to sugary, high-fat foods to cope with feelings of peer rejection or insecurity. Because such foods activate reward circuits in the brain, powerful habits can form that require conscious effort to reverse.

It has been suggested that binge eating helps young people escape negative thoughts about themselves.²⁴ Therefore, addressing teens' daily stressors, with special attention to developmental transitions, can help to promote physical health and prevent the formation of poor eating habits. Many Web-based resources for teaching stress-reduction techniques are available; educators may find the San Francisco Unified School District's resources particularly useful, since they can be adapted for any K-12 group (see <http://healthiersf.org/resources/pubs/stressRed/StressReductionActivities.pdf>). For college-age students, the University of Michigan's Campus Mind Works offers a variety of tips and strategies for students, their parents, and faculty/staff (<http://www.campusmindworks.org>).

Research demonstrates that although cognitive-behavior therapy can counter negative thoughts about food and weight and treat Binge Eating Disorder successfully, group-based psychotherapy may be just as effective for treating overweight individuals who meet clinical diagnostic criteria for binge-eating disorder.²⁵ And, although BED and food addiction represent different conditions, the overlap is substantial enough²⁶ that we believe these strategies offer reasonable approaches for addressing food addiction as well. For some individuals, self-help options may be sufficient, but for others, therapy can help reveal and target psychological and emotional factors that influence the behavior. Weight-loss strategies alone are insufficient to treat BED, as people with this disorder may or may not be overweight, and the disorder involves psychological problems that may include depression, body-image distortions, and a sense of helplessness. For food addiction, too, interventions focused specifically on weight loss are likely to be less effective than multi-pronged approaches.

Conclusion

Although many scientific studies of treatments for eating-related pathologies have identified strategies that produce short-term improvements, less work has examined long-term recovery outcomes for individuals with a history of overeating. However, in one small-scale qualitative study of women who overcame their eating disorders, researchers

observed that both personal faith and connection to community were integral to these women's stories and reflections of recovery.²⁷ This suggests that, like overcoming any addiction, recovery from eating-related pathologies may be especially successful when treatment strategies integrate faith and spirituality within a supportive community context. And such a multifaceted approach to health promotion is useful as we point students to 1 Corinthians 10:31: "So whether you eat or drink or whatever you do, do it all for the glory of God."²⁸ ✍

This article has been peer reviewed.



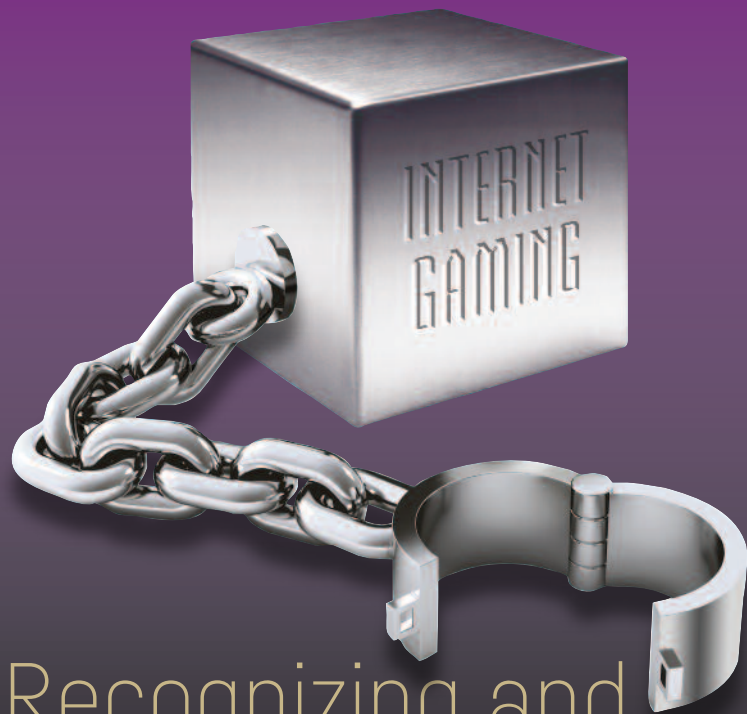
Leslie R. Martin, Ph.D., is a Professor of Psychology at La Sierra University in Riverside, California. She completed her doctorate at the University of California, Riverside, and is a Fellow of the Western Psychological Association. Dr. Martin has authored and co-authored several articles in the areas of health psychology, social psychology, and personality.



Shelly S. McCoy, Ph.D., is an Assistant Professor of Psychology at La Sierra University. She completed her doctorate at the University of California in Riverside, California. Her primary research interest is health and safety risk-taking behaviors among emerging adults (ages 18-25) enrolled at four-year colleges. Dr. McCoy's additional areas of research interest include bullying and peer relations.

NOTES AND REFERENCES

1. Names are pseudonyms.
2. Peter J. Rogers and Hendrik J. Smit, "Food Craving and Food 'Addiction': A Critical Review of the Evidence From a Biopsychosocial Perspective," *Pharmacology Biochemistry and Behavior* 66:1 (May 2000):3-14.
3. Ashley N. Gearhardt, Marney A. White, and Marc Potenza, "Binge Eating Disorder and Food Addiction," *Current Drug Abuse Reviews* 4:3 (September 2011):201-207.
4. Rebecca L. Corwin and Patricia S. Grigson, "Symposium Overview—Food Addiction: Fact or Fiction?" *Journal of Nutrition* 139:3 (March 2009):617-619; Michael Lutter and Eric J. Nestler, "Homeostatic and Hedonic Signals Interact in the Regulation of Food Intake," *Journal of Nutrition* 139:3 (March 2009):629-632.
5. Hisham Ziauddeen, I. Sadaf Farooqi, and Paul C. Fletcher, "Obesity and the Brain: How Convincing Is the Addiction Model?" *Nature Reviews Neuroscience* 13:4 (April 2012):279-286. doi:10.1038/nrn3212.
6. Nicole M. Avena, Pedro Rada, and Bartley G. Hoebel, "Sugar and Fat Bingeing Have Notable Differences in Addictive-like Behavior," *Journal of Nutrition* 139:3 (March 2009):623-628.
7. Caroline Davis et al., "Evidence That 'Food Addiction' is a Valid Phenotype of Obesity," *Appetite* 57:3 (December 2011):711-717.
8. Adrian Meule, "How Prevalent Is 'Food Addiction'?" *Frontiers in Psychiatry* 2:61 (November 2011):1-3.
9. Yale Food Addiction Scale (YFAS): <http://www.midss.org/content/yale-food-addiction-scale-yfas>; Ashley N. Gearhardt, William R. Corbin, and Kelly D. Brownell, "Preliminary Validation of the Yale Food Addiction Scale," *Appetite* 52:2 (April 2009):430-436; Davis et al., "Evidence That 'Food Addiction' is a Valid Phenotype of Obesity," op. cit.
10. Linda S. Adair, "Child and Adolescent Obesity: Epidemiology and Developmental Perspectives," *Physiology & Behavior* 94:1 (April 2008):8-17.
11. Yale Food Addiction Scale for Children (YFAS-C): <http://fastlab.psych.lsa.umich.edu/yale-food-addiction-scale/>; Ashley N. Gearhardt et al., "Preliminary Validation of the Yale Food Addiction Scale for Children," *Eating Behaviors* 14:4 (December 2013):508-512. doi: 10.1016/j.eatbeh.2013.07.002.
12. American Psychiatric Association, *The Diagnostic and Statistical Manual of Mental Disorders*, 5th ed. (Washington, D.C.: American Psychiatric Association, 2013).
13. Denise E. Wilfley et al., "A Randomized Comparison of Group Cognitive Behavioral Therapy and Group Interpersonal Psychotherapy for the Treatment of Overweight Individuals With Binge-Eating Disorder," *Archives of General Psychiatry* 59:8 (August 2002):713-721.
14. Meule, "How Prevalent Is 'Food Addiction'?" op. cit.
15. Stephanie E. Cassin and Kristin M. von Ranson, "Is Binge Eating Experienced as an Addiction?" *Appetite* 49:3 (November 2007):687-690.
16. American Psychiatric Association, *The Diagnostic and Statistical Manual of Mental Disorders*, op. cit.
17. The primarily cross-sectional results are less clear regarding the impact of these policies on weight; however, the data are promising. For more information, read Jamie F. Chriqui, M. Pickel, and Mary Story, "Influence of School Competitive Food and Beverage Policies on Obesity, Consumption, and Availability: A Systematic Review," *JAMA Pediatrics* 168:3 (March 2014):279-286.
18. Clea A. McNeely, James M. Nonnemaker, and Robert W. Blum, "Promoting School Connectedness: Evidence From the National Longitudinal Study of Adolescent Health," *Journal of School Health* 72:4 (April 2002):138-146; Michael D. Resnick et al., "Protecting Adolescents From Harm: Findings From the National Longitudinal Study on Adolescent Health," *JAMA* 278:10 (September 1997):823-832.
19. Jillian Croll et al., "Prevalence and Risk and Protective Factors Related to Disordered Eating Behaviors Among Adolescents: Relationship to Gender and Ethnicity," *Journal of Adolescent Health* 31:2 (August 2002):166-175.
20. Cara M. Murphy, Monika K. Stojek, and James MacKillop, "Interrelationships Among Impulsive Personality Traits, Food Addiction, and Body Mass Index," *Appetite* 73 (February 2014):45-50.
21. The National Eating Disorders Association: <http://www.nationaleatingdisorders.org/>.
22. Aleksandra Luszczynska and Roman Cieslak, "Mediated Effects of Social Support for Healthy Nutrition: Fruit and Vegetable Intake Across Eight Months After Myocardial Infarction," *Behavioral Medicine* 35:1 (February 2009):30-38; Abdul R. Shaikh et al., "Psychosocial Predictors of Fruit and Vegetable Consumption in Adults: A Review of the Literature," *American Journal of Preventive Medicine* 34:6 (June 2008):535-543.
23. Nora D. Volkow and Roy A. Wise, "How Can Drug Addiction Help Us Understand Obesity?" *Nature Neuroscience* 8:5 (May 2005):555-560.
24. Todd F. Heatherton and Roy F. Baumeister, "Binge Eating as Escape From Self-Awareness," *Psychological Bulletin* 110:1 (July 1991):86-108.
25. Wilfley et al., "A Randomized Comparison of Group Cognitive Behavioral Therapy and Group Interpersonal Psychotherapy," op. cit.
26. Gearhardt, White, and Potenza, "Binge Eating Disorder and Food Addiction," op. cit.
27. Jill Anne Matusek and Roger M. Knudson, "Rethinking Recovery From Eating Disorders: Spiritual and Political Dimensions," *Qualitative Health Research* 19:1 (May 2009):697-707.
28. 1 Corinthians 10:31, NIV. Holy Bible, New International Version®, NIV® Copyright © 1973, 1978, 1984, 2011 by Biblica, Inc.® Used by permission. All rights reserved worldwide.



Recognizing and Avoiding Potential Triggers for

INTERNET GAMING Addiction

Timothy¹ began college with high expectations for his academic performance. Earning good grades in elementary through secondary school came easy to him, while he was living with his parents and had a structured schedule. During the summers, Timothy spent a great deal of time playing online role-playing games. Although his parents worried that he spent too much time indoors, they felt reassured when school resumed after summer vacation, and he continued to get good grades.

After graduation, Timothy looked forward to attending college in a different state

where he could live in a dormitory and not have his life managed by his parents. He began spending more time playing online games, often staying up until 2:00 or 3:00 in the morning. On the rare occasions when he attended morning classes, he usually slept through them. Several times, he claimed to be ill in order to get his absences excused.

With nobody to “nag” him about his work, Timothy failed to complete his assignments or schedule time to study for exams. If he stopped playing games to study, he found he could not concentrate on his textbooks because he kept thinking about what he might be missing in the games. When his midterm progress reports indicated failing marks, Timo-

thy claimed that the classes were “boring” and accused the teachers of having unrealistic expectations. When his parents called, Timothy would tell them that everything was fine. After failing most of his classes during his first two terms, Timothy was dismissed from school.

Although excessive game playing can be a problem at any age, the negative consequences for education can often be avoided when a child lives at home where parents can provide structure and rules that keep him or her engaged in school and other activities. The dire effects may not become evident until the student transfers to an environment

BY LINDA L. IVY

where his or her daily activities are not monitored. Parents and educators should be alert for warning signs throughout the elementary and secondary years, and help young people learn to manage their game-playing behavior before they are on their own.

The Nature of Internet Gaming

Although educators have long had to face a variety of addiction problems in students, Internet Gaming Disorder (IGD) is a relatively new concern for them. Over the past several years, students have gained easy access to thousands of games they can play on computers, game consoles, handheld devices, and cell phones. Children begin playing games as toddlers, and most continue playing games into adulthood. By one estimate, the typical “gamer” in the United States is a 34-year-old male who has been playing games for at least 12 years.² Electronic games are typically played for fun, and the vast majority of players do not have serious problems with playing, other than perhaps feeling as though they have wasted time they could have used doing something more productive.

Prevalence and Risk Factors

Research on the prevalence of “addiction” to games is complicated by a variety of definitions and measurements. The diagnostic handbook used by mental-health professionals, the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5),³ indicates that studies in Europe and North America vary too much to adequately estimate prevalence. However, more studies have been conducted in Asian countries, where estimates indicate that among adolescents, approximately 8.4 percent of males and 4.5 percent of females would meet the criteria for a proposed diagnosis of Internet Gaming Disorder.⁴ Other sources provide estimates that vary by country from less than 1 percent in Germany to approximately 50 percent in Korea.⁵ According to Kuss, Internet Gaming Disorder rates are especially high in Southeast Asian countries due to several factors, including the prevalence and social acceptance of playing online games.⁶ In the United States, although non-white players are less common than white players, they are more likely to report problems with video game playing.⁷ Those most at risk for IGD are males,

people who begin playing at a younger age, and those who play more often and for longer periods of time.⁸

Development and Etiology

Problems with video game playing may be a reflection of many factors, including a lack of time-management skills, poor coping mechanisms, or attempts to avoid family conflict or concerns.⁹ Research on brain mechanisms indicate that neurological activity in IGD is similar to that found in other types of addictions: For example, the process of dopamine release in the brain is similar to the activity of stimulants such as amphetamines.¹⁰

Game developers have designed reward structures that ensure maximum engagement, and users who begin playing for fun often find themselves developing many of the characteristics of addiction. Most games have prizes (such as stars, points, or “money”) or promotions (such as levels or ranks) that a player can earn by playing more often and for winning. A particular game genre that lends itself especially well to “addiction” is Massive Multiplayer Online Role Playing Games, or MMORPGs. This category includes games such as *World of Warcraft*, *Borderlands*, *Guild Wars*, and *Final Fantasy*. Hagedorn and Young¹¹ offer an overview of this type of game. Users create an avatar, or game character, and engage in a wide variety of tasks such as solving puzzles, fighting battles, collecting valuable gems or coins, and exploring different maps or worlds. Players can join others online and work together in these activities. In many cases, players can gain rewards or “level up” in some abilities easily at first, but as they continue to play, greater skill and time are required to advance. Players can become quite invested in the accomplishments of their avatars and often take great pride in reaching new levels or achieving higher status.¹² Even players who do not show other signs of IGD may spend many hours a day playing these games.

A similar pathway exists for IGD as with other types of addictive behaviors. Most gamers begin playing casually or “just for fun,” and do not develop symptoms of IGD. A small group, however, begins to demonstrate behaviors that qualify as IGD, including the following:

- preoccupation with gaming,
- irritability or anxiety when not playing,
- the need to play longer and more often,

- unsuccessful attempts to control playing behavior, and
- loss of interest in other activities.

These gamers continue to play despite negative consequences, and they may lie about their gaming to other people, such as parents or teachers who express concern about their behavior.¹³

Some researchers have suggested that continued play can lead to changes in beliefs and attitudes related to game playing. For example, when a player spends more hours online, he or she may identify with others who spend a similar amount of time, so the increased time devoted to gaming becomes the new “normal” and may not appear to the player to be problematic.¹⁴

Consequences of IGD

Consequences of IGD usually relate to the amount of time spent playing, and can include problems with work, school, and relationships. Players can also experience a feeling of being out of control, and some face health issues due to sleep loss, poor nutrition, and a lack of exercise. In rare cases, players have died while “binge-playing” games non-stop for several days. Cases of players engaging in criminal activity to obtain money to purchase games or other related products have been reported.¹⁵

Another common concern with video games is the influence of violent content on the attitudes and behavior of those who play. Although that is not the focus of this article, a brief overview of concerns is listed in Box 1, along with some resources for further reading.

Prevention

Griffiths has suggested several ideas for parents and educators to reduce the chances of a child developing IGD. Many are “common sense” recommendations, such as limiting game time for children and encouraging more social and outdoor activities.¹⁶ [See Box 2.] Because addictive behaviors often co-occur with depression, anxiety disorders, or Attention Deficit/Hyperactivity Disorder (ADHD), mental-health concerns also need to be considered and addressed.¹⁷ Van Rooij and colleagues¹⁸ have suggested that the gaming industry needs to take some responsibility in reducing IGD. They encourage “warning labels” on games that explain IGD, time-out

Box 1. Concerns Related to Violent Game Content

Some video games promote violent and other negative behaviors (such as killing people or animals, drug or alcohol abuse, disrespect for authority, criminal activities, and gender or racial stereotypes) that can have additional harmful effects on children beyond those mentioned in this article. Children who play violent video games have been shown to demonstrate higher levels of aggressive behavior and may become desensitized to violence. Younger children are especially vulnerable to these effects, as are children with learning disabilities or other types of emotional or behavioral concerns.* Many organizations that are concerned with the well-being of children and adolescents have information and recommendations about these types of games on their Websites.

- The American Academy of Pediatrics: <http://pediatrics.aappublications.org/content/124/5/1495>
- The American Academy of Child & Adolescent Psychiatry: https://www.aacap.org/AACAP/Families_and_Youth/Facts_for_Families/FFF-Guide/Children-and-Video-Games-Playing-with-Violence-091.aspx
- The American Academy of Family Physicians: <http://www.aafp.org/about/policies/all/violence-media.html>

* The American Academy of Child & Adolescent Psychiatry, "Video Games and Children: Playing With Violence" (June 2015): https://www.aacap.org/AACAP/Families_and_Youth/Facts_for_Families/FFF-Guide/Children-and-Video-Games-Playing-with-Violence-091.aspx. Accessed March 3, 2016.

Box 2. Advice Teachers Can Share With Parents

- Monitor game playing and check the content of the games your child plays. Encourage educational rather than violent games.
- Encourage your child to play video games with friends or in other small groups rather than alone.
- While not completely prohibiting video games, set time limits on game playing, just as you would with viewing television or videos.
- Follow game manufacturers' recommendations regarding the physical configuration of the room, such as seating distance from the screen, lighting, etc.
- You may need to temporarily prohibit gaming for some period of time when appropriate, such as when the child neglects chores or homework.

Adapted from Mark Griffiths, "Online Video Gaming: What Should Educational Psychologists Know?" *Educational Psychology in Practice* 26:1 (March 2010):35-40. doi: 10.1080/02667360903522769.

limits on Internet games, in-game referrals to professionals, and/or self-help materials.

Suggestions for School Personnel

Awareness is always the first step in addressing any type of problem or concern. School personnel should be informed about the "red flags" for IGD.¹⁹ (See Box 3 on next page.) Schools can also offer information to parents and ask them to monitor their children at home for warning signs of problematic game playing. Finally, the students should learn

about IGD so they can recognize symptoms in themselves and/or their friends. Students are often more impressed by hearing stories from other students than lectures from adults, so a good strategy would include having students talk to other students about their own experiences. For example, students who have struggled with gaming problems could be chosen as guest speakers in classes or for school assemblies. If multiple students have gaming problems, a support group could be formed with

backing from the school's counseling center, where students could discuss their struggles with others who have similar concerns.

Educators should routinely inquire about electronic game use when they encounter students experiencing academic failure. In elementary and secondary schools, the teachers typically have the most interaction with students, so they are the logical ones to bring up the topic. In college, those duties are more likely to be assigned to advisers, dormitory deans, and/or mentors. For example, when a college student receives a negative progress report from an instructor, his or her adviser(s) and/or freshman mentor also receive a copy of the report. The adviser or mentor should ask about game-playing habits as part of exploring paths to success.

Teachers in all grades can watch for signs of any addiction problems in their students. Students who show signs of other addictive disorders, such as substance abuse, should also be screened for IGD, as some studies have identified a relationship between IGD and other types of addictions.²⁰ Students who suffer from depression, anxiety, or ADHD as well as those with poor social skills may be vulnerable to IGD.²¹

As with other behavior concerns, appropriate response by school personnel depends on the age of the student. At the elementary and secondary level, teachers can discuss their concerns with the student and parents, and/or refer the child to a school counselor. At the college level, advisers or mentors can discuss these issues with the student or refer to the school counseling office. It is not uncommon for course instructors to have conversations with students about reasons for their poor performance. A survey or checklist of addictive behaviors and substances could be part of the interview with students who are identified as having academic or mental-health issues, whether that interview is with a teacher, advisor, or school counselor. School administration, counseling, or advising offices should keep a list of community resources for mental-health and addiction issues, in order to refer students as needed.

Another relevant issue for educators is the use of technology in the classrooms. Schools may need to limit computer access to programs used for education. Every school computer or device used to access the Internet should have filtering software installed

Box 3. Warning Signs or “Red Flags” for Teachers or Parents

that blocks access to gaming sites.²² When Internet access is needed for some courses, usage should be monitored to ensure that students are using it for appropriate tasks. Teachers can have “no technology” policies in classrooms, forbidding students to use computers, cell phones, tablets, or other devices on which games can be played.²³

A note of caution is in order, however; it is important not to over-pathologize game playing. Even if a student spends more time playing games than his or her parents or teachers believe is appropriate, that does not necessarily prove he or she has IGD. It may simply indicate poor time-management skills or a lack of motivation. Research has indicated that *addictive tendencies* are more likely to be related to poor academic performance than the amount of time spent playing games.²⁴ In the case of a student who simply spends excessive time on games, educators can provide guidance on time management and help the student prioritize his or her schedule in order to get schoolwork done. Students can be encouraged to consider time as a limited resource, similar to money, that they are responsible to spend in the most effective way.²⁵

Strategies Used by Mental-health Professionals

Although school personnel can identify risks and take a variety of actions to prevent IGD, some students will need to seek professional counseling for this problem. Cognitive Behavioral Therapy (CBT) is one of the most common treatments for many types of addictions, including IGD.²⁶ CBT seeks to train the counselee to identify and restructure “automatic” thoughts and underlying beliefs that interfere with optimal functioning and lead to negative behaviors such as addictions. Family therapy may also be recommended for youth when it appears that family issues have contributed to the problem.²⁷ The family therapist attempts to identify patterns of family interaction that lead to and maintain negative behaviors in its members, and to help them develop healthier alternatives.

In some cases, young people (typically boys) have been sent to video game “boot camps” where they are forbidden to use any type of media and must live in the wilderness for several days.²⁸ Drugs such as Wellbutrin

- Video games appear to be the most important thing in the child’s life. Even when not playing, he or she is thinking or talking about playing.
- The child plays games in order to change his or her mood—to get a feeling of excitement, to ease boredom, or to calm down when feeling stressed.
- He or she plays for long periods of time (more than three to four hours per day) and seems to need more hours to get the same effect over time.
- When unable to play games, the child appears grumpy, anxious, sad, or pre-occupied with thinking about the games.
- The child gets into arguments with others about how much time he or she spends playing games, or does not accomplish activities necessary for success in school, work, or social relationships.
- The child expresses a belief that he or she plays too much, or indicates a desire to quit or cut back on playing but is unable to do so.

Adapted from Mark Griffiths, “Online Video Gaming: What Should Educational Psychologists Know?” *Educational Psychology in Practice* 26:1 (March 2010):35-40. doi: 10.1080/02667360903522769.

[an antidepressant] and some types of ADHD medications have been tried in a few studies, with positive effects,²⁹ likely because they address the underlying mental-health issues that co-occur with addictive behaviors.

The role of educators in these cases depends on the age of the student. In some cases, educators may be consulted or even included in the treatment protocols; for example, monitoring the student’s computer use during school hours.

Relevance for Christian Educators

Teachers at religious institutions such as churches and schools should not expect any fewer problems with this issue than teachers at public institutions. Video games are an “acceptable” vice for many Christian students. Compared with alcohol, for example, for which students can be reprimanded or punished for simply having the item in their possession, video games are identified as problematic only when they interfere with other activities [as with the case of Timothy]. Even when schools have installed filters in place to prevent students from accessing certain Websites, it can be difficult to limit access because games can be played on phones or other devices that do not rely on school networks. For this reason, schools may require students and teachers to sign computer-use contracts, agreeing to avoid certain activities and sites during school hours and while using school equipment.

Educators must find ways to meet the so-

cial and spiritual needs of students so that they do not seek fulfillment in undesirable activities. Gamers often believe they can find acceptance only within their gaming community, so educators should make sure they demonstrate acceptance and positive regard for these at-risk students. Religion may seem irrelevant to gamers who spend all of their time interacting in a fantasy world, so Christian values and beliefs need to be presented in a practical and attractive way to gain their attention and respect. As always, educators should endeavor to demonstrate the love of God through their interactions with all students, including those with addiction problems.

Conclusion

Electronic games by all indications will continue to concern educators and others working with young people. Students have easy access to all types of games that may interfere with success in school. The biggest concern is the time dedicated to games, which detracts from other activities such as studying, homework, devotional activities, exercise, and socializing. Students who play for fun may end up developing more serious symptoms of IGD and may require intervention.

School administrators and educators have a difficult challenge in identifying and addressing concerns with excessive video-game playing. Even when a student does not meet the criteria for a “disorder,” he or she

may still struggle with setting priorities and accomplishing other important tasks. With careful observation and questioning, school personnel may be able to recognize potential problems and intervene appropriately. By considering the students' mental, physical, emotional, and spiritual well-being, they can intervene at a variety of levels to help these young people gain an appropriate perspective of time, education, and relationships.

Although caring teachers may not achieve immediate "success" in dealing with these challenging problems, students will remember the care they experience as they struggle with personal issues. When we create supportive learning environments, equip students with skills to manage their own behavior, and keep them in our prayers, we can trust that God will intervene to free them from anything that interferes with their well-being and to help them develop a relationship with Him. We can believe that, like the Psalmist, they will one day be able to say "We escaped like a bird from the hunter's trap. The trap broke, and we escaped. Our help comes from the Lord, who made heaven and earth" [Psalm 124:7, 8, NCV].³⁰ ✍️

This article has been peer reviewed.



Linda L. Ivy, Ph.D., is Professor of Psychology at Walla Walla University in College Place, Washington. She completed her doctorate in clinical psychology at the

University of Oregon, and her clinical internship at Oregon Health and Sciences University. Dr. Ivy's areas of specialization and interest encompass parenting interventions and child assessment. She teaches introductory psychology and social psychology to undergraduate students, and courses on counseling theories, psychological assessment, and addictions counseling to graduate students.

NOTES AND REFERENCES

1. A pseudonym.
2. Jean Oggins and Jeffery Sammis, "Notions of Video Game Addiction and Their Relation to Self-reported Addiction Among Players of World of War-

craft," *International Journal of Mental Health and Addiction* 10:2 (April 2012):210-230. doi: 10.1007/s11469-010-9309-y.

3. American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders*, 5th ed. (Washington, D.C.: American Psychiatric Association, 2013).

4. Ibid.

5. Daria J. Kuss, "Internet Gaming Addiction: Current Perspectives," *Psychology Research and Behavior Management* 6 (November 2013):125-137. doi: 10.2147/PRBM.S39476.

6. Ibid.

7. Luther Elliott et al., "The Contribution of Game Genre and Other Use Patterns to Problem Video Game Play Among Adult Video Gamers," *International Journal of Mental Health and Addiction* 10:6 (August 2012):948-969. doi: 10.1007/s11469-012-9391-4.

8. Ibid.; Rune Aune Mentzoni et al., "Problematic Video Game Use: Estimated Prevalence and Associations With Mental and Physical Health," *Cyberpsychology, Behavior, and Social Networking* 14:10 (February 2011):592-596. doi: 10.1089/cyber.2010.0260; Oggins and Sammis, "Notions of Video Game Addiction and Their Relation to Self-reported Addiction Among Players of World of Warcraft," op. cit.

9. Oggins and Sammis, ibid.

10. Elliott et al., "The Contribution of Game Genre and Other Use Patterns to Problem Video Game Play Among Adult Video Gamers," op. cit.; Doug Hyun Han, Jun Won Hwang, and Perry Renshaw, "Bupropion Sustained Release Treatment Decreases Craving for Video Games and Cue-induced Brain Activity in Patients With Internet Video Game Addiction," *Psychology of Popular Media Culture* 1:S (August 2011):108-117. doi: 10.1037/21604134.1.S.108.

11. Bryce Hagedorn and Tabitha Young, "Identifying and Intervening With Students Exhibiting Signs of Gaming Addiction and Other Addictive Behaviors: Implications for Professional School Counselors," *Professional School Counseling* 14:4 (April 2011):250-260. doi: 10.5330/PSC.n.2011-14.250.

12. Ibid.

13. American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders*, op. cit.

14. Oggins and Sammis, "Notions of Video Game Addiction and Their Relation to Self-reported Addiction Among Players of World of Warcraft," op. cit.

15. Mark Griffiths, "Online Video Gaming: What Should Educational Psychologists Know?" *Educational Psychology in Practice* 26:1 (March 2010):35-40. doi: 10.1080/02667360903522769; Mentzoni et al., "Problematic Video Game Use: Estimated Prevalence and Associations With Mental and Physical Health," op. cit.; Oggins and Sammis, "Notions of Video Game Addiction and Their Relation to Self-reported Addiction Among Players of World of Warcraft," op. cit.; Elliott et al., "The Contribution of Game Genre and Other Use Patterns to Problem Video

Game Play Among Adult Video Gamers," op. cit.

16. Griffiths, ibid.

17. Michael Kaess et al., "Pathological Internet Use Among European Adolescents: Psychopathology and Self-destructive Behaviours," *European Child & Adolescent Psychiatry* 23:11 (November 2014):1093-1102. doi: 10.1007/s00787-014-0562-7; Antonious Van Rooij et al., "The [Co-]Occurrence of Problematic Video Gaming, Substance Use, and Psychosocial Problems in Adolescents," *Journal of Behavioral Addictions* 3:3 (September 2014):157-165. doi: 10.1556/JBA.3.2014.013.

18. Antonious Van Rooij et al., "Video Game Addiction and Social Responsibility," *Addiction Research and Theory* 18:5 (August 2010):489-493. doi: 10.3109/16066350903168579.

19. Griffiths, "Online Video Gaming: What Should Educational Psychologists Know?" op. cit.

20. Van Rooij et al., "The [Co-]Occurrence of Problematic Video Gaming, Substance Use, and Psychosocial Problems in Adolescents," op. cit.

21. Kaess et al., "Pathological Internet Use Among European Adolescents: Psychopathology and Self-destructive Behaviours," op. cit.; Annette Melgosa and Rudy Scott, "Internet School Safety: More Than 'Block It to Stop It,'" *The Journal of Adventist Education* 75:3 (February/March 2013):26-31. <http://circle.adventist.org/files/jae/en/jae201375032606.pdf>.

22. Rudy Scott and Annette Melgosa, "Using Blocking/Filtering Technologies," *The Journal of Adventist Education* 75:3 (February/March 2013):55-67. <http://circle.adventist.org/files/jae/en/jae201375035513.pdf>.

23. Ibid.

24. Marko Skoric, Linda Lay Ching Teo, and Rachel Lijie Neo, "Children and Video Games: Addiction, Engagement, and Scholastic Achievement," *Cyberpsychology & Behavior* 12:5 (October 2009):567-572. doi: 10.1089/cpb.2009.0079.

25. Ecclesiastes 3:1, 2 (NCV). Scriptures credited to NCV are quoted from *The Holy Bible, New Century Version*, copyright © 1987, 1988, 1991 by Word Publishing, Dallas, Texas 75039. Used by permission.

26. Guangheng Dong and Marc N. Potenza, "A Cognitive-behavioral Model of Internet Gaming Disorder: Theoretical Underpinnings and Clinical Implications," *Journal of Psychiatric Research* 58 (November 2014):7-11. doi: 10.1016/j.jpsychires.2014.07.005.

27. Kimberly Young, "Understanding Online Gaming Addiction and Treatment Issues for Adolescents," *The American Journal of Family Therapy* 37:5 (September 2009):355-372. doi: 10.1080/01926180902942191.

28. Chulmo Koo et al., "Internet-addicted Kids and South Korean Government Efforts: Boot-camp Case," *Cyberpsychology, Behavior, and Social Networking* 14:6 (June 2014):391-394. doi: 10.1089/cyber.2009.0331.

29. Doug Hyun Han et al., "The Effect of Methylphenidate on Internet Video Game Play in Children With Attention-Deficit/Hyperactivity Disorder," *Comprehensive Psychiatry* 50:3 (May 2009):251-256. doi: 10.1016/j.comppsy.2008.08.011.

30. Psalm 124:7, 8 (NCV).



CAUGHT IN THE "NET"

Recognizing Internet Addiction in Youth

Thirteen-year-old Ryan¹ is excited to receive his first computer and begins spending much of his time learning to use it. His parents dismiss his interest as a phase, but his computer time steadily increases until he is regularly using it more than 10 hours a day. He consumes caffeine drinks in order to stay up late to visit chat rooms and play games. He has difficulty waking up for school and regularly forgets to shower. His teachers notice increasing problems with his hygiene and attention in class, and his grades significantly decline. He skips family gatherings to spend more time on the computer and loses touch with his friends. He is eventually dropped from his baseball team for skipping practices. However, he is not bothered, as his problems and stress seem to disappear the moment he gets online. He has formed several online friendships and spends his time in school ruminating on what he will do the next time he is online. When his parents try to reduce his computer time, he becomes uncharacteristically aggressive, making threats and throwing tantrums. They finally get him to agree to give up his computer for two weeks, but after that time, he immediately reverts to his old ways.²

The Nature of Internet Addiction

The use of technology has exploded over the past few decades as access to high-speed Internet has become more widely available. The educational and social benefits are many: wider access to educational knowledge, increased work efficiency, and ability to stay connected to social networks. However, a growing number of experts, including Kimberley Young, founder of the Center for Internet Addiction; and David Greenfield, founder of The Center for Technology and Internet Addiction, have voiced concern that some computer users are becoming dependent on the Internet to the point that their behaviors resemble that of full-blown addiction.³ Internet addiction refers to a pathological use of computers or technology that is characterized by intrusive urges to engage in online behaviors to an extent that contributes to significant impairments in daily life (e.g., relationships, school, physical health). Internet addiction can take many forms, such as excessive gaming, problematic online gambling, preoccupation with online sexual content, compulsive use of social media or chat rooms, and excessive and compulsive e-mailing or texting. Emerging research shows that brain activation patterns

BY MARY E. VARGHESE and CARLOS FAYARD

found in individuals who are addicted to the Internet are similar to those found in individuals with chemical addictions.⁴ Griffiths⁵ observed the following elements, based on the six core factors seen in addiction disorders, to be present in Internet addiction:

1. *Salience.* The Internet takes priority over other domains [e.g., family, work] in an individual's life. [As indicated in the above example, the desire to use the Internet dominates Ryan's thinking [e.g., constantly thinking about being online when offline], feelings [e.g., experiencing cravings], and behavior [e.g., reduced social activity].]

2. *Mood modification.* Internet use becomes a coping strategy for relieving negative moods or stress. Users may experience a "high" or a sense of euphoric numbing. [Ryan uses the Internet to cope with the problems caused by his excessive computer use.]

3. *Tolerance.* Users increase their time online in order to extend or intensify mood-altering effects. [Ryan increasingly wants to spend more time online.]

4. *Withdrawal.* Users experience negative symptoms [e.g., moodiness, irritability] when their Internet use is eliminated or suddenly reduced. [Ryan shows uncharacteristic aggressiveness when his parents try to set boundaries on his computer use.]

5. *Conflict.* Excessive Internet use begins to impair users' physical, social, educational, and occupational functioning; causing them to experience a loss of control. [Ryan's grades fall, he is dropped from his team, and becomes estranged from family and friends.]

6. *Relapse.* Problematic behavioral patterns return after a period of abstinence or control. [Ryan immediately relapses when reunited with his computer.]

Prevalence of Internet Addiction

Students are a group who are particularly at risk for developing Internet addiction. Researchers have found evidence of Internet addiction among adolescents and young adult students all over the world, with prevalence rates differing by country. For instance, estimates range from 4 percent for U.S. high school students⁶ to 10.7 percent of adolescents in South Korea⁷ and 13 percent among UK university students.⁸

Adolescents and young adults are thought to be especially vulnerable to this form of addiction, as Internet use

may become a strategy for coping with developmental stressors common to their age group, such as identity formation and the establishment of intimate relationships. Students may turn to the online world to escape from difficult developmental tasks because online relationships are anonymous and allow the individual to take on any persona desired.⁹ However, reliance on such behaviors can result in a preference for online versus face-to-face interactions, leading to excessive Internet use and problematic psychological and social outcomes.¹⁰

Risk Factors for Developing Internet Addiction

Emerging research points to genetic risk factors for Internet addiction. One study found that individuals exhibiting problematic Internet usage were also more likely to be carriers of a particular gene mutation that



plays a predictive role in nicotine addiction.¹¹ In terms of personality factors, shyness, social anxiety, low self-esteem, lack of a strong sense of self, loneliness, and introversion have been seen as significant predictors of problematic Internet use.¹² Additionally, individuals with deficits in social skills are more likely to prefer online social interactions to face-to-face interactions.¹³ Such individuals may become attached to the Internet because online relationships produce less anxiety than face-to-face relationships; however, as use becomes excessive, individuals may not develop the social skills necessary to form satisfying offline relationships.

Having other psychological problems also appears to be a risk factor for problematic Internet use. Research indicates that nearly 80 percent of individuals who have Internet addiction also suffer from other psychological disorders,¹⁴ such as depression and anxiety,¹⁵ social phobia,¹⁶ ADHD,¹⁷ and other addiction or impulse-control disorders.¹⁸ Thus, Internet use can become a form of self-medication; distressing experiences in offline life are soothed or numbed by Internet use that provides a “high” or sense of escape. Problems in the environment, such as poor parent-child relationships, also render individuals more susceptible to problematic and excessive Internet use.¹⁹

Research indicates that problematic Internet use contributes to negative consequences in virtually all domains of functioning. Excessive Internet use appears to change the structure of the developing adolescent brain, particularly in areas associated with cognitive and behavioral control.²⁰ Excessive time spent using the Internet also has physical repercussions such as insomnia,²¹ back pain, sight problems,²² and poor hygiene.²³ Pathological Internet users also experience negative psychological effects, such as losing interest in activities that they used to enjoy and developing distorted thoughts about themselves and the world [e.g., that they are effective only on the Internet and that the online world is the only place where they are respected and safe].²⁴ These factors contribute to poor functioning across academic and interpersonal domains. One study indicated that problematic Internet use is negatively correlated with high grades,²⁵ likely because the inordinate amount of time spent online interferes with study habits, sleep, and concentration. The Internet begins to take precedence over other life roles, causing the user to neglect other relationships,²⁶ resulting in detrimental effects on families and friendships. [See Box 1.]

Evidenced-based Prevention and Intervention Programs

Efforts to prevent addiction can be enacted in family, church, and educational spheres. Children and adolescents who lack rewarding or nurturing relationships and who have poor social skills and difficulty making friends are more susceptible to turning to virtual interactions to meet their need for attention and friendship. Those at a higher risk may remain invis-

The Internet provides opportunities for children and young adults to browse, search, and research topics of interest, share images with friends, post and watch videos, network socially, play games, or chat on message boards and forums through online games, game consoles, webcams, or apps. These activities, while entertaining and enjoyable, can also expose children and young adults to a variety of dangers online, many of which result from online behaviors such as friending individuals they don't know or sharing personal information online. Internet users are easily exposed to inappropriate, explicit content, sexual predators seeking to groom them, identity theft, cyberbullying, cyberstalking, and more. In addition to being detrimental to families and friendships, Internet use can result in damaged reputations, victimization, and even violent acts committed against users. The Websites below provide helpful tips schools can share with parents through e-newsletters, letters sent home, and parent-teacher association meetings.

What Risks Do Children Face Online? The NetSmartz411 Website clearly outlines the dangers children face online and what can be done to protect them: <http://www.netsmartz411.org/NetSmartz411/KnowledgeDetail.aspx?id=400232>. All Websites in Box 1 were accessed February 1, 2016.

National Society for the Prevention of Cruelty to Children gives several tips on how to talk to children and young adults about online safety as they use social media and devices such as mobiles, Smartphones, tablets, and more: <https://www.nspcc.org.uk/preventing-abuse/keeping-children-safe/online-safety/>.

Stay Safe Online Teen and Young Adult Resources provides links to resources designed to help older teens manage online reputation, privacy on mobile apps and in social networks, and avoid sexting, sextortion, and cyberbullying: <https://staysafeonline.org/data-privacy-day/teen-and-young-adult-resources>.

Microsoft YouthSpark Hub Resources and Research shares a variety of resources to help teachers and parents teach students how to be safe online, protect their identity, and text and share photos safely: <https://www.microsoft.com/about/philanthropies/youthspark/youthsparkhub/programs/online-safety/resources/>.

ible because they tend to be quiet, shy, socially awkward, depressed, and isolated. Finding these marginalized individuals, nurturing them, coaching them, and actively seeing that they are included can be saving. One of the most severely shy clients I [CF] ever worked with told me that his life was “saved” by an outgoing peer in graduate school who took him under his wing and would not take “no” for an answer whenever a social opportunity arose. This shows that building strong bonds with parents, youth ministers, and teachers can provide the most basic form of prevention for addiction.

The next step in prevention is increasing awareness of the problem. Administrators and school counselors can raise awareness during in-service staff programs and parent-teacher meetings by distributing information regarding the basics of Internet addiction, warning signs [see Figure 1], and local resources. Because inadequate social skills and lack of a strong sense of self appear to be risk factors for Internet addiction, Young²⁷ suggests that the adoption of a broad prevention approach such as Life Skills Training [which has been successful in prevention of tobacco

use among adolescents by enhancing social and personal competence) may also be effective for preventing Internet addiction.²⁸ On university campuses, residence-hall directors can offer educational programs, similar to drug and alcohol prevention programs, that educate students regarding the warning signs and risk factors of Internet addiction. Seminars can also be conducted to educate faculty, counseling staff, and administrators about Internet addiction and how to recognize it in their students. Schools can help educate parents about preventing Internet addiction by sharing tips on proper monitoring of Internet use, including setting boundaries for when and for how long the computer is used, and by frequently encouraging participation in activities that are incompatible with Internet use.²⁹ In church communities, ministers have a particularly important role to play in prevention and can use similar techniques to raise awareness among families and reach out to youth in whom they recognize warning signs.

In terms of intervention, support and faith are crucial in the recovery effort. In treating addiction as a spiritual disorder, the 12-step program for chemical addictions emphasizes accepting one's own powerlessness

Figure 1. Warning Signs of Internet Addiction in Adolescents*

1. Internet use interferes with normal everyday activities such as getting ready for school, family dinners, and sports practices.
2. Normal bedtimes are ignored, and the adolescent appears exhausted in the morning.
3. Users sneak online or lie about the extent of Internet use.
4. Users can't focus on homework long enough to finish an assignment without logging on to the computer or tablet for recreational use (e.g., social media, gaming).
5. If parents try to cut down their Internet time, adolescent users become belligerent and abnormally irritated or violent.
6. Users lose interest in things that used to excite them, such as hanging out with friends or playing sports.

*Kimberly S. Young, "Parenting in the Digital Age": <http://netaddiction.com/childrenonline>. Accessed February 20, 2015.

and the need for God's divine intervention to lead the individual struggling with addiction away from the path of abuse.³⁰ Step 2 states, "Came to believe that a Power greater than ourselves could restore us to sanity."³¹ This is not to say that one can "pray an addiction away," as wonderful and powerful prayer is. Rather, it speaks to the human need to quench the deepest thirsting that cannot be satisfied by whatever addictive behaviors compulsively and repetitively seek to fulfill. Jesus invited, "Let anyone who is thirsty come to me and drink" (John 7:37, NIV).³² Coming to Jesus means coming to be loved and accepted so that "rivers of living water will flow from within" (John 7:38, NIV). Teachers, clergy, family, and friends can play an important role in helping individuals recognize the extent of damage their excessive Internet use has been causing in their lives and guiding them to the appropriate help.

Once an individual is motivated for recovery, behavioral modification can be implemented with the support of loved ones or a professional therapist. This can include setting a timer for usage, matching time spent

online with in-person social interactions, and increasing scheduling of non-computer-related activities. If modification attempts are unsuccessful or if the person is suffering from an underlying psychological disorder such as depression, professional counseling may be warranted. Emerging research supports the use of cognitive-behavioral therapies (CBT) as an effective treatment for Internet addiction.³³ CBT highlights how underlying distorted thoughts about oneself and the world (e.g., I am weak when I am offline, but online I am somebody.) are linked to problematic and compulsive behavior and teaches skills for changing those thoughts and behaviors. For many, social skills training, building self-esteem, and treating co-morbid psychological disorders will also be a focus of treatment, as these factors likely are contributing to the addiction.

For adolescents, a combination of individual and family therapy is recommended³⁴ and can even be implemented in school settings. In family approaches, the psychotherapist meets with individual members of the family and then meets regularly with the entire family to support the target individual (the one presenting with Internet addiction); everyone is made partly responsible for the problem, rather than blaming one family member. In a recent study of Chinese adolescents with Internet addiction, a six-session family therapy that focused on building parent-adolescent communication skills and training parents to address their child's psychological needs (e.g., autonomy, interaction, achievement) was effective in significantly reducing Internet addiction behaviors.³⁵ Joining 12-step programs (such as Internet and Tech Addiction Anonymous, <http://www.netaddictionanon.org/>) or support groups can also be tools for recovery. Rather than abstinence, learning to manage and regain control over Internet use, as well as treating underlying problems leading to compulsive use, are principles in effective recovery.

Conclusion

While in the process of writing this article, I (CF) was visiting a beautiful valley deep in Argentina's countryside. Yet, something felt wrong—my cell phone had neither signal nor access to the Internet. Really?! For those in my generation, this experience may only be a minor inconvenience, as I was quickly able to return to the Andes and enjoy God's creation. However, for those in my generation (MV), this experience may be an inkling of something much more pervasive. Internet addiction is a phenomenon that is quickly but silently invading homes and afflicting youth. It is thus a growing concern for parents and educators.

Most people rely on the Internet for daily tasks and enjoy using it for personal benefits, and thus the Internet itself is not the enemy. However, for vulnerable individuals who are lonely, shy, have low self-esteem, inadequate relationships, and who may be struggling with depression or anxiety, the Internet can become a tool for escape and relief. Unknowingly, addiction can develop as the user's dependency on the Internet to meet social and emotional needs increases. For individuals with an addiction, the Internet becomes the organizing principle of their lives, thus pulling them farther away from the natural order and human experiences God intended.

Research³⁶ shows that problematic Internet use can have long-lasting negative consequences, including changes to the developing brain and severe impairment in academic and social functioning. Parents and educators are encouraged to be watchful for signs of addiction in their young people. Because Internet use becomes pathological when it takes the person away from real life, young people's faith and relationship with God can be pivotal in helping them recognize how their behaviors are di-

verting them from God's calling. With ongoing support from loved ones and professionals, Internet addicts can learn to accept the need for divine intervention in reorganizing their priorities so that the Internet becomes a tool that is used in a healthful manner. ✍

This article has been peer reviewed.



Mary E. Varghese, Ph.D., is a postdoctoral psychology fellow specializing in health psychology at the Northport Veterans Affairs Medical Center in Northport, New York. She completed her predoctoral internship at Loma Linda University School of Medicine in Loma Linda, California, and her doctorate in Counseling Psychology at Purdue University in West Lafayette, Indiana. Dr. Varghese's doctoral dissertation examined attachment in spiritual relationships, and she has previously published research on personality factors and problematic Internet use.



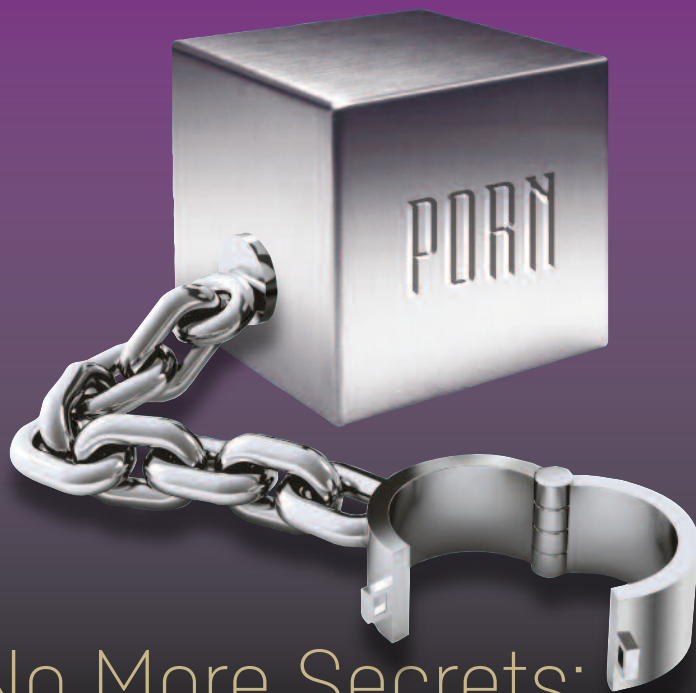
Carlos Fayard, Ph.D., is Associate Professor of Psychiatry at Loma Linda University School of Medicine. He is also Chair of the Psychiatry and Religion Program, Director of the World Health Organization Collaborating Center, and Director of the Clinical Psychology Internship Program. Dr. Fayard is an Associate Director of the Health Ministries Department, General Conference of Seventh-day Adventists, and the Co-editor of *A Christian Worldview and Mental Health: A Seventh-day Adventist Perspective*, and *Vida Abundante: La Psicología Positiva Desde una Cosmovisión Bíblica*. He serves as a consultant to the *Plan of Action for Mental Health 2014-2020* from the Pan American Health Organization and has been recognized with the "Guadalupe" and "Amar es Entregarse" awards by the San Bernardino Diocese of the Catholic Church for his contributions to the community.

NOTES AND REFERENCES

1. Name is a pseudonym.
2. Daniel L. King et al., "Cognitive-behavioral Approaches to Outpatient Treatment of Internet Addiction in Children and Adolescents," *Journal of Clinical Psychology* 68:11 (November 2012):1185-1195.
3. Kimberly Young, "Internet Addiction: Diagnosis and Treatment Considerations," *Journal of Contemporary Psychotherapy* 39:4 (December 2009):241-246.
4. Chih-Hung Ko et al., "Brain Correlates of Craving for Online Gaming Under Cue Exposure in Subjects With Internet Gaming Addiction and in Remitted Subjects," *Addiction Biology* 18:3 (May 2013):559-569.
5. Mark Griffiths, "Internet Addiction—Time to Be Taken Seriously?" *Addiction Research and Theory* 8:5 (2000):413-418.
6. Timothy C. Liu et al., "Problematic Internet Use and Health in Adolescents: Data From a High School Survey in Connecticut," *The Journal of Clinical Psychiatry* 72:6 (June 2011):836.
7. Soo Kyung Park, Jae Yop Kim, and Choon Bum Cho, "Prevalence of Internet Addiction and Correlations With Family Factors Among South Korean Adolescents," *Adolescence* 43:172 (2007):895-909.
8. Katie Niemz, Mark Griffiths, and Phil Banyard, "Prevalence of Pathological Internet Use Among University Students and Correlations with Self-esteem, the

General Health Questionnaire (GHQ), and Disinhibition," *CyberPsychology & Behavior* 8:6 (December 2005):562-570.

9. Mark Griffiths, "Internet Addiction: Does It Really Exist?" *Psychology and the Internet: Intrapersonal, Interpersonal, and Transpersonal Implications* (1998):61-75.
10. Scott E. Caplan, "Preference for Online Social Interaction: A Theory of Problematic Internet Use and Psychosocial Well-being," *Communication Research* 30:6 (December 2003):625-648.
11. Christian Montag et al., "The Role of the CHRNA4 Gene in Internet Addiction: A Case-control Study," *Journal of Addiction Medicine* 6:3 (September 2012):191-195.
12. Scott Caplan, Dmitri Williams, and Nick Yee, "Problematic Internet Use and Psychosocial Well-being Among MMO Players," *Computers in Human Behavior* 25:6 (November 2009):1312-1319.
13. Scott E. Caplan, "A Social Skill Account of Problematic Internet Use," *Journal of Communication* 55:4 (December 2005):721-736.
14. Jerald J. Block, "Issues for DSM-V: Internet Addiction," *American Journal of Psychiatry* 165:3 (March 2008):306, 307.
15. Ho-Kyung Kim and Keith E. Davis, "Toward a Comprehensive Theory of Problematic Internet Use: Evaluating the Role of Self-esteem, Anxiety, Flow, and the Self-rated Importance of Internet Activities," *Computers in Human Behavior* 25:2 (March 2009):490-500.
16. Chih-Hung Ko et al., "Psychiatric Comorbidity of Internet Addiction in College Students: An Interview Study," *CNS Spectrums* 13:2 (February 2008):147-153.
17. Nathan A. Shapira et al., "Psychiatric Features of Individuals With Problematic Internet Use," *Journal of Affective Disorders* 57:1 (January-March 2000):267-272.
18. Chih-Hung Ko et al., "Predictive Values of Psychiatric Symptoms for Internet Addiction in Adolescents: A Two-year Prospective Study," *Archives of Pediatrics and Adolescent Medicine* 163:10 (October 2009):937-943.
19. Ömer Şenormanci et al., "Attachment and Family Functioning in Patients With Internet Addiction," *General Hospital Psychiatry* 36:2 (March-April 2014):129-132.
20. Min-Hyeon Park et al., "Preliminary Study of Internet Addiction and Cognitive Function in Adolescents Based on IQ Tests," *Psychiatry Research* 190:2-3 (December 2011):275-281.
21. Niemz et al., "Prevalence of Pathological Internet Use Among University Students and Correlations with Self-esteem, the General Health Questionnaire (GHQ), and Disinhibition," op. cit.
22. Griffiths, "Internet Addiction: Does It Really Exist?" op. cit.
23. Ibid.
24. Richard A. Davis, "A Cognitive-behavioral Model of Pathological Internet Use," *Computers in Human Behavior* 17:2 (March 2001):187-195.
25. Caplan, "A Social Skill Account of Problematic Internet Use," op. cit.
26. Şenormanci et al., "Attachment and Family Functioning in Patients With Internet Addiction," op. cit.
27. Young, "Internet Addiction: Diagnosis and Treatment Considerations," op. cit.
28. Terrell W. Zollinger et al., "Impact of the Life Skills Training Curriculum on Middle School Students' Tobacco Use in Marion County, Indiana, 1997-2000," *Journal of School Health* 73:9 (December 2003):338-346.
29. Chien-Hsin Lin, Shong-Lin Lin, and Chin-Pi Wu, "The Effects of Parental Monitoring and Leisure Boredom on Adolescents' Internet Addiction," *Adolescence* 44:176 (December 2009):993-1004.
30. "The Twelve Steps": <http://www.12step.org/the-12-steps/>. Accessed February 1, 2016.
31. Ibid.
32. Scripture quotations credited to NIV are from *The Holy Bible, New International Version*. Holy Bible, New International Version®, NIV® Copyright © 1973, 1978, 1984, 2011 by Biblica, Inc.® Used by permission. All rights reserved worldwide.
33. Kimberly S. Young, "Cognitive Behavior Therapy With Internet Addicts: Treatment Outcomes and Implications," *CyberPsychology & Behavior* 10:5 (October 2007):671-679.
34. Davis, "A Cognitive-Behavioral Model of Pathological Internet Use," op. cit.
35. Qin-Xue Liu et al., "Multi-family Group Therapy for Adolescent Internet Addiction: Exploring the Underlying Mechanisms," *Addictive Behaviors* 42 (March 2015):1-8.
36. Chennan Liu, Minli Liao, and Douglas C. Smith, "An Empirical Review of Internet Addiction Outcome Studies in China," *Research on Social Work Practice* 22:3 (May 2012):282-292.



No More Secrets: Talking With Children And Young Adults About **PORNOGRAPHY**

Josh,¹ a popular 15-year-old high school sophomore, has a 3.87 GPA, and is kind, gentle, and helpful. He is respectful to his parents and a natural leader in school and at home with his two younger siblings. Josh is also addicted to Internet pornography. He views sexually explicit images daily, masturbates four to six times a day, and was first exposed to pornography by a friend's older brother at the age of 9.

Although fictional, this story represents a typical pattern experienced by people who have been caught in the web of Internet pornography. This scenario, which is becoming more common around the world,² also raises some valid and poignant questions. How should educators react when pornography has

been accessed on the school's computers? What should happen when a teacher learns that one or more students are struggling with the desire to view pornography and are earnestly praying that God will remove that burden from their lives? How do we balance compassion for fellow humans who struggle with sin while still applying biblical references such as 2 Corinthians 12:21 and Galatians 5:19³ in a modern setting? The Bible warns of strong consequences for those who do not repent from "impurity" and "sexual sins" and condemns sexual "immorality" and "impurity." Pornography, although not mentioned specifically in the Bible, isn't of much use to God—but a pure heart is! It is a recurring theme throughout the Scriptures. David's plea "Create in me a clean heart, O God" [Psalm 51:10, NIV]; Jesus'

blessing upon the "pure in heart" [Matthew 5:8, NIV]; and Paul's encouragement to think about "whatever is true, whatever is noble, whatever is right, whatever is pure, whatever is lovely, whatever is admirable" [Philippians 4:8, NIV] give us an indication of what is important to God, and what we must compassionately cultivate and protect in the lives of our students and school personnel.

Patterns, Risk Factors, and Consequences

Whenever this topic is discussed, inevitably the question arises, "What is pornography, anyway?" For this article, *pornography* will be defined as sexually explicit text, pictures, videos,

BY BRAD HINMAN

Box 1. Ensuring Student Safety Online

and audio materials designed, produced, and distributed for the purpose of sexual enticement, excitement, and gratification.⁴

Not all people who use the Internet view pornography, and not all people who view pornography are addicted, but the number of people who are addicted is increasing.⁵ Many individuals have private access to the Internet and can access pornography without fear of being discovered or recognized by others.⁶ Unfettered access is becoming more prevalent since so many devices connect to the Internet, including school-provided iPads, cell phones with “smart” technology, gaming consoles, tablets, iPods, laptops, and desktop computers. [See Box 1.]

Every school should install software that prevents access to objectionable Websites using the school’s Internet connection⁷ and enables administrators to track the Internet browser history of everyone accessing the school’s computers. However, this will limit access on only a limited number of the above-mentioned devices, since some of them can create their own wireless Internet connection or even enable other devices to connect to the Internet.

Camera-equipped and Internet-enabled devices are capable of creating pornography (including child pornography) and through texting, e-mail attachments, and various forms of social media, the user can disseminate these images to others, making the “manufacture” and “distribution” of pornography easier, faster, and much more widespread. One aspect of creating pornography is commonly referred to as “sexting”—the sending and receiving of photos, images, videos, text messages, and e-mails between mobile devices. In the United States, when minors take pictures of themselves in sexually explicit poses and then text those pictures to their friends or post them on the Internet, they can be held liable for both the manufacture and distribution of child pornography. The charges are just as serious if the photos, images, videos, e-mails, or text messages are shared between a minor and an adult. If any of these pictures, images, or videos are taken on school property, or with school-owned devices, this could open the school to liability and certainly to parent and constituent distress.⁸

Many adolescents, particularly males, use

Pornography can be accessed in a variety of ways: online, movies, print (books and magazines), videos/DVDs, etc. The most prevalent way of viewing pornography in 2016 is on a mobile device via the Internet, where it can be streamed, downloaded, and saved to a computer or burned to a CD or DVD.* When children and young adults access pornography online, they will likely be exposed to pedophiles, sexual predators, and others intent on doing harm. Predators also target vulnerable populations through social-media forums, several of which have been linked to crimes against children and young adults.

• **Crosswalk’s Nine Most Dangerous Apps for Kids** provides a list of popular but risky apps about which parents and teachers should be aware: <http://www.crosswalk.com/family/parenting/kids/9-most-dangerous-apps-for-kids.html>.

• **Teaching Digital Citizenship** shares tips for talking with children and young adults about what is appropriate to share online, sexting, how not to be a victim, how to identify an online predator, and much more: <http://www.netsmartz.org/Parents>. A similar link is available for educators: <http://www.netsmartz.org>.

* “Internet Pornography by the Numbers: A Significant Threat to Society”: <http://www.webroot.com/us/en/home/resources/tips/digital-family-life/internet-pornography-by-the-numbers>.

Box 2. Tips for Preventing Online Victimization[†]

• **Be Aware!** Know that ALL children are at risk for being a victim of an online predator or someone intent on doing harm. Tell children and young adults to seek help if someone in an online communication makes them feel uncomfortable or afraid. Be aware of the people in your child’s life (coaches, pastors, teachers, or Pathfinder leaders and other volunteers).

• **Know the symptoms.** Watch for signs of withdrawal or isolation from others; check for inappropriate materials—photos on the computer, unfamiliar telephone numbers, strange texts, etc.; notice any gifts, money, or mail from unfamiliar sources being sent to your child.

• **Talk about safe online behavior.** Initiate conversations with children and young adults about their online behavior. Suggested questions: Who do you communicate with online? What could happen if you were to meet these individuals in real life? Has anyone offered you gifts? What type of information do you share online?

• **Know what to do next.** Save the evidence (e-mails or instant message conversations), contact local law enforcement and file a report, and make a report (in the United States) to the CyberTipline[®] at www.cybertipline.com or 1-800-THE-LOST[®].

† Adapted from <http://www.netsmartz.org/ChildrenAsVictims>.

pornographic Internet material,⁹ although research suggests that females comprise about 40 percent of the total consumers.¹⁰ Pornography can be accessed from any device with Internet access, and by anyone old enough to click Websites and read, view photos, images, or movies. According to the Internet Filter Review, which provides data about users' Internet searches, the average age of a child's first exposure to pornography is 11, and nearly 50 percent of Internet users have accessed pornography.¹¹ Conversations with young people about the dangers of pornography should, therefore, begin around age 8, and certainly by age 11. [See Box 2.]

Explanations about the dangers of pornography should be given in a clear and comprehensible manner. We need to be diligent about holding these discussions with our students and children. Pornography does not inform users about healthy sex and sexuality. Instead, it portrays sex in an unrealistic manner, and makes uncommon, and often bizarre, sexual acts seem commonplace. Many survivors of sex trafficking report that pornography viewing by perpetrators and victims—typically under “duress, coercion, blackmail, or enticement”¹²—is commonplace in performing sex acts.

Pornography is a business endeavor designed to make money, which also involves significant criminal activity, as demonstrated by its affiliation with organized crime, gang activity, and the sex-trafficking trade.¹³ It is illegal for children to view pornography,¹⁴ and it is unhealthy for their developing sexuality. These reasons, combined with biblical mandates regarding lust and immorality, make pornography something that should be avoided.

Prevention

Children ages 11 to 17 are among the fastest-growing group of consumers of Internet pornography.¹⁵ A correlation has also been found between “right-wing authoritarian tendencies” and developing and maintaining a cybersex addiction by both Christian and non-Christian males.¹⁶ Abell¹⁷ and his colleagues found that Christians who self-reported higher levels of religiosity experienced more problems with Internet pornography. This is partly due to the perception that viewing pornography is not as bad a sin as actually having sex. Viewing pornography, especially for conservative Christian youth, is considered the lesser of two evils, which allows them to

preserve some semblance of sexual purity.

Being raised in an authoritarian family has also been shown to increase the risk of Internet pornography addiction.¹⁸ Socially isolated people who lack close friends with whom they can confide their weakness toward pornography¹⁹ are also vulnerable. Christians are often expected to embrace a higher moral standard than others in their social circles, which deepens the level of secrecy and shame surrounding their addiction.²⁰

For these reasons, it is important to talk to school-age children about pornography in appropriate ways. Failing to explain why pornography is detrimental opens the door to alternative avenues of information about sexuality. Educators and parents must work together to communicate with students about the seriousness of this problem.

Minors are not capable of cognitively processing sexually explicit material, and have difficulty differentiating between sexual fantasy and reality. Without wholesome gender models and appropriate sex education, children and even young adults are unable to distinguish between what is appropriate in normal, healthy sexual behavior and what is inappropriate—unrealistic expectations, exaggerated body parts, overstated performance, violence, assault, exploitation, etc.—and may assume that what they see is a normal part of a relationship. Viewing pornography before their sexual identity is fully formed makes young people more likely to en-

gage in sexual behaviors at inappropriate times and places (such as at school, in public places), or before they are mature enough.

It is therefore important to talk to our students, as early as 8 years old and certainly by 11, about the dangers of pornography. One way to do this is to warn them that viewing pornography is not only illegal, but also ill-advised and harmful. We are not silent about discussing other dangers with our children (talking to strangers, running with scissors, playing football, driving too fast, and so on), but for some reason many of us are silent when it comes to pornography. When someone views pornography, even accidentally by clicking a pop-up advertisement, this produces intrigue, excitement, a sense of danger, and of course, sexual arousal. Without knowing why pornography is harmful, it would be difficult for anyone to resist the temptation, especially students whose impulse control is not fully formed.

Another practical way to discuss pornography with school-age children is to couple it with other sexual and health topics, and include parents in the decision to do this. In order for students to develop positive and fulfilling relationships, they must be able to engage in straightforward discussions about the dangers of pornography and better evaluate how it affects their lives.²¹ It is imperative that teachers and education personnel gain knowledge of and comfort with discussing



the experiences of a person addicted to pornography so as to better prepare themselves to offer suggestions.²² It is also vital to work together with parents so that a unified message can be shared. More ideas about how to discuss this are provided in the “Personal and Institutional Action” section below.

Christians and Pornography

Because Internet pornography addiction is a growing problem among Christians, it must be dealt with in church schools.²³ Christians appear to have some specific vulnerabilities in the area of Internet pornography addiction, in contrast to other people.²⁴ There is typically an inverse relationship between addictions and Christianity, which seems to be conspicuously absent in regard to Internet pornography addiction.²⁵ Christian families are typically less educated about healthy and unhealthy sexuality and boundaries.²⁶ Let’s face it—if anyone wants to learn how to do anything these days, Google or Bing is the place to go: changing the oil in your car, riding a wave board, or finding the nearest grocery store. If parents do not speak to their children about sex, pornography, and masturbation, they may learn about it from their friends or the Internet.²⁷ If we as parents and teachers fail to talk to young people about pornography and healthy sexuality, we are inviting them to Google how to have sex, or to find the definitions of the various sexual terms that they are hearing at school—even at an Adventist school. Poised to “answer” these questions are hundreds of thousands of pornographic Websites accessible from hand-held, personal, Internet-ready devices.

The strict prohibitive rules with which some Christian parents raise their children can foster shame and guilt surrounding sexual thoughts and feelings, which serves to lay the groundwork for sexual addictions²⁸ unless parents and teachers also share the rationale for abstinence. Research has found a disconnect between religious convictions and sexual practices, with some Christians strictly adhering to certain religious doctrines but at the same time spending 20 or more hours per week accessing Internet pornography.²⁹

Personal and Institutional Action

Based on years of experience counseling individuals with pornography addiction,

teaching a graduate-level addiction therapy class, and years researching addictions, addictive behaviors, and people’s reactions to addictions, I have developed some helpful tips for teachers to use when planning a conversation with students about his or her use of pornography. These can be modified and shared with parents.

- **Be Proactive.** Install monitoring software with Internet access on all electronic devices

School personnel, as well as students, should be held accountable for their online behavior. Children and young adults on school campuses must be protected from adult users of pornography—teachers, administrators, other school personnel, and even parents or volunteers who may attempt to use school computers to access pornographic Websites, view (stream), or download pornographic images, movies, or print. All schools should implement acceptable-use agreements that protect not only students who use school technology resources, but also school personnel. This includes not only having all users sign a contract regarding how they will use school computers and Internet resources, but also installing blocking programs on teachers’ computers—those assigned by the school as well as personal computers brought into the building.

Employee Handbook Policies

Every school must have policies in place to address how to deal with a faculty member, school staff member, parent, or volunteer who accesses pornography, is in possession of pornographic material, or engages in activities that involve the use of pornography—taking photos, distributing images through text messages and e-mail, engaging in pornographic acts on school property, or using school equipment. These policies should include:

- Statements of acceptable practices (acceptable-use policies) that reflect the school’s mission and the commitment to protecting children and young adults within the school community.
- Lists of unacceptable practices such as accessing pornography, possessing pornographic materials on school property, engaging in pornographic acts with minors, creating child pornography, and victimizing a child (pedophiles and sexual predators).
- A statement that background checks will be conducted and updated regularly for all employees.
- A warning that crimes against children will result in immediate termination and reporting of the incident to local law enforcement.
- Any additional means by which the school may choose to work with the individual: requiring counseling, monitoring computer usage, limiting or denying access to computers, or immediate suspension.
- Required training and workshops on how to recognize and prevent inappropriate behavior, both in students and school personnel. See “Making a Difference—Preventing and Dealing With Child Abuse” by Arthur F. Blinci: <http://circle.adventist.org/files/jae/en/jae201375040410.pdf>.

** Compiled from a variety of sources.

(home devices as well as school-owned). This requires users to obtain the school administrator’s (or parent’s) permission to access the Internet, restricts the use of objectionable search terms, and determines what kinds of sites will be accessible. Some of the more common software includes SpectorSoft, WebWatcher, Tattletale, and Net Nanny. For more information about Internet safety

education, refer to the recent JOURNAL article by Annette Melgosa and Rudy Scott, which can be accessed at <http://circle.adventist.org/files/jae/en/jae201375032606.pdf>.

• **Stay Calm.** Human beings are naturally curious. Allow space in your school or classroom or home for open conversations about pornography and its dangers. Losing control (ranting and raving, condemning and shaming the child) over a subject such as this can be damaging because it increases shame and secrecy, two essential ingredients to developing and strengthening an addiction. The Book of Proverbs admonishes us to remain calm: “Fools give full vent to their rage, but the wise bring calm in the end” (Proverbs 29:11, NIV). When students approach you with curiosity, prayerfully seek to answer them with calm composure.

• **Interest in Sex Is Normal.** Although pornography is dangerous to the individual and especially to minors, sexual urges are normal, and just because someone views pornography doesn't necessarily mean he or she is a pervert, is dangerous around other children, will commit adultery or have premarital sex, or should be banished from all social contact. Sometimes persons viewing pornography just need someone to whom they can confide, and someone to hold them accountable to stop a behavior they likely want to stop as well. Sometimes they just need someone to trust, and who trusts them. We are reminded in Proverbs 11:13 that trustworthiness is to be cultivated as we relate with those who share their struggles with us in confidence.

• **Be Patient.** Applying the lesson of the parable of the unmerciful servant in Matthew 18, if we want others to be patient with us when we make mistakes, we need to be patient with others. Those who have ever tried to stop doing something habitual, compulsive, or an addiction will know how hard this can be. This is no different for children, who may have an even more difficult time stopping a bad habit because of the immature impulse control center of their brains. Stopping an addiction is always a process, never a single event. Although total abstinence may be the goal, it's likely the person may regress into old patterns of behavior. Be patient, check in, communicate, and hold the person accountable without using shame and guilt. (See Box 3.)

• **Listen, Don't Judge.** The Bible ad-

monishes Christians not to judge others, and Luke 6:37 seems particularly relevant to how those who stumble should be treated: “Do not judge, and you will not be judged. Do not condemn, and you will not be condemned. Forgive, and you will be forgiven” (NIV).

Young people who compulsively consume pornography already know what others think of them. They judge themselves far more harshly than others ever could, so it's best to just listen. Counseling professionals say that a supportive, listening ear goes farther to helping someone overcome an obstacle than controlling, overbearing, and judgmental attacks on their character. The school should create a safe, nonjudgmental environment in which students are encouraged to speak openly about what bothers them. Usually, people have more desire to change when they feel that others understand them and will support them during the process.

• **Know When/Where to Refer.** Leaders in the community and in the church should be familiar with professionals who can help individuals facing sexual and other issues. Ideally, school leaders would have a list of trusted professional counselors in the community to share with students and their parents as decisions are made about future treatment.

Conclusion

As with many topics in today's culture, when children want to know something, they go to the Internet. The Internet is largely unregulated and is not always a friendly or helpful place. Adults need to create safe places where children and young adults can get the help they need to understand what they see on the Internet. If they're coming to talk to you about pornography or even if they have been caught looking at pornography, they are likely already full of shame and guilt.

Resources

In addition to the ideas listed within the article, below is a list of resources that will help educators learn how to talk about Internet pornography addiction.

Books

- Maltz, Wendy and Larry Maltz. *The Porn Trap*. New York: HarperCollins, 2008.
- Struthers, William. *Wired for Intimacy: How Pornography Hijacks the Male Brain*. Downers Grove, Ill.: InterVarsity Press, 2009.
- Paul, Pamela. *Pornified: How Pornography Is Transforming Our Lives, Our Relationships, and Our Families*. New York: Times Books, Henry Holt and Company, 2005.

World Wide Web

- *Focus on the Family Advice for Parents of Teen Porn Addicts*: http://www.focusonthefamily.com/parenting/sexuality/when_children_use_pornography/advice_for_parents_of_teenage_porn_addicts.aspx
- *Internet Pornography Statistics Overview*: <http://internet-filter-review.toptenreviews.com/internet-pornography-statistics-overview.html>
- *Adventist Recovery Ministries (ARMin)*, a Ministry of the Health Department of the Seventh-day Adventist Church in North America: <http://www.adventistrecovery.org>
- *Sex Addicts Anonymous*, a fellowship of men and women who share their experience, strength, and hope with one another so that they can overcome their sexual addiction and help others recover from sexual addiction or dependency: <https://saa-recovery.org/>

Reinforcing those feelings is hardly ever productive. Instead, as teachers and administrators, let's have an honest and open discussion with children and young adults about why Internet pornography and other sexually explicit material are dangerous. The sidebar on page 39 provides some helpful resources for discussing this topic. ✍

This article has been peer reviewed.



Brad Hinman, Ph.D., is an Assistant Professor and School Counseling Program Coordinator at Andrews University in Berrien Springs, Michigan. He is also a

private practice counselor specializing in marriage and family therapy, sex addiction (including pornography addiction), child and adolescent behavior disorders, and domestic violence. Dr. Hinman earned his doctorate in counselor education and supervision from Western Michigan University in Kalamazoo, Michigan, and has taught every educational level from 1st grade through the doctoral level in Seventh-day Adventist education. His research interests include men's issues, including family dynamics, communication, and behavior disorders within families; the intersection of sexuality and Christianity, including sexual orientation, pornography, sex addiction, and hypoactive sexual desire; and the supervision of minority supervisees by majority supervisors.

NOTES AND REFERENCES

1. A pseudonym.
2. "Internet Safety 101: Pornography Statistics": <http://www.internetsafety101.org/pornographystatistics.htm>; Covenant Eyes: <http://www.covenanteyes.com/pornstats/>. Unless otherwise noted, all Websites in the endnotes were accessed in February 2016.
3. 2 Corinthians 12:21 and Galatians 5:19. Bible texts in this article marked NIV are from the *Holy Bible, New International Version*®, NIV® Copyright © 1973, 1978, 1984, 2011 by Biblica, Inc.® Used by permission. All rights reserved worldwide.
4. John M. Haney, "Teenagers and Pornography Addiction: Treating the Silent Epidemic." In Gary R.

Walz, Jeanne Bleuer, and Richard K. Yep, eds., *Vistas: Compelling Perspectives on Counseling* (Alexandria, Va.: American Counseling Association, 2006), pp. 49-52; Kingston et al., "The Importance of Individual Differences in Pornography Use: Theoretical Perspectives and Implications for Treating Sexual Offenders," *Journal of Sex Research* 46:2-3 (March 2009):216-232.

5. Michelle Ayres and Shelley Haddock, "Therapists' Approaches in Working With Heterosexual Couples Struggling With Male Partners' Online Sexual Behavior," *Sexual Addiction & Compulsivity* 16:1 (February 2009):55-78; Gabriel Cavaglion, "Narratives of Self-help of Cyberporn Dependents," *Sexual Addiction & Compulsivity* 15:3 (August 2008):195-216; Alex Kwee, Amy Dominguez, and Donald Ferrell, "Sexual Addiction and Christian College Men: Conceptual, Assessment, and Treatment Challenges," *Journal of Psychology and Christianity* 26:1 (March 2007):3-13; Wendy Maltz, "Out of the Shadows," *Psychotherapy Networker* 33 (2009):26-35.

6. Cooper et al., "Online Sexual Compulsivity: Getting Tangled in the Net," *Sexual Addiction & Compulsivity* 6:2 (1999):79-104.

7. Annette Melgosa and Rudy Scott, "School Internet Safety: More Than 'Block It to Stop It,'" *The Journal of Adventist Education* 75:3 (February/March 2013):26-31. <http://circle.adventist.org/files/jae/en/jae201375032606.pdf>.

8. The term "sexting" [a combination of "sex" and "texting"] refers to images and texts sent between cell phones; however, the definition is no longer limited to mobile devices. Sexting carries legal consequences in several states: See Dena T. Saco et al., "Sexting: Youth Practices and Legal Implications" (Berkman Center for Internet & Society, Harvard University, 2010), p. 3. http://cyber.law.harvard.edu/sites/cyber.law.harvard.edu/files/Sacco_Argudin_Maguire_Tallon_Sexting_Jun2010.pdf. Accessed on May 4, 2016.

9. Gert M. Hald, "Gender Differences in Pornography Consumption Among Young Heterosexual Danish Adults," *Archives of Sexual Behavior* 35:5 (October 2006):577-585; Jochen Peter and Patti Valkenburg, "Processes Underlying the Effects of Adolescents' Use of Sexually Explicit Internet Material: The Role of Perceived Realism," *Communication Research* 37:3 (April 2010):375-399.

10. Haney, "Teenagers and Pornography Addiction: Treating the Silent Epidemic," op. cit.

11. Internet Filter Review, "Internet Pornography Statistics": <http://www.internet-filter-review.toptenreviews.com/internet-pornography-statistics.html>.

12. Saco et al., "Sexting," op. cit.

13. Ian O'Donnell and Claire Milner, *Child Pornography: Crime, Computers, and Society* (Portland, Ore.: Willan Publishing, 2007); Michelle Lillie, "The Connection Between Sex Trafficking and Pornography": <http://humantraffickingsearch.net/wp/the-connection-between-sex-trafficking-and-pornography/>.

14. Most countries have laws against producing, possessing, distributing, receiving, or possessing with the intent to distribute pornography—specifically pornography that involves minors (those under the age of 18). Repeated visits to child

pornography Websites suggest a pattern of behavior and can be used as evidence in a court of law. Adults allowing children to view pornography (whether of consenting adults engaged in pornographic acts or of minors engaged in the same) can be liable for negligence and child endangerment. For more information, see: The United States Department of Justice, "Citizen's Guide to U.S. Federal Law on Child Pornography," <https://www.justice.gov/criminal-ceos/citizens-guide-us-federal-law-child-pornography>. More than 115 countries now engage in training from the International Centre for Missing and Exploited Children on how to find and prosecute predators: <http://www.icmec.org/train/law-enforcement/>.

15. Natasha Petty Levert, "A Comparison of Christian and Non-Christian Males, Authoritarianism, and Their Relationship to Internet Pornography Addiction/Compulsion," *Sexual Addiction & Compulsivity* 14:2 (May 2007):145-166.

16. Ibid.

17. Jesse Abell, Timothy Steenbergh, and Michael Boivin, "Cyberporn in the Context of Religiosity," *Journal of Psychology and Theology* 34:2 (June 2006):165-171.

18. Levert, "A Comparison of Christian and Non-Christian Males, Authoritarianism, and Their Relationship to Internet Pornography Addiction/Compulsion," op. cit.

19. Mark Laaser and Louis Gregoire, "Pastors and Cybersex Addiction," *Sexual and Relationship Therapy* 18:3 (August 2003):395-404.

20. Paul Cannon and Carol Cannon, "Stranger in the House: Living With a Sexual Addict," *Vibrant Life* 94:5 (September/October 1994):22, 23.

21. David Delmonico and Patrick Carnes, "Virtual Sex Addiction: When Cybersex Becomes the Drug of Choice," *Cyberpsychology & Behavior* 2:5 (February 1999):457-463.

22. Ibid.; Martha Turner, "Uncovering and Treating Sex Addiction in Couples Therapy," *Journal of Family Psychotherapy* 20:2-3 (July 2009):283-302.

23. Mark White and Thomas Kimball, "Attributes of Christian Couples With a Sexual Addiction to Internet Pornography," *Journal of Psychology and Christianity* 28:4 (December 2009):350-359.

24. Ibid.

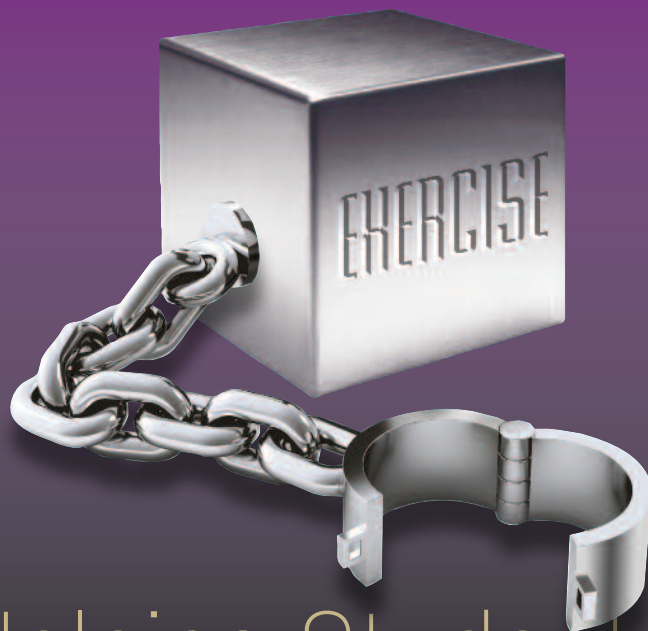
25. Abell et al., "Cyberporn in the Context of Religiosity," op. cit.

26. Those who struggle with Internet addiction are often victims of some form of trauma that has violated and disrupted their emotional, physical, sexual, or spiritual development. This trauma results in their inability to recognize normal boundaries and increases their willingness to participate in risky behaviors. See Laaser and Gregoire, "Pastors and Cybersex Addiction," op. cit.

27. Stephen James and David Thomas, *Wild Things: The Art of Nurturing Boys* (Carol Stream, Ill.: Tyndale House Publishers, 2009), pp. 316, 317.

28. Haney, "Teenagers and Pornography Addiction: Treating the Silent Epidemic," op. cit.

29. Ibid.



Helping Students Experience the Healthful Benefits of **EXERCISE**

Marco¹ joined a fitness center, believing that exercise would help decrease the effects of stress. He had just started his freshman year of college and was finding the transition difficult. Marco committed to going to the gym every other day for the psychological health benefits. As a result, his mood improved, he experienced less anxiety and stress, and he felt physically stronger. However, over time those benefits became increasingly more difficult to achieve. Therefore, Marco incorporated running into his exercise routine. On days he didn't work out, he had trouble concentrating during classes and didn't feel as much pleasure engaging in activities he had previously enjoyed. As a result, he decided to increase his running and workouts to twice daily, sometimes skipping classes to go to the gym. Soon exercise, and finding ways to engage in more physical activity in order to attain that same level of stress reduction, were all he could think about.

Marco's exercise habits began to interfere with his social life as well as his academic performance. He blocked phone calls from friends whenever he was in the middle of his exercise routine. Due to the stress caused by his declining academic performance as well as the lack of social support, Marco further increased his already substantial exercise routine.

Eventually, Marco failed so many classes that he had to drop out of school.

Exercise addiction can occur whether students live at home or in a setting where they are responsible for their own schedules and have less overall supervision. Educators, school personnel, and parents need to be aware of the warning signs and behaviors of exercise addiction in order to plan a timely intervention. Schools can provide students with guidelines regarding balancing healthy exercise amounts with other necessary activities so they can take a wholistic approach when they become responsible for creating their own daily schedule.

The Nature of Exercise Addiction

Exercise has many physical and psychological benefits: It decreases resistance to fatigue, improves muscular strength, reduces the incidence of cardiovascular disease, lowers the risk of depression, and reduces the effects of aging.² These benefits can be achieved by participating in 30 minutes of moderate intense exercise three to five days a week.³ However, excessive physical activity (defined by Landolfi as consuming the majority of a person's time) has negative outcomes that may develop into exercise addiction if it becomes an all-consuming activity.⁴ For in-

BY TAMMY BOVEE and AMANDA GUNN

Box 1. Symptoms of Exercise Addiction

stance, in one study, sport science majors had a higher risk of developing exercise addiction compared to the general population.⁵

Exercise addiction is not recognized in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5).⁶ This type of behavior is, instead, defined as a behavioral addiction. Although there is no uniform definition of exercise addiction, the researchers consistently refer to the following symptoms: a craving for habitual physical activity that results in uncontrollable and excessive exercise behavior, which produces physiological and psychological symptoms such as anxiety and depression.⁷ [See Box 1.] Hausenblas and Downs⁸ identified exercise addiction as having the same core diagnostic criteria as behavioral addiction, which includes tolerance, withdrawal, lack of control, intention effects, time, reduced participation in other activities, and continuance.⁹

Prevalence and Risk Factors

Millions of people exercise every day for the health benefits. The vast majority of them would not be classified as having an addiction.¹⁰ A 2012 population-wide study conducted in Hungary surveyed a group of 474 people who exercised at least once a week and determined only 0.5 percent of those surveyed were at risk to develop exercise addiction.¹¹ However, in terms of prevalence, research has produced varying results. Hausenblas and Downs¹² reported that between 3.4 percent and 13.4 percent of their sample of university students, half of whom were involved in sports, were at risk for exercise addiction. A sample of sport science and psychology students identified 3.0 percent as being at high risk of exercise addiction, based on the Exercise Addiction Inventory (EAI) developed by the authors.¹³

However, among people connected to recreational sports, the prevalence seems to be higher. Szabo and Griffiths¹⁴ found that 6.7 percent of sport-science students were at risk for exercise addiction, and Blyden and Lindner¹⁵ reported that 30.4 percent of triathletes could be identified as addicted to exercise, based on the Exercise Dependence Questionnaire (EDQ).¹⁶

In another study of runners, researchers concluded that 26 percent of males and 25 percent of females surveyed could be classified as having an exercise addiction.¹⁷ This finding agreed with other research that found a higher prevalence of exercise addiction in males (like Marco, at the beginning of the article) and among university students.¹⁸ Additionally, a study of Hispanic university athletes, including sport students and non-sport students, to a group of ultra-marathon runners using the Exercise Addiction Inventory (EAI) psychometric found that men scored higher than women, and ultra-marathoners scored higher than both groups of university students.¹⁹

The prevalence of risk for exercise addiction was seven to 10 percent in university athletes and 17 percent in ultra-marathoners. While most studies on exercise addiction have involved adults, a study conducted by Downs, Savage, and DiNallo showed that exercise addiction was also prevalent in adolescents. From their sample of 805 high school students, six percent were classified as at risk for exercise addiction. However,

- Tolerance: increasing the amount of exercise in order to feel the desired effect, be it a “buzz” or sense of accomplishment.
- Withdrawal: absence of exercise results in negative effects such as anxiety, irritability, restlessness, and sleep problems.
- Lack of control: unsuccessful attempts to reduce exercise level or cease exercising for a certain period of time.
- Intention effects: unable to stick to one’s intended routine as evidenced by exceeding the amount of time devoted to exercise or consistently going beyond the intended amount.
- Time: a great deal of time is spent preparing for, engaging in, and recovering from exercise.
- Reduction in other activities: social, occupational, and/or recreational activities occur less often or stop.
- Continuance: continuing to exercise despite knowing that this activity is creating or exacerbating physical, psychological, and/or interpersonal problems.

Adapted from Heather A. Hausenblas and Danielle Symons Downs, “How Much Is Too Much? The Development and Validation of the Exercise Dependence Scale,” *Psychology & Health* 17:4 (August 2002):387-404.

among boys, eight percent were classified as at risk for exercise addiction, compared to only four percent of girls.²⁰ This replicated prior findings by Vilella et al., who surveyed 2,853 students between the ages of 13 and 20. Their study classified 10.1 percent of males as at risk of exercise addiction, compared to 6.3 percent of females.²¹

Development and Etiology

It has been suggested that people become addicted to exercise due to the physiological mechanisms involved in exercise, such as the euphoria experienced by many people during intense exercise.²² Intense exercise, defined as 70 to 90 percent of maximum heart rate, results in the activation of the endogenous opioid system, inducing a significant endorphin concentration.²³ This acts as a post-exercise reinforcer; and consequently, the person starts to crave that heightened mood caused by the release of the opioid-like substance. This results in a continuous cycle, as the heightened mood doesn’t last.

However, another theory about the etiology of exercise addiction employs a psychological explanation. Morris et al.²⁴ found that regular runners (those who ran at least three times a week) who stopped running exhibited greater social dysfunction, somatic symptoms, and anxiety after only one week, compared to those who continued running. Researchers have suggested the likelihood of habitual exercise changing to exercise addiction increases for people who exercise with the goal of escaping unpleasant feelings.²⁵ For them, exercise provides an escape from disturbing, persistent, and uncontrollable stress.²⁶

Based on this theory, students at all levels can be at risk for exercise addiction due to the variety of academic stressors they face, as well as social pressures from friends and other students.²⁷ Therefore, they learn to rely on exercise as a coping mechanism, feeling convinced that exercise is a healthy means of dealing with stress, as it is recommended in both schools and the media.²⁸ As a result, some young people may ra-

tionalize about their exaggerated amounts of exercise, which slowly takes a toll on their school obligations and normal daily activities. This causes them to experience negative psychological feelings such as irritability, anxiousness, and guilt if an unforeseeable event prevents them from exercising.²⁹ The loss of their coping mechanism, exercise, generates an increased perception of vulnerability to stress, which amplifies the negative feeling associated with the lack of exercise. This pressure causes the young person to resume his or her excessive exercise regimen at the expense of daily obligations, including academics, which incites further stress, ultimately trapping the student in a vicious cycle.³⁰

Research on the prevalence of exercise addiction is complicated by a variety of issues, most of which involve its co-occurring with other disorders. For example, studies have found strong links between exercise addiction and various forms of eating disorders.³¹ In a study involving 125 Parisian males and females who identified themselves as exercise addicts, 70 percent reported being bulimic.³² Another study examining triathletes reported that 52 percent of the sample could be classified as having an exercise addiction.³³ Of those, 50 percent of females were classified as having an eating disorder, compared to 27 percent of males.

Additionally, eating disorders are often accompanied by high levels

of physical exercise, or exercise addiction. A study on clinically diagnosed anorexic and bulimic adolescents reported that 80 percent of anorexic participants engaged in addictive exercise behaviors, compared to 25 percent of bulimic adolescents.³⁴ Therefore, this comorbidity makes it difficult to tease apart which addiction is actually the primary disorder. However, a 2004 study sought to determine whether primary and secondary exercise addiction could be considered as distinct and independent conditions.³⁵ The researchers discovered that not only is primary exercise addiction distinct from secondary exercise addiction, but also that exercise addiction can exist without an eating disorder being present.³⁶

Exercise addiction is not a separate disorder in the DSM-5, and thus, there are no diagnostic tools. Instead, there are only instruments developed by researchers to determine if an individual can be classified as having an exercise addiction. This results in differences in epidemiology and estimates of prevalence among various researchers.³⁷ Several studies have examined the relationship between personality and exercise addiction. Hausenblas and Giacobbini³⁸ found a positive correlation between perfectionism and exercise addiction symptoms. Other researchers have found obsessive-compulsiveness and anxiety to have a positive relationship with exercise addiction.³⁹



Consequences of Exercise Addiction

A serious consequence of exercise addiction, as with many behavioral addictions, is the reduced time spent participating in social, recreational, and spiritual activities as well as a lack of concentration at work and school.⁴⁰ Excessive exercise may also increase the risk of injury. Studies have found that individuals with exercise addiction will continue to exercise even when they have an injury or after repeated injuries.⁴¹

Prevention

Some researchers have identified several pre-existing characteristics in individuals with exercise addiction such as neuroticism, perfectionism, and extraversion.⁴² Highly neurotic individuals may be prone to excess worry or concern over their health and appearance, and therefore engage in excessive exercise to the point of addiction.⁴³ Furthermore, exercise addiction is also positively correlated to low self-esteem, experienced by those who struggle with their identity and feel insecure and anxious.⁴⁴ Coaches, parents, exercise instructors, friends, and peers are important in shaping personal identity in young people.⁴⁵ It should come as no surprise that individuals who develop a “have to” commitment to exercise are at higher risk for exercise addiction.⁴⁶

Since this association exists, parents, educators, and friends must monitor what they say and do in the presence of young people with a predisposition to exercise addiction.⁴⁷ Positive feedback, such as compliments about their achievements, and carefully designed, moderate exercise programs are critical to ensuring healthy exercise experiences for these individuals.⁴⁸ Exercise programs can consist of 30 to 60 minutes of continuous aerobic activity three to five days a week that maintains a maximum heart rate between 50 to 85 percent of heart rate reserve. Research shows youth can receive the health benefits of physical activity by engaging in just 30 minutes of aerobic exercise per day.⁴⁹

Persons affected by exercise addiction often show an extreme concern about their body image, weight, and maintaining control over their diet.⁵⁰ Caring adults can help prevent exercise addiction by helping children develop a positive body image. And later, as young people go through the changes of puberty, parents and educators can help boost their body image by being accepting and supportive, providing positive messages and encouraging other qualities that keep physical appearance in perspective. Additionally, adults can help young people engage in more healthful eating and physical activity behavior by modeling healthful behaviors, providing an environment that makes it easy for young people to make healthful choices, focusing less on weight and more on behaviors and overall health, and providing a supportive environment to enhance communication.⁵¹

Suggestions for School Personnel

Students experiencing exercise addiction or eating disorders should probably be referred to mental-health professionals. However, teachers and principals can take a number of actions to help identify risks and prevent exercise addiction.

- *Raise awareness.* Raising awareness is always the first step in ad-

The child or young adult:

- displays behavioral signs when he or she is unable to exercise such as increased anxiety, discomfort with rest or relaxation, and irritability.
- exercises for more than two hours daily, repeatedly, follows the same rigid exercise pattern, and over time, increases the amount of exercise.
- always works out alone, isolated from others, and his or her social activities have significantly declined.
- continues to exercise to the point of pain or beyond and even when he or she is sick.
- argues with friends and family about the amount of time he or she spends exercising.
- continues to exercise even after expressing a belief that he or she exercises too much or stating a desire to quit or cut back on exercising.

Adapted from Heather A. Hausenblas and Danielle Symons Downs, “How Much Is Too Much? The Development and Validation of the Exercise Dependence Scale,” *Psychology & Health* 17:4 (August 2002):387-404.

ressing any type of problem or concern. School personnel should be informed about potential signs of exercise addiction. [See Box 2.] Schools can offer handouts and seminars to help train parents how to be more accepting, supportive, and encouraging of qualities that will increase their child’s self-esteem.⁵²

- *Provide positive role models.* School personnel can also serve as positive role models for students by practicing and encouraging healthy lifestyles. Children who struggle with perfectionism or obsessive-compulsive disorder are more prone to engage in compulsive exercise and thereby put themselves at risk for exercise-addiction behaviors.⁵³

- *Keep the lines of communication open.* When they suspect that a student may have a dependence on exercise, teachers and principals should notify the parents and direct the child to appropriate counseling to learn alternative methods to regulate emotions.⁵⁴ Taking a multifaceted approach to preventing exercise addiction means nurturing students and developing strategies to educate them about appropriate exercise. Teachers, health educators, coaches, fitness instructors, and other professionals should cooperate and keep communication open to recognize and intervene when signs of exercise addiction appear.

- *Use the curriculum to teach healthful behaviors.* Educators and health/physical-education instructors can organize mini-courses for students that affirm the benefits of exercise but also warn that losing control over one’s behavior can potentially be as dangerous to health as the misuse or abuse of any dangerous substance.⁵⁵ The mini-courses should also reiterate Adventism’s wholistic beliefs about self-control and moderation. Local churches can also hold seminars to raise awareness about appropriate exercise and steps that can be taken to prevent exercise addiction.

Strategies Used by Mental-health Professionals

If an individual is sent for treatment for exercise addiction, mental-health professionals may first have to help him or her become aware of the problem and the need for treatment. Motivational interviewing techniques are often used to achieve help those seeking help.⁵⁶ Mental-health professionals must make it clear that excessive exercise can have

negative consequences and that physical activity must be modified, moderated, and controlled. The next step may be cognitive behavioral therapy, which is usually the recommended form of treatment for many types of addictions, including exercise addiction.⁵⁷ In this situation, identifying and correcting the person's negative automatic thoughts (e.g., I have failed miserably because I couldn't finish my exercise routine this morning.) that result in maladaptive behavior and negative emotions are the key to success.⁵⁸

Licensed therapists may also recommend new forms of exercise or provide strategies for moderating physical activity. Because exercise in moderation is considered a healthy habit, a treatment goal could be to return to moderate exercise.⁵⁹ While teachers may not feel qualified to apply these kinds of strategies, it is always good for them to be alert to recognize when a student may be displaying signs of exercise addiction. Once they identify a problem, educators need to refer their students to specialists. Thorough psychological evaluation and sustained intervention may be necessary to prevent behavior that could produce a self-destructive cycle.

Conclusion

Exercise to promote health is a positive trait for adults to model. Teachers, administrators, parents, and other adults in a position of supervision over students should discuss exercise as they would any other potentially addictive substance or activity. There is an appropriate amount that is best. Too little or too much can have negative effects. When exercise begins to intrude upon studying, homework, personal devotions, and/or social activities, adults involved in the student's life should take appropriate action to educate and redirect. An inability to change the behavior indicates the need for professional intervention.

Identifying and addressing concerns about students who may have problems with exercise addiction can present a challenge. School employees and educators may need to take time to observe student behavior before choosing to intervene. School personnel can play a critical role in making sure students exercise for suitable lengths of time to prevent stress, but not so much that it interferes with their health and emotional well-being. Results may not be immediate, but with the help of supportive educational environments, students can learn skills to assess themselves and achieve balance between exercise and other necessary activities.

Teachers and administrators in Christian schools have the opportunity to remind students that God wants what is best for them and that He has a positive future planned for them (Jeremiah 29:11, NIV).⁶⁰ Any burden that we are carrying that causes self-destructive behaviors is a burden that Jesus wants to carry for us if we will just ask (Matthew 11:28, NIV). Any battle with addictive or self-destructive behavior is a battle that we cannot win without Jesus. He asks us to cast our cares upon Him because He cares for us (1 Peter 5:7, NIV). All help, even help for addiction, comes from the Lord (Psalm 121:1-3, NIV). When children and young adults are taught these facts by loving adults, they can turn to God to obtain the wisdom to avoid exercise addiction, yet continue to exercise to gain its multiple benefits. ✍

This article has been peer reviewed.



Tammy Bovee, M.S., is the owner of *Creative Fitness, LLC* in Springfield, Oregon, where she specializes in exercise programs for individuals with disabilities. She received her degree in exercise science with an emphasis on rehabilitation from California University of Pennsylvania in California, Pennsylvania.



Amanda Gunn, M.S., is the lab manager of the *Brain Electrophysiology Laboratory* at *Electrical Geodesics, Inc.*, in Eugene, Oregon. She received her Master's degree in psychology with an emphasis in cognitive development from the University of Oregon in Eugene, Oregon.

NOTES AND REFERENCES

1. A pseudonym.
2. Emilio Landolfi, "Exercise Addiction," *Sports Medicine* 43:2 (February 2013): 111-119.
3. Ibid.
4. Ibid.
5. Attila Szabo and Mark D. Griffiths, "Exercise Addiction in British Sport Science Students," *International Journal of Mental Health and Addiction* 5:1 (January 2007):25-28.
6. American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders*, 5th ed. (Washington, D.C.: American Psychiatric Association, 2013).
7. Heather A. Hausenblas and Danielle Symons Downs, "How Much Is Too Much? The Development and Validation of the Exercise Dependence Scale," *Psychology & Health* 17:4 (August 2002):387-404.
8. Ibid.
9. Marilyn Freimuth, Sandy Moniz, and Shari R. Kim, "Clarifying Exercise Addiction: Differential Diagnosis, Co-occurring Disorders, and Phases of Addiction," *International Journal of Environmental Research and Public Health* 8:10 (October 2011):4069-4081.
10. Kata M6n6k et al., "Psychometric Properties and Concurrent Validity of Two Exercise Addiction Measures: A Population Wide Study," *Psychology of Sport and Exercise* 13:6 (November 2012):739-746.
11. Ibid.
12. Heather Hausenblas and Danielle Symons Downs, "Relationship Among Sex, Imagery, and Exercise Dependence Symptoms," *Psychology of Addictive Behaviors* 16:2 (June 2002):169-172.
13. Mark D. Griffiths, Attila Szabo, and Annabel Terry, "The Exercise Addiction Inventory: A Quick and Easy Screening Tool for Health Practitioners," *British Journal of Sports Medicine* 39:6 (July 2005):e30.
14. Szabo and Griffiths, "Exercise Addiction in British Sport Science Students," op. cit.
15. Michelle J. Blaydon and Koenraad J. Lindner, "Eating Disorders and Exercise Dependence in Triathletes," *Eating Disorders* 10:1 (Spring 2002):49-60.
16. Jane Ogden, David Veale, and Zeldia Summers, "The Development and Validation of the Exercise Dependence Questionnaire," *Addiction Research* 5:4 (1997):343-356.
17. Heather A. Slay et al., "Motivations for Running and Eating Attitudes in Obligatory Versus Nonobligatory Runners," *International Journal of Eating Disorders* 23:3 (April 1998):267-275.
18. Hausenblas and Downs, "Relationship Among Sex, Imagery, and Exercise Dependence Symptoms," op. cit.
19. Attila Szabo et al., "Exercise Addiction in Spanish Athletes: Investigation of the Roles of Gender, Social Context and Level of Involvement," *Journal of Be-*

Behavioral Addictions 2:4 (December 2013):249-252.

20. Danielle Symons Downs, Jennifer S. Savage, and Jennifer M. DiNallo, "Self-determined to Exercise? Leisure-time Exercise Behavior, Exercise Motivation, and Exercise Dependence in Youth," *Journal of Physical Activity and Health* 10:2 (February 2013):176-184.

21. Corrado Villella et al., "Behavioural Addictions in Adolescents and Young Adults: Results From a Prevalence Study," *Journal of Gambling Studies* 27:2 (June 2011):203-214.

22. Jeremy Adams and Robert J. Kirkby, "Excessive Exercise as an Addiction: A Review," *Addiction Research & Theory* 10:5 (October 2002):415-438.

23. Ibid.

24. Maria Morris et al., "Effects of Temporary Withdrawal From Regular Running," *Journal of Psychosomatic Research* 34:5 (1990):493-500.

25. Attila Szabo, *Addiction to Exercise: A Symptom or Disorder?* (New York: Nova Science Publishers, 2010).

26. Ibid.

27. Eleanor R. Mackey and Annette M. Greca, "Adolescents' Eating, Exercise, and Weight Control Behaviors: Does Peer Crowd Affiliation Play a Role?" *Journal of Pediatric Psychology* 32:1 (January/February 2007):13-23.

28. Attila Szabo, "The Impact of Exercise Deprivation on Well-being of Habitual Exercisers," *Australian Journal of Science and Medicine in Sport* 27:3 (October 1995):68-75.

29. Ibid.

30. Ibid.

31. Steve Sussman, Nadra Lisha, and Mark Griffiths, "Prevalence of the Addictions: A Problem of the Majority or the Minority?" *Evaluation & the Health Professions* 34:1 (March 2011):3-56.

32. Michel Lejoyeux et al., "Prevalence of Exercise Dependence and Other Behavioral Addictions Among Clients of a Parisian Fitness Room," *Comprehensive Psychiatry* 49:4 (July/August 2008):353-358.

33. Blaydon and Lindner, "Eating Disorders and Exercise Dependence in Triathletes," op. cit.

34. Caroline Davis et al., "The Prevalence of High-levels of Exercise in the Eating Disorders: Etiological Implications," *Comprehensive Psychiatry* 38:6 (November/December 1997):321-326.

35. Michelle J. Blaydon, Koenraad J. Lindner, and John H. Kerr, "Metamotivational Characteristics of Exercise Dependence and Eating Disorders in Highly Active Amateur Sport Participants," *Personality and Individual Differences* 36:6 (April 2004):1419-1432.

36. Ibid.

37. Krisztina Berczik et al., "Exercise Addiction: Symptoms, Diagnosis, Epidemiology, and Etiology," *Substance Use & Misuse* 47:4 (January 2012):403-417.

38. Heather A. Hausenblas and Peter R. Giacobbi, "Relationship Between Exercise Dependence Symptoms and Personality," *Personality and Individual Differences* 36:6 (April 2004):1265-1273.

39. Linda Spano, "The Relationship Between Exercise and Anxiety, Obsessive-Compulsiveness, and Narcissism," *Personality and Individual Differences* 30:1 (January 2001):87-93.

40. Landolfi, "Exercise Addiction," op. cit.

41. Mia Beck Lichtenstein et al., "Exercise Addiction: A Study of Eating Disorder Symptoms, Quality of Life, Personality Traits and Attachment Styles," *Psychiatry Research* 215:2 (February 2014):410-416.

42. Jing-Hong Lu et al., "Exercisers' Identities and Exercise Dependence: The Mediating Effect of Exercise Commitment," *Perceptual and Motor Skills* 115:2 (October 2012):618-631.

43. Hausenblas and Giacobbi, "Relationship Between Exercise Dependence Symptoms and Personality," op. cit.

44. Grandi et al., "Personality Characteristics and Psychological Distress Associated With Primary Exercise Dependence: An Exploratory Study," *Psychiatry Research* 189:2 (September 2011):270-275.

45. Jing-Hong Lu et al., "Exercisers' Identities and Exercise

Dependence: The Mediating Effect of Exercise Commitment," op. cit.

46. Ibid.

47. Ibid.

48. Ibid.

49. Ian Janssen and Allana G. LeBlanc, "Systematic Review of the Health Benefits of Physical Activity and Fitness in School-aged Children and Youth," *International Journal of Behavioral Nutrition and Physical Activity* 7:40 (May 2010):1-16.

50. Blaydon and Lindner, "Eating Disorders and Exercise Dependence in Triathletes," op. cit.

51. Dianne Neumark-Sztainer, "Preventing the Broad Spectrum of Weight-related Problems: Working With Parents to Help Teens Achieve a Healthy Weight and a Positive Body Image," *Society for Nutrition Education* 37:2 (November-December 2005):S133-S139.

52. Ibid.

53. Huw Goodwin et al., "Compulsive Exercise: The Role of Personality, Psychological, Morbidity, and Disordered Eating," *International Journal of Eating Disorders* 44:7 (November 2011):655-660.

54. Huw Goodwin, Emma Haycraft, and Caroline Meyer, "The Relationship Between Compulsive Exercise and Emotion Regulation in Adolescents," *British Journal of Health Psychology* 17:4 (March 2012):699-710; Berczik et al., "Exercise Addiction: Symptoms, Diagnosis, Epidemiology, and Etiology," op. cit.

55. Krisztina Berczik et al., "Exercise Addiction: Symptoms, Diagnosis, Epidemiology, and Etiology," *Substance Use & Misuse* 47:4 (January 2012):403-417.

56. William R. Miller and Stephen Rollnick, *Motivational Interviewing: Preparing People for Change*, Vol. 2 (New York: Guilford Publications, 2002).

57. Freimuth, Moniz, and Kim, "Clarifying Exercise Addiction: Differential Diagnosis, Co-occurring Disorders, and Phases of Addiction," op. cit.

58. Ibid.

59. Mark D. Griffiths, "A 'Components' Model of Addiction Within a Biopsychosocial Framework," *Journal of Substance Use* 10:4 (July 2005):191-197.

60. Jeremiah 29:11 (NIV). Bible references marked NIV are from the *Holy Bible, New International Version*®, NIV® Copyright © 1973, 1978, 1984, 2011 by Biblica, Inc.® Used by permission. All rights reserved worldwide.

CIRCLE can make your job easier:

Quality Adventist lessons and course materials just a few clicks away.

