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ADOLESCENT SUBSTANCE ABUSE (T CHUNG, SECTION EDITOR)

Youth Gambling Behavior: Novel Approaches to Prevention and Intervention

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Abstract While gambling has been traditionally viewed as an adult activity there has been a growing body of research suggesting its popularity amongst adolescents. Despite findings that suggest that most youth gamble in a relatively responsible manner and have few negative gambling-related behaviors there is strong evidence that they constitute a vulnerable group for gambling disorders. The current paper addresses our current knowledge concerning the prevention of youth gambling problems and provides new potential strategies for helping young individuals experiencing a gambling disorder. While the research lacks strong evidence for *best practices*, a number of novel approaches to the prevention and treatment of gambling disorders for youth are discussed.

Keywords Youth gambling · Adolescent risky behaviors · Gambling prevention · Intervention

Introduction

Important advances in our understanding of youth gambling behavior have occurred over the past three decades. First, once considered an activity reserved primarily for adults, it is now well established that a significant proportion of adolescents and young adults also actively participate in gambling as a form of recreation [1•, 2•, 3], with participation in gambling observed to rise steadily across adolescence and peak in early adulthood [4••, 5]. Additionally, youth gambling behavior is currently regarded as ranging on a continuum from nongambling at one extreme, to social or recreational gambling, and problem/pathological/disordered gambling (DG)[1] at the other extreme. Further, despite a lack of agreement as to the actual prevalence of DG resulting from jurisdictional differences and the use of diverse survey methodologies and instruments, it is presently recognized that approximately 0.9–8.1 % of adolescents and 7.2–13.3 % of college students, worldwide, meet diagnostic criteria for DG [2•, 6]. Of concern is that untreated DG among youths is frequently linked with multiple negative consequences, including greater gambling expenditure, academic difficulties, poor or disrupted family relationships, both concurrent and later alcohol and substance use problems, delinquency and future criminal behavior, mental health issues, and suicidal ideation and behaviors [2•, 7–11]. Given these findings, it is not surprising that youth DG is increasingly acknowledged as a significant public health concern [12, 13].

These important advances in our understanding of youth gambling and DG notwithstanding, significant gaps in knowledge still remain. This is particularly true with respect to the areas of youth DG prevention and intervention or treatment. Indeed, scientific knowledge of the prevention and treatment of adolescent DG, its translation into science-based prevention and intervention initiatives, and the empirical evaluation of these science-based initiatives is scarce [14•, 15]. The goal of this review is to examine and evaluate (i) how effective

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[1] The terminology used to describe gambling problems has changed over time. The current DSM-5 term is "gambling disorder" (see American Psychiatric Association, 2013 for a detailed description). For the purposes of clarity and consistency, the term "disordered gambling" (DG) will be used to refer to all of these behaviors.

are currently available prevention and treatment interventions for youth DG, and (ii) what novel approaches to prevention and intervention have recently been explored.

Prevention of Youth Gambling Disorder: Our Present State of Knowledge

The serious implications of youth DG have drawn attention to the importance of sensitizing youth to the risks and minimizing harms associated with excessive wagering behavior. In the areas of physical, mental, and public health, prevention is acknowledged to be as critical as treatment [16]. The implementation of effective public health policy initiatives and evidence-based educational interventions that influence the gambling environment and prevent the development of at-risk gambling behaviors is therefore a high priority concern.

Public Health Policy Initiatives Public health or regulatory policies are measures implemented by governments and industry that focus on preventing DG in a community through environmental controls on the availability and provision of gambling [15]. These policy initiatives include restrictions on the general availability of gambling (e.g., jurisdictional caps on the number of new gambling facilities or the number of electronic gambling machines [EGMs] outside of dedicated areas; limits on the operational hours of EGMs and gambling venue hours of operation), and age-regulated restrictions (e.g., minimum age regulations) [17]. Given evidence suggesting a positive but complex relationship between gambling availability and accessibility with DG [18••], it is expected that policies and initiatives focused on limiting the availability and accessibility of gambling opportunities as well as education constitute key components in the prevention of underage gambling participation and harmful gambling behaviors.

Despite the recognized merit of this approach for prevention, information regarding the effectiveness of availability and accessibility restrictions is limited. Results from empirical studies investigating operators' compliance with youth access regulatory policies for different gambling products (e.g., purchasing of lottery tickets, instant scratch cards, gaming arcades, EGMs) generally indicate that gambling products remain relatively available and accessible to underage customers [19–21]. Conversely, in a recent investigation examining the effects of the complete removal of slot machines from licensed premises in Norway, researchers observed that this policy initiative resulted in a significant decrease in overall gambling frequency, but a significant increase in self-reported gambling-related problems among adolescents aged 13–18 years, even after controlling for age and cultural background [22]. These findings should nevertheless be interpreted with caution; the "post-intervention" dataset included only a fraction (25 %) of the sample that was surveyed prior to the removal of EGMs from licensed premises. From this small body of research, it appears that existing policy initiatives aimed at restricting the availability and accessibility of legal gambling opportunities have shown weak to moderate success in reducing or preventing gambling participation and harmful gambling behaviors, and that further environmental control measures need to be imposed to ensure that adolescents are not gaining access to certain gambling products and venues.

Educational Initiatives In conjunction with public health policies, a number of educational initiatives have been developed in certain jurisdictions. The goal of these initiatives is to promote responsible gambling decision-making and/or prevent the development or onset of DG [15, 23••]. School-based educational initiatives are considered a particularly important component in an overall prevention strategy as they provide a public health intervention to individuals who may not have yet engaged in the behavior as well as a population that represents an at-risk group for the development of subsequent problematic behavior [24].

School-based, gambling-specific prevention initiatives can be grouped into two broad categories: (a) *psychoeducational prevention programs* and (b) *comprehensive psychoeducational and skills training prevention programs*. The goal of psychoeducational prevention programs is to increase awareness or knowledge about gambling and issues related to problem gambling [25, 26]. These programs generally present one or more of the following types of information: the nature of gambling, gaming odds and probabilities, erroneous cognitions and gambling fallacies, warning signs of problem gambling, and the consequences associated with excessive gambling [15, 25, 26].

In contrast to psychoeducational prevention programs, comprehensive psychoeducational and skills training prevention programs recognize that misinformation or knowledge deficits are only one of many factors that are associated with the initiation of youth problem gambling, and therefore go beyond merely presenting factual information [25, 26]. These programs typically cover a broader scope of themes, including the enhancement of self-esteem and self-image, the development of interpersonal skills to better cope with stressful life events, the development of problem-solving and decision-making skills, and the development of skills for resisting peer pressure [15, 25, 26].

Although school-based educational initiatives are considered a critical component in any youth DG prevention strategy, only a limited number of these initiatives have actually been empirically evaluated for efficacy. Recently, Ladouceur et al. [25], St-Pierre et al. [26], and Williams et al. [15] published comprehensive reviews of existing youth gambling educational initiatives that have been tested for their efficacy. Their overall findings were generally consistent. Of those

initiatives that have been systematically assessed, many have reliably obtained improvements in knowledge and/or decreases in misconceptions about gambling. Conversely, few of the existing prevention initiatives have been successful in producing sustained changes in skills or behavior (this may be due to the lack of long-term longitudinal research) . Considering that the principal goal of any prevention initiative is to delay the onset or decrease the incidence of a potential problematic behavior, there still remains a clear need for the refinement of existing or the development of innovative school-based, gambling-specific educational initiatives in order to improve the likelihood of successful long-term outcomes.

Novel Approaches for the Prevention of Youth Gambling Disorder

The need to enhance or modify current public health policy initiatives aimed at restricting the availability and accessibility of legal gambling opportunities is highlighted in the literature. Both Gosselt et al. [19] and St-Pierre et al. [21] observed that variations in minimum age requirements across gambling products or venues, differences among jurisdictions, and inconsistencies across other regulatory policies (e.g., solicitation of a valid piece of identification from consumers appearing 18 or 25 years of age or younger, depending on the gambling product or venue) pose a significant challenge for compliance with policy initiatives. As such, they recommended that jurisdictions should consider the implementation of standard or uniform public health policy initiatives across *all* gambling products and venues. Relatedly, other researchers have proposed that jurisdictions consider increasing the minimum legal age limit for gambling [15]. Further, the development of education and training programs that take into account the needs and the characteristics of different staff members and gambling operations appear to be indispensable. Available research reveals that particular staff members, in certain types of gambling venues and at specific times, are less likely to perform age verification checks [19–21]. Although there are notable cultural and jurisdictional differences, the data gathered from compliance checks have the potential to inform different stakeholder groups (e.g., governmental authorities, gambling providers) about the conditions or mechanisms that have an impact on compliance rates with policy initiatives [20]. Providing such feedback to stakeholders is critical for improving compliance over time [19]. There is some preliminary evidence for the effectiveness of applying certain of these policy approaches. Specifically, the legal age limit for EGM play was raised from 16 to 18 in Norway, and this initiative is reported to have resulted in a concomitant reduction in machine gambling [27]. However, further empirical investigation is still needed to establish whether the modifications to existing public health policy initiatives proposed above are not only effective but also feasible.

Along with public health policy initiatives, the necessity for the refinement of existing or the development of innovative school-based educational initiatives is also emphasized in the prevention literature. One proposed reason for the restricted effectiveness of available educational initiatives in producing sustained changes in behavior is that they fail to target all of the salient factors found to influence behavioral decision-making and change [26]. Indeed, many of the existing educational initiatives have been developed in the absence of a clear theoretical framework describing the expected causal mechanisms by which the programs exert their effects. While an underlying assumption of these initiatives is that changes in gambling knowledge and attitudes are a precondition for producing changes in gambling behavior, numerous investigations have documented rather weak correlations between individuals' knowledge or attitudes and their actual behavior [28], and that knowledge alone does not necessarily predict changes in gambling behavior [29]. However, even under conditions where preventive intervention is "theory-based," it is often unclear exactly how the theory was used in its development [30]. Further, health and social cognition research has suggested that other factors can play an influential role in behavior change. These include perceptions of risk in performing the behavior; notions of self-efficacy; and intentions and/or motivations to change the behavior [29]. This situation has led researchers to advocate for consideration of alternate frameworks that could more accurately describe behavioral decision-making processes [31] and behavioral change mechanisms [32] for the development of youth DG educational initiatives. The theory of planned behavior (TPB) is one particular model that has received increasing attention in the youth gambling domain.

A social cognition model, the TPB [33, 34] proposes that the execution of any behavior is determined by the individual's intention to exert effort and complete an action. The theory further asserts that intentions are influenced by three independent factors: attitudes (i.e., an individual's overall positive or negative evaluations of the behavior); subjective norms (i.e., individual's perceptions of social pressure from important others to perform the behavior); and perceptions of behavioral control (PBC) (i.e., individual's expectations about the level of ease or difficulty in executing the behavior). Evidence from a limited number of correlational studies has demonstrated that the key TPB constructs (i.e., intentions, attitudes, subjective norms, PBC) account for a small to moderate proportion of variability in gambling and DG behavior among young adults [35–37]. However, a significant issue with the TPB is that it focuses exclusively on cognitive processes to explain gambling decision-making and action, which is problematic since gambling behavior is also shown to be

significantly influenced by emotional processes [38–40]. As such, researchers have also investigated the contribution of negative anticipated emotions (NAE) in the context of gambling behavior, and initial findings suggest their importance in decision-making when gambling [41–45].

Recently, St-Pierre and colleagues [46] conducted a study that expanded on this earlier work and investigated the value of an extended TPB model for explaining adolescent gambling frequency and gambling-related problems. Their results supported an extended TPB as a valid framework for explaining adolescent gambling behavior, particularly gambling frequency. Indeed, attitudes towards gambling, PBC over refusal to gamble, and NAE were observed to be significantly associated with intentions to gamble. Additionally, gambling intentions and attitudes were found to have direct effects on the frequency of gambling, while intentions and PBC were directly associated with perceived gambling problems. Simultaneously, the results suggested certain deviations from the TPB as it applies specifically to adolescents. That is, subjective norms were not found to be associated with gambling intentions, while PBC was observed to have no direct effect on gambling frequency.

In addition to explaining youth behavior, there is evidence for the value of the TPB model in the formulation of effective behavior-change interventions for multiple adolescent risky and addictive behaviors [47–51]. Consequently, St-Pierre [52] subsequently investigated the suitability of the framework for the formulation of adolescent DG preventive interventions and the assessment of their effects. Specifically, she examined the efficacy of targeting NAE and key TPB constructs in a universal adolescent gambling prevention tool, the *Clean Break* docudrama, for eliciting changes in gambling beliefs, intentions, and behaviors. Preliminary results revealed that the *Clean Break* preventive intervention had limited success in producing changes in NAE, the TPB's key constructs, or the frequency of gambling behavior in the desired direction over a 3-month time frame. As such, her initial findings suggest that application of an extended TPB model to an *existing*, one-session preventive intervention that is delivered to a general audience of low-frequency gamblers may be insufficient for modifying the theoretically important correlates of behavior or for changing actual frequency of play over the short-term. It remains unclear whether this intervention would result in successful outcomes when used as a selective prevention tool for higher frequency adolescent gamblers, and should be systematically investigated. Indeed, it has been previously observed that school-based prevention programs generally have had the strongest impact for those students who are most in need of the information (i.e., those students who gambled more problematically) [53].

Treatment of Youth Gambling Disorder: Art or Science?

There is robust theoretical literature and ample empirical evidence to suggest a complex and dynamic interaction between biological, genetic, psychosocial, developmental, cognitive, and environmental components in the development and maintenance of excessive gambling behavior [54•]. There is also a growing recognition that, like for many other mental health disorders, individuals suffering from a gambling disorder do not represent a homogeneous group; rather, disordered gamblers present with distinct motivations for gambling, as well as a range of different intra- and inter-personal characteristics [54•, 55•]. In light of this situation, it is not surprising that no single therapeutic approach is universally effective for helping all individuals with a gambling disorder.

The treatment paradigms currently being employed for adults are varied and have generally been predicated upon diverse theoretical approaches and models. These approaches and models include the following: (a) psychoanalytic or psychodynamic; (b) behavioral; (c) cognitive and cognitive-behavioral; (d) pharmacological, with and without concurrent traditional forms of therapy; (e) brief treatments, self-help programs, and motivational interviewing; (f) family; (g) physiological; (h) biological/genetic; and (i) addiction-based models [56–59]. However, given current conceptualizations on the nature and etiology of DG, it is also increasingly recognized that a more tailored approach to treatment of individuals presenting with gambling disorder has significant merit [54•, 58]. This is not to suggest that a therapist's theoretical orientation must be ignored or altered; rather, the therapist must take into consideration each of the factors that combine and interact to form individual vulnerabilities and predispositions to DG, and offer specific interventions where appropriate.

Despite the existence of various treatment paradigms, there is a notable lack of methodologically sound empirical studies comparing the differential, long-term efficacy of these therapeutic approaches. This paucity of research has resulted in a failure to establish "best practice" standards for addressing DG. While there is a general consensus that cognitive-behavioral therapy (CBT) represents one of the most well-established, efficacious therapeutic interventions for working with individuals with gambling disorder [54•, 57, 60], a substantial proportion of the published studies, primarily with adult samples, suffered from multiple limitations (e.g., variability in the nature of interventions classified as cognitive-behavioral, differences in the modality of treatment delivery, experiments conducted without treatment manuals) which may have led to an overestimation of treatment efficacy [60]. Further research is needed to establish CBT as a consistently more effective treatment than alternative

psychological therapies, and to address the question of whether CBT can be used to achieve long-term abstinence from gambling [59].

Another difficulty with existing DG treatment modalities is that they have been extrapolated from adults to young people [56]. Adolescents, in certain ways, are no different from adults when it comes to the underlying reasons for their gambling (although it has been argued that brain maturation is not completed until approximately age 24). At the same time, the developmental period of adolescence is marked by distinct beliefs, physiological and psychological changes, concerns and challenges. Consequently, there is a general clinical consensus that an understanding of the psychology of adolescence would be extremely important in the treatment of most disorders, including DG [58]. Despite this consensus, little progress has been made in understanding the treatment needs of this population [61••]. Still today, there remains no empirically supported universal treatment protocol specifically designed for adolescents with a gambling disorder. Indeed, a very limited number of treatment outcome studies have been published in the psychological and psychiatric literature, and they have largely been subject to methodological flaws (e.g., small sample sizes and inadequate statistical power, poor experimental designs, limited follow-up, etc.) [58, 61••]. For example, in one of the few treatment outcome investigations with adolescent disordered gamblers, Ladouceur et al. [62] using a very small sample of four adolescents, reported clinically significant gains resulting from CBT, with three of the four adolescent males remaining abstinent between 3 and 6 months following treatment. They further concluded that the treatment duration necessary for adolescents with severe gambling problems was relatively short compared to that required for adults. Although treatment effects based on this study were promising, the limited sample of four male adolescents is not sufficiently representative to draw firm conclusions. It is also important to note that these adolescents reportedly had no co-occurring mental health or addictive disorders; young disordered gamblers are more likely to present with multiple psychiatric comorbid conditions, which pose significant treatment challenges for clinicians [56] and influence intervention outcomes [63].

Further complicating advances in understanding the treatment needs of young people is that few are either referred for, receive, or seek specialized treatment services for their gambling-related problems. For one, adolescents and young adults typically do not present in the same manner as older adults; they do not lose their wives, husbands, or children (they are generally unmarried), do not lose a home (they typically live with their parents or in rental properties), have not lost a job (most often they are students) and their accumulated debts, while directly impactful, tend not to be at the same level as those of older adults. Gambling problems among young people are therefore likely to be less readily visible than other addictions or mental health problems. In turn, while mental health professionals are trained to know the diagnostic criteria of gambling disorder, adolescents with this type of problem may be more able to hide their addiction than those suffering from other types of problems. This may therefore create a situation where young people with a gambling disorder may be less salient in the minds of mental health professionals and remain undetected.

There is also evidence to suggest that few young people (similar to adults) with DG compared to prevalence rates, actually present for treatment [64]. Certain of the reported barriers to professional help-seeking among this vulnerable population include underlying beliefs that they can control their behavior, self-perceptions of invincibility and invulnerability, negative attitudes toward obtaining psychological treatment for gambling problems, and belief in natural recovery [7, 65••, 66–68]. Regardless of the reason, the fact that few young people actually receive treatment services ultimately hinders researchers' ability to empirically validate treatment outcomes. Additionally, recent research reveals that mental health professionals report feeling the least prepared to deal with gambling-related issues, compared with other mental health or addiction issues [69].

Future Directions in the Treatment of Youth Gambling Disorder

While the empirical literature examining traditional treatment paradigms for youth DG remains scant, there has been some promising research on novel intervention approaches for adolescents and college students in recent years. These novel approaches directly address a number of the barriers to seeking traditional forms of treatment including time commitments and difficulties attending normative sessions caused by geographical distance. They include motivational interviewing, personalized feedback interventions, and online-based services.

Motivational Interviewing Motivational interviewing (MI) or motivational enhancement therapy (MET) is a client-centered counseling approach that works from the assumption that a primary obstacle to change is ambivalence [60]. The role of the clinician in MI is to assess the client's readiness for change and facilitate the transition towards behavior modification by resolving any ambivalence about change and enhancing self-efficacy for behavior change [70]. Techniques, such as targeted reflective listening, are used to highlight discrepancies between behavior and attitudes/perceptions and to elicit positive visualizations, which is assumed to reduce ambivalence and strengthen commitment to change [60]. The emphasis of MI on personal autonomy may be particularly

appealing for young people, considering the social development of adolescents and college-aged students [71].

There is preliminary evidence for the efficacy of MI in helping young people experiencing gambling-related problems. Drawing from a sample of 117 college students randomly assigned to intervention conditions, Petry et al. [71] investigated the treatment efficacy of a one-session MET intervention, a 10-min brief advice intervention, and a one session MET combined with a three session CBT intervention. They observed that the MET intervention resulted in significant decreases in gambling severity scores, gambling frequency, and gambling expenditure after a 9-month period. Despite these encouraging results, MET was not found to be significantly different from other active interventions in producing significant decreases in gambling severity scores or gambling behaviors, suggesting that any of these treatments may be useful for helping young people experiencing gambling-related difficulties. A potential limitation of this study, however, is that it evaluated gambling over only a restricted time frame. Either relapses or further reductions in gambling may have occurred later, and additional benefits of MET may have been uncovered if gambling behaviors had been measured over a longer time period.

Personalized Feedback Interventions Personalized feedback interventions (PFIs) represent a brief intervention that involves correcting normative misperceptions of youth gambling behavior [72]. Previous research with college students has revealed that individuals who perceived their fellow students as gambling more frequently and spending more money on gambling, and perceived that important others in their life were more approving of gambling, were most likely to gamble frequently, with greater amounts of money, and to experience more gambling-related negative consequences [43, 73]. Correcting erroneous normative perceptions of youth gambling behavior is therefore expected to lower young people's gambling frequency, expenditures, keep them safer, and reduce consequences.

Much like for MI, there is some research evidence for the efficacy of PFI in helping young people with gambling-related problems. From their sample of 147 college students randomly assigned to intervention conditions, Larimer et al. [72] examined the treatment efficacy of a one-session PFI intervention and a four to six session CBT intervention. Relative to no treatment, PFI (but not CBT) was significantly associated with decreased gambling frequency 6 months later. However, both PFI and CBT were associated with significant reductions in perceived gambling-related problems and number of endorsed DSM criteria at follow-up. Further, drawing from the same sample as Larimer et al. [73], Geisner and colleagues [74] randomly assigned 139 disordered college student gamblers to a PFI, CBT, or assessment-only condition. They observed that PFI (but not CBT) was significantly associated with decreased mental health symptoms (e.g., depression, anxiety, hostility) 6 months later, relative to no treatment. These promising findings notwithstanding, an important limitation of both these studies is that the PFI intervention was administered individually, whereas the CBT intervention was implemented using a group format. As such, the effects of the intervention content cannot be disentangled from the effects of implementation format.

Internet-Based Treatment Services Young people are traditionally very active online and use the Internet for recreation and social networking; in fact, 68–94 % of adolescents (aged 13–17 years) report going online at least daily and 88–92 % of Millenials (aged 18–29 years) indicate using the Internet at least occasionally [75, 76]. In addition to using the Internet for recreational or social networking purposes, young people also regularly use online services to seek help and look for information about mental health problems [77]. In recognition of this, Internet-based therapy and guided interventions have been developed and launched specifically for adolescents and young adults in an attempt to reduce high-risk behaviors and increase program utilization [78]. Internet-based therapy potentially offers multiple advantages (e.g., availability, convenience and accessibility, cost-effectiveness, anonymity, and privacy) that are particularly relevant for young people seeking help for gambling problems but who may not be inclined to utilize more traditional therapeutic services [79].

There is emerging evidence for the appeal and effectiveness of online-based services for gambling-related problems. A pilot project by McGill's International Centre for Youth Gambling Problems and High-Risk Behaviors involved the launching of a Web-based interactive chat line for adolescents and young adults (www.gamtalk4teens.org). This real-time chat line, staffed by graduate students and monitored by supervising psychologists, operated daily for a one-year period for four hours per evening allowing young people to discuss pertinent issues via interactive software similar to MSN messenger. While not empirically evaluated, anecdotal evidence from users suggests that it was a positive and helpful online service [80]. Although not limited to young adult samples, studies of online-based CBT for gambling disorder also reveal that such treatment approaches can result in significant improvements on measures of gambling disorder, general anxiety, depression, and quality of life, with treatment effects shown to be maintained 3 years later [81, 82]. It is important to note, however, that diagnostic reliability may have been compromised in these studies as there were no face-to-face meetings and all diagnoses were made via telephone or screening instruments.

Taken together, these research results suggest that brief, accessible interventions (such as MI, PFI, and Web-based online services) may be efficacious for the treatment of DG among adolescents and emerging adults. However, the

robustness of the effects remains unclear, as the follow-up periods were relatively short. As such, more clinical research is necessary before definitive conclusions can be drawn.

Concluding Remarks

Disordered gambling, currently recognized as a behavioral addiction, represents a serious public health issue and concern. Youth today will spend their entire lives in an environment where gambling is prolific, government supported, socially acceptable, and easily accessible in spite of some age restricted prohibitions. Although the incidence of severe gambling problems amongst young people remains relatively small, the devastating short-term and long-term consequences to the individual, their families, and friends are significant. However, despite many advances in our understanding of youth gambling and DG, significant gaps in knowledge still remain, particularly with respect to effective youth DG prevention initiatives and treatments. Indeed, scientific knowledge of the prevention and treatment of adolescent DG and its translation into effective, science-based prevention and intervention initiatives is scarce.

As the landscape of gambling continues to change and grow, with greater acceptability and accessibility, there is an increased need for the development of effective prevention initiatives. The need to enhance or modify current public health policy initiatives aimed at restricting the availability and accessibility of legal gambling opportunities is highlighted in the literature. Along with public health policy initiatives, the necessity for the refinement of existing or the development of innovative school-based educational initiatives is also of importance. There remains a fear that the incidence of problem gambling amongst youth will continue to rise with ongoing exposure and new technological forms of gambling. This changing landscape, with a heavy emphasis on technological advances (online and mobile gambling), the inclusion of social casino games, and the normalization of gambling will represent new challenges for youth, their parents, educational institutions, and clinicians.

More research into better understanding the dynamics, risk and protective factors and the efficacy of various treatment models for youth disordered gamblers is still necessary before any definitive best practices can be empirically established. However, some traditional and novel treatment approaches hold great promise for addressing DG among young people, particularly given the significant comorbidity of other addictive and disordered behaviors and the overlap in risk factors. These include cognitive-behavioral treatments, motivational interviewing, personalized feedback interventions, and Web-based services. Our governments must help fund more basic and applied research and be responsible for supporting and developing effective and scientifically validated treatment programs. The treatment of young problem gamblers is a complex, multidimensional process. While such an approach can be intensive, the long-term benefits to the individual and society outweigh the immediate costs of funding such programs.

Compliance with Ethical Standards

Conflict of Interest Renee St-Pierre and Jeffrey L. Derevensky declare that they have no conflict of interest.

Human and Animal Rights and Informed Consent This article does not contain any studies with human or animal subjects performed by any of the authors.

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