

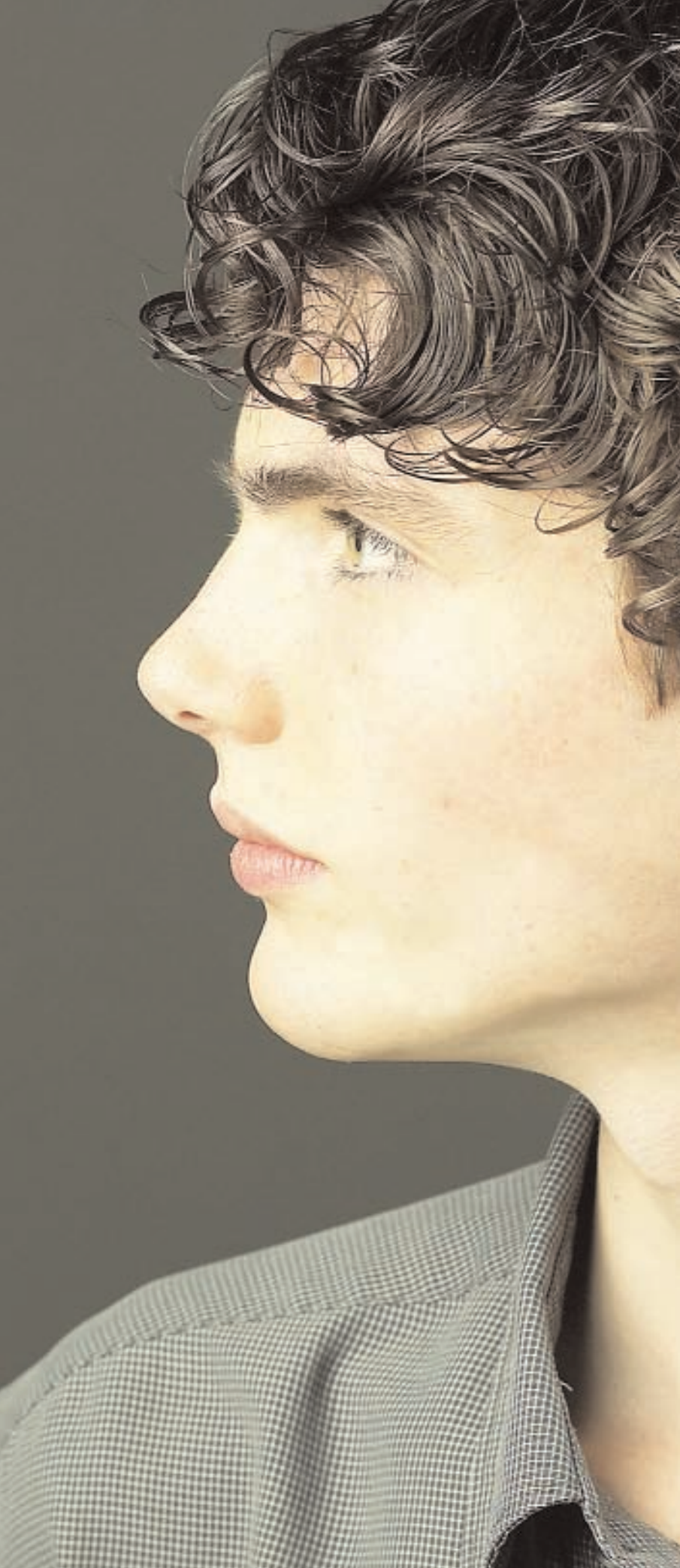
[REVIEW]

Adolescent Gambling

Research and Clinical Implications

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Gambling is a popular and prevalent behavior among adolescents. As compared with adults, adolescents have been found to have high rates of problem and pathological gambling. However, relatively few adolescents seek help for gambling problems. In this article, we review adolescent gambling, including problem and pathological levels. We consider the neurobiology of adolescent gambling, health correlates of different levels of gambling participation, and manners in which current prevention and treatment strategies might be further developed and optimized.

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INTRODUCTION

The recent expansion of gambling in North America and other parts of the world has been associated with increased opportunities for gambling and a greater social acceptability for the behavior. The promotion of widely available government lotteries, televising of poker tournaments, and accessibility of internet gambling make today's gambling environment significantly different from that of years past. In this environment, more adults report gambling than did in prior decades.¹ While not necessarily causally related, some data suggest that the prevalence of problem and pathological gambling in the adult population has also increased.² Such data highlight the importance of additional clinical and research attention focused on prevention and treatment efforts

pathology and effects on development, and the status of prevention and treatment strategies.

PREVALENCE

A difficulty with estimating the prevalences of gambling, problem gambling, and pathological gambling in youth involves defining the behaviors in adolescents. Gambling by strict definition is placing something of value (usually but not always money) at risk in the hopes of gaining something of greater value. Thus gambling in adolescents includes a spectrum of behaviors ranging from seemingly innocuous (e.g., flipping cards for "keeps") to more problematic (e.g., sneaking into casinos to gamble). Despite differences in the types of behaviors defined as gambling in different studies (e.g, some studies restrict gambling to behaviors in

Adolescents participate in almost every type of gambling activity—government promoted lottery games (including scratch-off tickets), cards, dice, board games, sports betting, and games of personal skill. Actual rates of participation vary by region determined by accessibility of gambling opportunities and types of gambling available to adolescents and the population in general. Compared with adult gamblers, adolescent gamblers report gambling with less money and less frequently than adults, but this may be due to factors of access to money and gambling opportunities. They are also more likely to participate in strategic gambling (e.g., card games) rather than nonstrategic gambling (e.g. slot machines), perhaps given of the diminished legal access to casinos and lotteries. Other

Elements of competitive risk-taking or social engagement may be particularly salient to youth and contribute to the popularity of poker and other strategic forms of gambling.

for adults with gambling problems.

The impact of the current gambling environment on youth is less understood. Adolescence appears to be a particularly important developmental period for considering gambling behaviors given the prevalence of risk-taking behaviors in this population. Specifically, within the current gambling climate, it is important to understand the degree to which youth gamble, gambling's influence on development, and the extent to which specific prevention and intervention strategies should target specific levels of gambling in adolescents. This review will summarize the literature regarding the prevalence of gambling among adolescents, its associated

which money is bet),^{3,4} investigations consistently indicate that large proportions of adolescents gamble. A review of 26 gambling prevalence studies conducted in the US and Canada shows both a high level of adolescent involvement in gambling activities and an increase in participation in recent years. In the US between 1989 and 2002, the median rate of reported past-year gambling was 65 percent (range 49–86%), up from a median of 45% from 1984 through 1988 (range 20–86%). Studies of Canadian youth suggested comparable rates of underage gambling for that population, with wide participation that is increasing.⁵

factors may also contribute to the gambling preferences of adolescents. For example, elements of competitive risk-taking or social engagement may be particularly salient to youth and contribute to the popularity of poker and other strategic forms of gambling. While age restrictions may limit gambling by youth, they do not eliminate the behavior. Adolescents report little difficulty gaining access to lottery games and scratch-off tickets that are typically restricted to adults.⁶ For example, in a study of Minnesota high school students, 10 percent of boys surveyed reported gambling in a casino while underage, and 25 percent reported playing scratch-off tickets.⁷

Another challenge in studying the gambling behaviors of youth involves the application or modification of the problem gambling criteria used to define adult behaviors. Defining problem and pathological gambling among youth involves consideration of differences in adolescent roles and responsibilities. For example, differences in employment status (school vs. occupation) and social relationships (parental vs. spousal relationships) in adolescents versus adults need to be considered when assessing gambling's impact on life functioning. There are difficulties in assessing the true rate of gambling problems given a lack of a consensus around definitions of adolescent analogues to the adult situations in which gambling has significant negative effects. While the general term *gambling problems* includes gambling behaviors that interfere with and have a negative impact on one's life, there is only one formalized diagnostic definition of gambling problems (pathological gambling) that appears in the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision* (DSM-IV-TR)⁸ or the *International Statistical Classification of Diseases and Related Health Problems, Tenth Edition* (ICD-10).⁹ There are no established criteria for other terms such as problem gambling or compulsive gambling. The lack of categorical consensus has led to variations in findings from survey studies performed in adolescents. Despite difficulties related to assessing problem and pathological gambling amongst youth, several research groups have endeavored to assess the prevalence of problematic forms of adolescent gambling.

Multiple instruments have been used to assess gambling activity in adolescents (DSM-IV-MR-J, SOGS-RA, GA20).¹⁰⁻¹² Many instruments represent revised versions of assessments previously used with

adults, modified to better reflect an adolescent's gambling experiences and vocabulary. Different research groups have at times employed different thresholds to categorize gambling as problematic, thus further complicating efforts to quantify and describe the status of gambling in youth.

Despite difficulties related to assessing problem and pathological gambling among youth, several research groups have endeavored to assess the prevalence of problematic forms of adolescent gambling. Estimates of problem gambling or pathological gambling range between two and four times higher than the adult population, with 4 to 8 percent suffering serious problems and an additional 10 to 14 percent at risk for gambling problems.^{5,13-16}

DEMOGRAPHIC CHARACTERISTICS OF ADOLESCENT GAMBLERS

As with adult gamblers, adolescent gamblers are more likely to be male and males are also more likely to have gambling problems than female gamblers by a factor of 3-5:1.⁵

The average age at which a child first gambles is 12 years old, an average age younger than those for first use of alcohol, tobacco, or other drugs.⁵ Subgroups have been found to have higher rates of gambling than those reported in the general population. A study of Minnesota teenagers found higher frequency of gambling among Latin American, African American, and American Indian high school students as compared to Caucasian and Asian American peers.¹⁷ Hispanic students in Texas were found to have a higher rate of weekly gambling and report more gambling problems as compared to other ethnic and racial subgroups.⁵

RISK FACTORS

Gambling has an inherent element of risk, and adolescence is a period of development

RISK FACTORS FOR PROBLEM OR PATHOLOGICAL GAMBLING IN ADOLESCENTS

- Having parents with gambling problems
- Having an earlier age of first gambling activity
- Possessing greater impulsivity
- Having areas of poor functioning, including medical, psychiatric, and/or substance use disorders and family/social problems

characterized by high rates of risk-taking behavior in a variety of settings.¹⁸⁻²⁰ Studies have demonstrated that if gambling situations are presented to adolescents, most will participate to some degree. Currently, as compared to years past, adolescents live in a time of increased gambling availability; they are developing with the general perception that gambling is acceptable and normal.²¹

Not surprisingly, the immediate family environment can be a risk factor for engaging in gambling behavior *per se*. Parental attitudes about their children and gambling have been found to be inconsistent. One study found that although 86 percent of parents surveyed believe that the availability of gambling should be reduced for adolescents, 84 percent of parents reported that they would buy lottery tickets for their children.²² Parents therefore may encourage youth gambling by providing underage children with lottery items or gambling opportunities in the home or by providing an attitude that underage gambling is acceptable.²² Joining in adult gambling in the home is not uncommon and may be seen by family members as a harmless multigenerational form of recreation.²³

Contrary to the prevailing association of gambling for monetary gain in adults, for an adolescent, gambling is often reported as an opportunity to socialize.

Peer group gambling, like other aspects of peer activities during adolescence, is also a significant factor. Peers may introduce others to gambling as a shared social activity. However, data suggest that if adolescents progress to gambling problems, as the problem gambling behaviors surface, old friends are replaced with gambling acquaintances, thus continuing or escalating the problematic behavior.²¹

In the majority of situations, gambling in adolescence does not appear to have obvious serious negative consequences; however, in a number of cases it does. There are several risk factors for adolescent problem gambling, including parents with gambling problems, an earlier age of first gambling activity, and greater impulsivity. Children of problem gamblers tend to gamble earlier than their peers.⁵ This young age at gambling onset may be of particular concern because of a reported association between a young age at gambling onset and multiple negative measures of functioning. These areas of poor functioning include not only gambling problems during adolescence, but also medical, psychiatric, substance use, and family/social problems later in life.^{5,24-26} However, the nature of these associations remains incompletely understood as much data have been derived from cross-sectional and/or retrospective studies, and relatively few longitudinal investigations have been performed to date.^{27,28}

Engagement in gambling and other risk behavior appears to be related to the neurodevelopmental

status of adolescents.¹⁸ This period of growth and development is a time of high levels of risk-taking, novelty seeking, and impulsivity.²⁹ Risky behavior may be the result of the maturational process of the brain, which, during adolescence as compared to adults, appears to involve increased sensitivity of reward circuitry involving the nucleus accumbens and related brain regions, decreased harm avoidance involving the amygdala and related neurocircuitry, and/or inefficient supervisory system involving ventromedial prefrontal cortex and related systems.^{18,30} However, this model, as related to problem/pathological gambling, remains largely speculative as, to date, there are no published reports that have directly investigated the brain function of adolescents who engage in different levels (e.g., pathological vs. recreational) of gambling.

Adolescent gambling on the Internet, a new and developing issue, is emerging as a particular concern because of its solitary nature, diminished supervision (e.g., no face-to-face contact needed to verify age), easy accessibility, and apparent potential for incurring significant losses over a relatively short time period.³¹ Moreover, many youth are facile with computer technologies, raising additional concern that they might become more engaged in computerized gambling than their adult counterparts. There exist technical difficulties in regulating internet gambling. As some countries permit the activity (e.g., the United Kingdom) and others restrict it (e.g., the United States) and people can access

sites internationally given the world-wide nature of the internet, countries have found it difficult to regulate internet gambling in general, and these difficulties extend to youth. For example, up to 25 percent of adolescents with serious gambling problems report using online gambling practice sites.³² In 2002, the Federal Trade Commission issued an alert regarding children and online gambling.³³ In its investigation, it found that minors could easily access gambling sites, warnings about underage gambling were inconspicuous or absent, and youth were exposed to advertisements of gambling sites posted on nongambling sites.³³

MOTIVATION

There are varying reasons ascribed to adolescents' motivations to gamble. Contrary to the prevailing association of gambling for monetary gain in adults, for an adolescent, gambling is often reported as an opportunity to socialize. It is viewed as an activity with others rather than an opportunity to win money.²⁶ Researchers operating one of the few treatment centers focused on teenage gambling problems report that patients describe their gambling as being focused not on winning money, but that money was simply a tool to allow them to gamble, and that gambling is used as a coping mechanism, a way to dissociate from stressful events in their lives.¹⁴ In this manner, the reports echo those of adults with gambling problems.

This theory that gambling behavior may be a coping mechanism for negative or

stressful life events is supported by a study that found that adolescents with gambling problems reported more negative life experiences as a whole and more major negative life events than social gamblers or nongamblers.³⁴ Adolescent problem gamblers show different and maladaptive coping strategies than nongamblers, using less task-focused coping and more avoidance coping strategies.^{34,35} Within this group, gender differences were observed. Boys who gambled excessively as compared to boys without gambling problems demonstrated more emotion-focused coping strategies, such as anger, frustration, or anxiety, during negative events. This increase in emotion-focused responses relative to nonproblem gambling peers was not found in girls.³⁴

ASSOCIATED PATHOLOGY

Data suggest that early age at gambling onset might influence mental health functioning later in life. For example, young adult gamblers who initiated gambling behavior as adolescents were found to be more likely to report substance use problems than were young adult gamblers who started gambling as adults.²⁶

Elevated rates of alcohol use, abuse, and dependence are reported in association with gambling in adolescent boys and

girls as compared to their nongambling peers. However, there appear to be gender differences in the association between gambling and mood, with girls who gamble being more likely to report dysthymia/depression in association with gambling than are boys.³ These findings are consistent with gender differences in internalizing and externalizing behaviors and disorders.³⁶ On the other hand, boys are more likely to report heavier gambling and more gambling problems than female gamblers.³ Subsyndromal and problem gambling have been associated with other adolescent pathology. A large study of high school students in Vermont found adolescent gambling associated with increased rates of a variety of risk behaviors, including alcohol use, substance use, seatbelt nonuse, driving after drinking alcohol, and violence. The same study also found that these risk factors were more common in students classified as problem gamblers compared to nonproblem gamblers.¹⁹ In general, the number of risk behaviors increased from nongamblers at the low end, subsyndromal gamblers in the middle, and problem gamblers at the high end.¹⁹ Given that the Vermont sample was largely Caucasian, further study is needed to determine the generalizability of the findings to other racial and ethnic groups.

PREVENTION AND TREATMENT—A LACK OF EVIDENCE-BASED STRATEGIES

One of the difficulties in addressing the dangers of youth gambling is that it is often seen as a harmless form of entertainment. Youths may not even associate some activities like lotto with gambling.⁶ A survey of adolescents found that many do not think there should be age restrictions on lotto gambling; this attitude tends to decrease with age.⁶ Given that gambling addictions result in fewer outwardly observable signs compared to other addictions like alcohol and substance abuse, there are fewer opportunities for parents and other concerned adults to see when gambling problems are present.³⁷

Gambling is widely advertised, readily available, and promoted in a way that makes it appear glamorous (e.g., casino gambling) or a quick way to become wealthy (e.g., lottery and scratch-off tickets). A strengthening of regulations preventing youth gambling and the enforcement of such regulations should be considered and empirically tested to evaluate efficacy. Such interventions could target the prevention of underage gamblers from purchasing lottery products or gambling on the internet, behaviors that adolescents currently report performing with relative ease.³⁸

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Another possibility for the low numbers of teenage gamblers seeking treatment is that given the high rate of comorbid disorders, treatment may be focused on disorders that get more clinical attention (e.g., substance abuse).

Data suggest some prevention strategies have an impact. Gambling prevention strategies providing facts about gambling to young people have been shown to improve knowledge and significantly reduce misconceptions about gambling and result in more realistic attitudes towards gambling.^{39,40} However, the extent to which such programs prevent gambling, particularly problem or pathological gambling, among youth needs further evaluation.⁴¹

An important unanswered question in developing appropriate prevention strategies for adolescent gambling is the relatively poor understanding of the impact of various levels of specific types of gambling on the developmental trajectories of different groups of youth. Specific types of low-level gambling could arguably confer benefits (social, cognitive) whereas excessive levels of gambling that interfere with schooling and lead to conflictual relationships are clearly disadvantageous. An improved understanding of the larger spectrum in between the extremes could help guide the development of guidelines for healthy gambling as exist for other behaviors with risk potential.

For adolescents with severe gambling problems, gambling consumes their lives much like adults with pathological gambling. However, the clinical presentation is typically different from that in adults. Because of their age,

adolescent problem gamblers may still be in school, not yet be married, and live with their parents. Similar to adults, their family and friends may distrust them in view of repeated lies about their gambling, episodes of stealing, and unpaid loans. If they are still in school, schoolwork may suffer due to their preoccupation with gambling or obtaining money to gamble.²¹

Gambling problems in adolescents have historically received less focus than other related disorders and only relatively recently has attention been focused on this issue. As a result, there is a smaller body of literature regarding treatment strategies. Published literature consists largely of case studies of a limited number of patients, and there are no empirical, matched control studies of treatment strategies for this population.⁴² Pharmacotherapies for pathological gambling in youth have not been empirically examined in randomized clinical trials, although multiple placebo-controlled trials have tested the use of medications in adults with pathological gambling.⁴³ Care should be taken in applying treatment strategies tested in adults to comparable populations of youth given differences in developmental staging that could influence efficacy or tolerability. As few teenagers present themselves for treatment, there are limited numbers available to enter trials to evaluate treatment

strategies. As such, multicenter trials may be needed, as have been successfully performed in adult populations.^{44,45}

It appears that many adolescents who seem to have gambling problems often do not acknowledge that their gambling is problematic. A survey of older youth in Quebec junior colleges (average age 18.6 years) showed that while 3.3 to 5.4 percent of survey participants would qualify as probable pathological gamblers, only 1.1 percent classified themselves as such. Although there could be some overestimation from the surveys, the finding suggests that adolescents may not consider seemingly disruptive gambling as problematic, or they may underestimate the serious nature of its impact.⁴⁶ Such a discrepancy might also influence treatment seeking among this age group and contribute to the low numbers of treatment seeking adolescent problem gamblers. Another possibility for the low numbers of teenage gamblers seeking treatment is that given the high rate of comorbid disorders, treatment may be focused on disorders that get more clinical attention (e.g., substance abuse). Another factor influencing the seeking of treatment might represent the heterogeneity in maturity levels within a relatively narrow age range. That is, different treatment approaches for adolescents may be required depending on the patient's

maturation and developmental level (e.g., differing approaches required for 14-year-old vs. 18-year-old individuals).^{21,47}

CONCLUSION

While adolescence is only a short period of one's life, it is a time of critical developmental change and growth. There exist high rates of risk-taking behavior during adolescence, including with behaviors like gambling that have addictive potential and carry associated risks. Future research needs to focus on understanding the longitudinal course of adolescent gambling in general and how gambling problems in adolescents develop and progress in all dimensions. A neurobiological understanding that incorporates the influences of genetic and environmental factors and considers other important factors (e.g., gender and developmental stage) will be important in developing appropriate prevention and treatment strategies for youth populations.

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