Digital Technologies and Addictions

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Editor's Note: This editorial was written by Marc N. Potenza, MD, PhD. Dr. Potenza is Professor of Psychiatry in the Child Study and Neurobiology Department at Yale University School of Medicine, Director of the Problem Gambling Clinic, Director of the Center of Excellence in Gambling Research, and Director of Women and Addictive Disorders Core of Women's Health Research at Yale University.

During the past two decades, there have been substantial changes in the capabilities, availabilities, and use of digital technologies. These changes have multiple implications, both bad and good, with respect to the development, prevention and treatment of addiction. Negative implications include the possibility for some people to engage excessively in the use of digital technologies, and this pattern of behavior has been termed Internet addiction by some people (1).

In anticipation of the fifth edition of the Diagnostic and Statistical Manual (DSM-5) (2), a Substance Use and Related Disorders Workgroup considered excessive or problematic patterns of Internet use and formulated a set of diagnostic criteria for Internet gaming disorder (3). Given inconsistencies in the definition and thresholding of problematic or interfering patterns of Internet use, and limited available data, Internet gaming disorder only is available in the DSM-5 in section 3, a location reserved for fostering research. Although the inclusion of Internet gaming disorder in the DSM-5 is promoting research into how best to define and classify excessive engagement in the use of the Internet for video-gaming (4, 5), there exists debate regarding the diagnostic entity. For example, the proposed diagnostic entity might conflate excessive patterns of Internet use and excessive patterns of video-gaming, and both similarities and differences in the correlates of problematic Internet use and problematic video-gaming have been observed (6-8). Additionally, people might engage problematically in video-gaming independent of the Internet, and others could develop problems with Internet use independent of gaming (e.g., through using the Internet for social networking or other purposes) (9). Key stakeholders also have debated whether problematic Internet use should be considered a distinct diagnostic entity, and whether a diagnosis should be based on the type of

problematic Internet use (e.g., providing a diagnosis of gambling disorder for people who use the Internet to gamble excessively). Despite these potential problems, ongoing efforts to harmonize research across geographically and culturally diverse regions are underway (10), and such concerted efforts should provide important information that will be helpful in understanding how best to diagnose and classify individuals with maladaptive patterns of behaviors involving the use of digital technologies.

As research efforts progress into how to best define and assess excessive patterns of the use of digital technologies, clinicians might face potential challenges. For example, clinicians might be in the position of trying to help people with Internet gaming disorder or other problematic forms of digital technology, and they may have scarce data on the disorder(s) and how best to identify and treat individuals with these problems. Further, existing data suggest high comorbidity between problematic Internet and/or gaming behaviors and psychiatric conditions including mood, anxiety, attention-deficit and substance-use disorders (11). As such, individuals, and perhaps particularly youth and young adults, with such conditions might be at elevated risk for technology-related problems, and screening and assessment for problematic use of digital technologies within these populations appears particularly relevant. Given proposed cognitive models for Internet gaming disorder and other problematic forms of digital technology use (12-14), adaptations of cognitive-behavioral therapies could be helpful in treatment efforts (15). Currently, although clinicians and researchers have employed and evaluated to varying extents treatments for Internet gaming disorder and other problematic forms of digital technology (16), these evaluations typically have not included well-powered, randomized controlled trials, although such efforts are under way (for example, see http://clinicaltrials.gov/show/NCT01434589). The findings of such studies will provide valuable information in efforts to help people whose use of digital technologies interferes with life function in other domains.

Digital technologies also offer significant promise in understanding, preventing and treating addiction. For example, the widespread availability and use of smartphones can facilitate the accumulation of large amounts of data through ecological momentary assessment and provide insight into addictive behaviors (17). Such information could be coupled with global positioning to provide insight into patterns of addictive behaviors that may be used to target interventions for high-risk times and/or places (18, 19). Such approaches ultimately may be linked

to smartphone apps to help people in recovery from addictions. Most such apps developed to date to help people with addictions have yet to be systematically evaluated (20). Digital technologies also hold significant potential for standardizing the delivery of therapies and increasing the availability of treatments in a cost-effective manner (21-23). Coordinated efforts that utilize validated digital technologies hold significant promise in reducing the global impact of addiction and other forms of mental illness (24). As such, it is hoped and anticipated that the upside of digital technologies with respect to preventing and treating addictions will outweigh the potential downsides relating to excessive and interfering patterns of usage, although both are important to consider from public health perspectives.

– Marc N. Potenza, MD, PhD

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