AKADÉMIAI KIADÓ

Journal of Behavioral Addictions

9 (2020) 4, 886–894

DOI:
10.1556/2006.2020.00096

COMMENTARY

Expanding on the multidisciplinary stakeholder framework to minimize harms for problematic risk-taking involving emerging technologies

Commentary on: Problematic risk-taking involving emerging technologies: A stakeholder framework to minimize harms (Swanton et al., 2019)

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Received: July 27, 2020 • Revised manuscript received: November 3, 2020 • Accepted: November 3, 2020
Published online: December 24, 2020

ABSTRACT

As new types of problematic behaviors and new forms of online risk-taking emerge, forming collaborative relationships while understanding complexities of motivations may help to promote harm reduction and intervention. While it may be too early to form a stakeholder framework without first conceptually understanding the problematic behaviors involved, we attempt to build upon a proposed multidisciplinary stakeholder framework to minimize harms for problematic risk-taking involving emerging technologies. We propose an expansion of roles for individual stakeholders and an expansion of proposed roles for family stakeholders to include partner/spouses, others living in the household, and/or those with close relationships with individuals who are experiencing problems. Empowering individuals who use emerging technologies through participatory action research and knowledge translation/dissemination may lead to improvements in the quality of research and a greater impact on policy and practice. Also, we discuss benefits of industry self-regulation and collaboration on data-sharing practices. We recommend approaches to promote global collaboration with a larger group of relevant stakeholders (including but not limited to individual consumers of technology, families, communities, treatment and welfare providers, researchers, industries, and governments) to address protection of vulnerable populations and reduce harms for users of rapidly advancing technologies.

KEYWORDS

behavior, emerging technologies, addictive, risk-taking, harm reduction, Internet

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INTRODUCTION

Swanton, Blaszczynski, Forlini, Starcevic, and Gainsbury (2019a) proposed a multidisciplinary framework that describes stakeholders' responsibilities in minimizing harms from problematic risk-taking behaviors involving emerging technologies. They suggested that using the term "emerging technologies" recognizes the rapidly changing nature of new products that would also be covered by their framework such as Blockchain, machine learning, and virtual reality (Swanton et al., 2019a). The authors undertook an ambitious task of creating a framework that encompasses current and emerging technologies and ascribes specific roles and responsibilities to various stakeholders including technologies, families, communities, treatment and welfare providers, researchers, industries, and governments (Swanton et al., 2019a). In doing so, their stakeholder framework may lack specificity in some areas, and such specificity would be helpful in guiding and enacting activities to minimize harms related to problematic risk-taking involving emerging technologies. Just as some harm reduction measures and interventions may not be effective for different disorders, one framework may not be applicable to all types of emerging technologies. However, we see value in having ongoing framework discussions to specify nuances and to start building a foundation for future framework(s).

Understanding specific disorders due to addictive behaviors is also at early stages (Brand, Rumpf, Demetrovics, et al., 2020; Brand, Rumpf, King, Potenza, & Wegmann, 2020). It is important to distinguish between addictive and harmful behaviors from societal attitudes towards new technologies. For example, the introduction of radio and television caused societal concern over their consumption. With newer technologies like video gaming and social media, some have argued that the popular press has sensationalized new behaviors and quickly labeled them as addictions. As such, concerns have been raised regarding the potential for moral panic and over-pathologizing everyday behaviors (van Rooij et al. 2018). This may be avoided by clearly defining what risk-taking behavior entails and what problem behaviors are. Such a definition may be complicated for new technologies as limited information may exist that gradually builds over time. For example, for many years, tobacco smoking was considered a non-problematic behavior, and one that was advertised as promoting health in some instances. However, over time, as more data became available about possible harmful effects of tobacco smoking, tobacco use disorder became considered as an addiction. As such, balancing individual freedom of choice with governmental public health considerations can be complicated in the setting of limited information. Having said this, the narrative of this paper is to contribute to the multi-disciplinary stakeholder framework as proposed by Swanton and colleagues.

It can be challenging to keep up with research and knowledge on emerging technologies as they change rapidly. We also recognize potential difficulties of a top-down assignment of responsibilities for each stakeholder. Jurisdictional, institutional, and cultural differences across countries may affect roles and responsibilities. Rather than only using top-down prescriptive approaches, a collaborative approach may serve to understand and incorporate all stakeholder perspectives that may lead to a more successful implementation of treatment and prevention efforts. In this paper, we build on initial suggestions for a stakeholder framework by (1) expanding on the idea of collaboration between stakeholders and (2) providing additional specific recommendations for next steps.

EXPANDING THE ROLE OF INDIVIDUAL STAKEHOLDERS

Swanton et al.'s (2019a) proposed framework is designed to promote a unified response that balances individual obligations with societal and institutional responsibilities. In the proposed framework, individuals or end users, are responsible for taking "ownership of ultimate decision about the extent of engagement in a behavior" (p. 4). This perspective suggests that the responsibility for the behavior and corresponding problems may lie primarily with the individual experiencing them. Such an interpretation may simultaneously stigmatize those experiencing problems with new technologies while potentially downplaying roles of other potential influencing factors such as social and personal environments, providers, regulators, and culture. In some cases, problems with emerging technology are argued not be due to the technology itself but to other reasons (Quandt, 2017). For example, instead of focusing solely on excessive or harmful use of emerging technologies, one may focus on what is missing in terms of meaningful and purposeful engagements for those who exhibit excessive use (Quandt, 2017; Shi, Renwick, Turner, & Kirsh, 2019). In video gaming, motivations for use could include desires for achievement, socialization, or immersion (Yee, 2006). Involving a diverse group of individuals who participate in gaming in discussions of meanings of game "addiction" (Colder Carras et al., 2018) and strategies to improve self-regulation over gaming has shown some success in developing potential targets for prevention (Colder Carras, Carras, & Labrique, 2020). The needs of individuals using emerging technologies may be better understood by engaging with their families, health care providers, and researchers from various disciplines. Such an approach may not only help individuals with limiting excessive behaviors, but also empower them to contribute meaningfully to research and knowledge.

Empowering individuals experiencing problems with technologies may help them gain social capital and consequently help to decrease self-stigma (Lanfrendi et al., 2015). When stigma is internalized, it may become a barrier to help-seeking and treatment (Brown & Russell, 2020). Stigma is also associated with harmful effects on self-esteem, self-efficacy, perceived social worth, and health (Hing, Nuske, Gainsbury, & Russell, 2016). In this light, we agree with

Swanton et al. regarding the importance of describing people as experiencing problems rather than defining them by a problem (e.g., "engagement in problematic gaming" versus being a "problem gamer"). Furthermore, while we see the importance of assigning autonomy to individuals to choose their behaviors, we wonder if it is realistic to ask consumers to be aware of all potential risks when there is debate among academicians and others regarding the existence and defining features of internet gaming disorder (Aarseth et al., 2017; Saunders et al., 2017; Van Rooij et al., 2018) and with respect to compulsive sexual behaviors that may include internet pornography viewing (Potenza, Gola, Voon, Kor, & Kraus, 2017; Prause, Janssen, Georgiadis, Finn, & Pfaus, 2017). The responsibility of the individual should not be limited solely to controlling their behaviors and consuming relevant knowledge, but may also include co-creating knowledge as significant collaborators. Individuals who experience problems with technologies may be viewed as having important lived experiences rather than being viewed as lay people, or worse, being reduced to features of their disorders. Without the co-production of knowledge in minimizing harms from emerging technologies, research and intervention efforts may be limited in scope and possibly less effective. To expand on this idea of knowledge co-creation, the following sections introduce possible uses of participatory methods and data sharing that involve collaboration in different combinations of the stakeholders identified by Swanton et al. (individuals, families, industry, researchers, treatment providers, community, and governments).

Participatory methods in research and policy making

Companies in the technology industry often utilize perspectives of end users through market testing and online community engagement to create and refine their products. In many cases, these companies rely on and value consumer experiences. Similarly, participatory methods may address several issues in this research area, including power imbalances between stakeholders, the importance of incorporating knowledge from multiple stakeholder perspectives, and ultimately successful dissemination and knowledge translation (International Collaboration for Participatory Health Research, 2013). Community engagement can also be a vital part of health communication and dissemination strategies (World Health Organization, 2018a), and are important for the development of healthy communities and societies (WHO, 2013). We suggest that a similar approach may help in keeping up with not just the emerging technologies, but the complexities of funding priorities, research, policies, and evaluation of harm reduction for end users. The WHO Health 2020 Framework findings on multisectoral and intersectoral action for improving health suggest that this may work best through collaboration with a focus on developing and sustaining relationships based on mutual communication and trust (WHO, 2018b). This approach could be a first step toward identifying stakeholder responsibilities for future refinement of the framework. The extent to which jurisdictional oversight from governmental agencies involved in protecting the public health are involved in these initial stages may be important to consider.

Participatory, inclusive, or community-based approaches are often used to examine lived experiences of historically marginalized populations (DuBois, Renwick, Chowdhury, Eisen & Cameron, 2019). Participatory action research (PAR), commonly adopted in the field of rehabilitation sciences, is a form of collaborative research that works with individuals and communities to address equity, inclusion, and issues of access (Asaba & Suarez-Balcazar, 2018; Cockburn & Trentham, 2002). Using PAR with young adults who have psychiatric disabilities has resulted in improvements in the quality of research and impact on policies and practices (Delman, 2012). A goal of PAR is to have individuals experiencing problems become empowered to have their voices heard and become incorporated into decision-making relating to policies and practices. Such stakeholders in the technology arena would include people who have experienced problems. These people may include members of self-help groups for individuals with problems with video gaming (e.g., Computer Gaming Addicts Anonymous at cgaa.info) or pornography use (e.g., nofap.com and rebootnation.org). All stakeholders in the framework may work together to advance research and create policies.

Involving individual stakeholders in knowledge translation, research dissemination, and policy making is also important. Specific individual stakeholders often have access to gate-keepers (van den Hoonaard, 2019, p. 86) in emerging technology communities who can provide information on best methods to disseminate knowledge. Every stakeholder group could be involved in deciding how to best present information and how to get the most engagement and impact for harm reduction. Educational outreach and multidisciplinary collaborations have been reported to be particularly effective for knowledge translation (Grol & Grimshaw, 2003). The impact and applicability of research depends, at least in part, on a solid knowledge translation process.

EXPANDING THE DEFINITION OF THE FAMILY STAKEHOLDER

The current definition of the family stakeholder group is "parents/caregivers of children/adolescents" (Swanton et al., 2019a, p. 4). The current description of families as a stakeholder suggests that informal social control may only be relevant in a family context in controlling behaviors of minors. While minors are a particularly vulnerable group to protect, a range of age groups experience problems relating to technology. Framing families as only parents/caregivers is limiting and should be expanded to include partners/spouses, other children, others living in the household, and/or those with close relationships with the person experiencing problems (such as friends and co-workers).

Expanding the family stakeholder definition could allow for a fuller exploration of family dynamics that may be

involved in problematic behaviors that are not fully captured in the current framework. In some cases, families may be a contributing factor to a problem (Shi et al., 2019; Wood & Griffiths, 1998). Individuals experiencing problems may want to remain engaged in a behavior because their partner is also highly engaged, to escape the reality of family troubles or for other family-related reasons (Shi et al., 2019). What was not clearly explicated in the framework was that role modeling from family or household members may serve to facilitate problematic behavior. For example, dysfunctional family dynamics have been related to disordered behaviors (Fenton & Feinstein, 2013, p. 589), and problems in relationships are common motivators for increasing engagement in risky behaviors, in addition to the mental health concerns cited by Swanton et al. In contrast, data suggest that close relationships may provide protection against effects of stress (that may otherwise lead to coping through risky behaviors), promote help-seeking for problematic risky behaviors, and aid in recovery efforts (Evans & Delfabbro, 2005; Gavriel-Fried, Moretta, & Potenza, 2019). Thus, the expansion of the family stakeholder within the framework could give greater recognition of the importance of social support and informal social control in regulating behavior, which is not well represented in the existing framework. Such articulation could promote family-guided interventions. In family systems theory, the individual cannot be fully understood and treated without first acknowledging and understanding how they function within the family system (Lander, Howsare, & Byrne, 2013). As such, describing a more complete family construct within the framework may help a broader range of people experiencing problems with emerging technologies.

GLOBAL ACTION

The authors of the proposed framework suggested that industry members consider "demand reduction" by increasing product prices and providing alternative options (Swanton et al., 2019a). First, there is often little or no incentive for industries to do this in the current context of self-regulation. Industries operate to remain competitive, especially with online technologies. If one company or country increases prices, they may not be competitive on a global market.

Second, although there is research supporting limiting access through increased taxes for alcohol consumption (Chisholm, Rehm, Van Ommeren, & Monteiro, 2004) and increasing age restrictions for gambling (Williams, West, & Simpson, 2012) to mitigate harms, there is also evidence that these approaches may not be effective for all behaviors. A person who does not have an addiction to alcohol can nonetheless experience a great deal of harm as a result of drinking (e.g. intoxicated driving, bar fights, unprotected sex, etc.). Such harms often do not apply to technology use such as gaming, pornography use, or social media use, although other harms may exist in even so-called non-problematic use of digital technologies (for example, concerns have been raised about pornography-related erectile dysfunction) (Park et al., 2016). In some cases, when limits are placed as a form of harm reduction, it may have unintentional effects as indicated by drug use (limiting illicit drugs may lead to production of unsafe adulterated drugs), gambling (increasing time spent gambling may occur when speed of gambling machines is slowed) and video gaming (increasing other forms of internet use may occur when video gaming is limited) (Blaszczynski, Sharpe, Walker, Shannon, & Coughlan, 2005; Ivsins, Boyd, Beletsky, & McNeil, 2020; Lee, Kim, & Hong, 2017). Some policy measures for video gaming were found not to have significant effects or have not been not well studied (Király et al., 2018). The application of demand reduction strategies should be examined empirically for each activity to determine if it is effective and whether desired effects or unforeseen consequences might occur.

Third, related to the first two points, responsibilities of industries and governments listed in the framework need to be implemented globally to be effective. Such an approach is important due to the crossover in emerging technology products across multiple countries. If technology is reduced or limited in one country, individuals have many options to avoid local restrictions such as virtual privacy networks (VPNs). Framework recommendations for governments may become complicated when, for example, governments profit from activities that they oversee, as may be the case in some jurisdictions with respect to gambling either through taxation, licensing fees, or direct ownership (e.g., online lotteries in the United States at https://www.lottery.net/articles/online-lotteries-usa, or casinos with electronic gambling machine technologies in Canada, www.olg.ca). In addition, government regulatory bodies such as the Nevada Gaming Commission are involved in the approval of emerging technology of newer video-gambling machines which may influence online gaming technologies (Turner, 2019). Issues of conflict of interest may exist for governments or tribunals who are charged with ensuring public health when they profit directly or indirectly from technologies and products associated with problematic behaviors. There are also potential conflicts for researchers who engage in research with respect to, for example, communication of findings in collaboration with industry. The Swanton et al. framework could benefit from further elaboration on issues of conflicts of interest. Federal funding for research and treatment of concerns relating to emerging technologies is often not available in jurisdictions (Potenza, Higuchi, & Brand, 2018). Furthermore, it is important to consider potential conflicts of interest between public health objectives on the one hand and profit objectives on the other hand. This conflict is already an important consideration in the gambling research field (Cassidy, 2014; Cowlishaw & Thomas, 2018; Livingstone & Adams, 2016; Wohl & Wood, 2015; Young & Markham, 2015).

The authors of the original framework also recommended that governments should develop a classification strategy to reduce access to inappropriate technologies or products by minors (Swanton et al., 2019a). We believe that

this may be particularly important in specific areas where technologies exist but are typically not implemented or employed systematically; e.g., age-verification technologies that have been applied (albeit loosely and with questionable effectiveness, some would contend) to gambling in some jurisdictions but not to pornography viewing (Gambling Commission, 2019; Waterson, 2019). As the authors acknowledged, and as previously addressed in this response, technology is rapidly advancing, and such technologies for age verification and other approaches to protect minors will need to develop accordingly to keep pace. Additionally, and as described above, employing a broader family systems approach and promoting early detection and identification of vulnerable populations as indicated by Swanton et al. may be important in such endeavors. The original framework proposed assigning this responsibility to both treatment providers and industry. Relying on treatment providers solely in this scenario may have limited effect as people who are vulnerable or already experiencing problems often show low rates of treatment engagement. For example, a minority (perhaps 10%) of individuals with problem gambling report seeking professional help or support from peer organizations such as Gamblers Anonymous (Suurvali, Hodgins, Toneatto, & Cunningham, 2008). Working with local communities and governments to integrate screening and public awareness of possible harms while providing access to care for those who need it in a non-stigmatizing way is important. Early detection may also involve industry groups putting measures in place to help those who may demonstrate problematic behaviors. This may be perceived as intrusions into personal freedoms or may increase the appeal of the product, and the latter may be more likely if coming from a socially responsible company that incorporates safeguards into their products and prioritizes helping vulnerable individuals. This may also be challenging for some behavioral issues where some risks may be interpersonal, such as when watching pornography. It may be difficult for pornography providers to assess from viewing behaviors the extent to which individual levels of behavior may be generating harm, particularly in interpersonal relationships (Bőthe, Toth-Király, Orosz, Potenza, & Demetrovics, 2020). However, current approaches that are used to understand individual behaviors may be used to understand the extent to which online behaviors may relate to poor outcomes or impaired functioning (Braverman, LaPlante, Nelson, & Shaffer, 2013), and extending such work through collaborations with other stakeholders may help to address gaps in knowledge via consideration of online and offline behaviors.

Another issue is that people often do not just go to one site or platform. To identify complete patterns of online video gaming, pornography watching, or social media use may require sharing information across companies which may be in conflict with individual privacy. Many consumers now want companies to make an impact on the world and to be candid about their pro-social initiatives (Landrum, 2017). In the absence of industry willingness and active involvement, governmental regulations and intervention may be necessary in order to protect the public health. However, this would be challenging if not impossible without substantial international co-operation. Thus, it is more important than ever to engage in global collaborative efforts between all important stakeholders to determine the most viable and ethical methods to inform early detection and harm reduction.

Early industry self-regulation

Partnerships, policies and practices that encourage healthy use may be promoted through industry involvement in order to minimize harms. The current political climate toward industry self-regulation suggests that industries may be motivated to engage in such activities. Swanton et al. draw attention to the wide range of strategies that exist for regulating the activities. Even within the example of online gambling, regulation spans from strict government ownership and operation to effectively unregulated "off-shore" gambling sites. Swanton et al. also rightly identify that greater regulation and monitoring are likely necessary to ensure consumer protection and provide a ruleset to help ensure that all stakeholders are given equitable consideration. As is evident with the alcohol industry, polices that are likely to be the most effective in reducing harms are those that seek to regulate the behavior of industry actors (McCambridge, Mialon, & Hawkins, 2018).

One point of clarification that would benefit the proposed framework would be to clearly define the role of industry self-regulation in the larger process of monitoring and regulation. Swanton et al. (2019a) seem to suggest a preference for industry self-regulation by recommending, "creating a regulatory environment in which industry can proactively disclose potentially problematic behaviors detected without fear of negative consequences to allow investigation and promote early intervention" (p. 4). It is typically within the interests of an industry to pursue self-regulation. A major motivation for self-regulation is to avoid more restrictive or punitive regulation from governments. For example, shortly after decisions on the part of the Netherlands and Belgium to introduce regulations for loot boxes and other forms of randomized prize generators, the executive director of the International Game Developers Association (IGDA) released a statement that explicitly calls for increased self-regulation to avoid governmental regulation in order to maintain their access to a profitable business model that provides a service that may be potentially harmful to a relatively small group of consumers (Blake, 2018). In an analysis of Finland's switch from industry self-regulation to stricter government regulation of gambling activities, Selin (2016) suggests that the goal of self-regulation in the form of responsible gambling programmes was to influence policy implementation. Since tighter restrictions may result in reduced revenues, self-regulation may be seen as a way to protect revenues rather than to limit gambling-related harm.

Governments may also benefit from industry self-regulation because the process of monitoring and regulation can be costly. This may be especially relevant to the regulation of

internet activities as they are often less bound by national borders that relate to governmental power. In Australia, regulations on gambling over the internet have resulted in few sanctions against illegal offshore internet gambling sites that are not subject to the same regulations of consumer protection and corporate responsibility (Gainsbury & Wood, 2011). However, most forms of industry self-regulation still involve some level of government regulation and oversight (Castro, 2011). As noted by King and Lenox (2000) in their review of self-regulation in the chemical industry, self-regulation is not likely to encourage good behavior without clear sanctions. The anti-trust lawsuits filed by the United States Department of Justice against the National Realtors Association are an example of such government oversight over a self-regulatory organization (Castro, 2011).

Given the disparate natures of behaviors and providers involved in the activities identified by Swanton et al. (2019a), it may be beneficial to seek greater involvement of major financial institutions and internet service providers into more regulatory aspects of a framework. In a separate publication involving several of the same authors, they note in a discussion of online gambling that financial institutions may be well-positioned to implement consumer protection strategies and could benefit from proactively managing financial risk of over-involvement in risk-taking behaviors (Swanton, Gainsbury, & Blaszczynski, 2019b).

Collaboration on determining data-sharing practices

Related to the issue of self-regulation is the question of how data-sharing may best be conducted. As noted in the roles and responsibilities defined by Swanton et al. (2019a), industry representatives should pursue "accountability, transparency, and willingness to collaborate with other stakeholder groups in response to emerging problematic behaviors relating to their products" (p. 4). To support this responsibility, data-sharing and public disclosures of information may best be clearly defined and involve formal procedures. Formalized procedures could systematically describe what data are collected to ensure that data relevant to public and stakeholder interests are made readily available and usable. These structures would also keep the decision of with whom the data are shared out of the sole discretion of industry groups or service providers. There is some discussion in the gambling and video gaming fields of voluntary data-sharing agreements between industry and researchers (Griffiths & Pontes, 2019; Hancock & Smith, 2017; Shi, Potenza, & Turner, 2020). Regardless of debates over potential biases at present, a clearly defined, transparent and formalized process of data-sharing for purposes of scientific research and communication to the public could increase confidence in the validity of that research and the behaviors of service providers. In short, clear and enforceable agreements on data collection could increase the quality and usability of data, increase the speed of data access and in turn support the timely development of evidence-based policies, and ensure that all stakeholders have access to information important in maintaining transparent and equitable partnerships. However, it is vitally important that such agreements avoid potential conflicts of interest and follow ethics guidelines regarding privacy and informed consent.

Models for data-sharing exist in more carefully regulated industries that provide services or products related to risky behaviors. In the United States, the tobacco industry is required by the Federal Trade Commission to provide up-to-date data on their sales and marketing activities. In the case of the tobacco industry, clearly stated mandates set by the US government coupled with requirements for data-sharing practices allow for harm minimization. In the case of tobacco use by minors, this allows for analyses that connect marketing practices and sales data to changes in prevalence of underage smoking evident in other data sources (United States Public Health Service, 2012). In contrast, interactions between the alcohol industry and Scottish government as discussed by McCambridge, Hawkins, and Holden (2013) show how poor or unclear standards in data use may lead to biases in presentation of data.

In conclusion, the responsibilities of the market, early detection, self-regulation, and data-sharing for the welfare of potentially vulnerable end users may benefit from creating a global regulatory body. A global regulatory body with all stakeholders as members could work together to solve some of the aforementioned issues.

CONCLUSIONS

Prior to collaboratively building a multi-disciplinary stakeholder framework, we would suggest continuing to conceptually explore addictive behaviors and defining risk-taking behaviors. In exploring these concepts, we may find that the current ideas of a unified, broad framework, may not be specific enough to address each problem behavior with different emerging technologies. However, in this paper, we have explored ways to build upon the originally proposed framework.

The proposed framework may be construed as presenting stakeholders as relatively siloed entities, each with their own roles and responsibilities. We suggest that inter-relationships, cooperation, and at times duality of roles between and within stakeholders should be considered and leveraged to achieve a comprehensive and unified response to minimizing harms from problematic risk-taking behaviors involving emerging technologies. We have discussed these ideas and provided suggestions on how some of our recommendations could be considered and implemented. Our suggestions are non-exhaustive and do not cover all of the relevant issues raised by Swanton et al. in their important framework. After expanding upon on the stakeholder framework proposed by Swanton et al. (2019a) and highlighting the importance of collaboration between stakeholders, we recommend global collaboration in forming international committees with all relevant stakeholders (including but not limited to individual consumers of technology, families, communities, treatment and welfare providers, researchers, industries, and governments) to

address protection of vulnerable populations and reduce harm in this rapidly changing technology landscape.

Funding sources: No funding was received specifically for this paper.

Author's contribution: JS was the lead and organizing author. JS and MV conceptualized and drafted the manuscript. MNP and NET provided further commentary, input, and edits. All authors reviewed and approved the final version of the manuscript for submission.

Conflict of interest: 1) Dr. Shi and Dr. van der Maas previously received funding from the Gambling Research Exchange Ontario. 2) Dr. Turner has received funding from the Ontario Ministry of Health and Long-Term Care, The Ontario Problem Gambling Research Centre, the National Center for Responsible Gambling (NCRG) and Ontario Lottery and Gaming (OLG). In all cases the contract included guarantees of independence and intellectual property rights for the researcher. Dr. Turner has also acted as a consultant on gambling problems for various government and legal entities, reviewed grant applications and articles for publication, and developed treatment and prevention materials for problem gambling. 3) Dr. Potenza receives support from NIH (K12 DA00167, R01 DA026437, R01 DA039136, R01 DA040699, R21 DA042911, and R03 DA045289), an Erasmus grant, and a COST initiative on problematic use of the internet, the Connecticut Council on Problem Gambling. 4) Over the past three years, Dr. Potenza has received financial support (to Yale or personally) for the following. He has consulted for and advised Rivermend Health, Game Day Data, Addiction Policy Forum, AXA, Idorsia and Opiant Therapeutics; received research support from the Mohegan Sun Casino, the Connecticut Council on Problem Gambling and the National Center for Responsible Gaming; consulted for or advised legal and gambling entities on issues related to impulse control and addictive behaviors; provided clinical care related to impulse-control and addictive behaviors; performed grant reviews; edited journals/journal sections; given academic lectures in grand rounds, CME events and other clinical/scientific venues; and generated books or chapters for publishers of mental health texts.

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