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Research review

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Adolescents with gambling problems: A synopsis of our current knowledge



*By Jeffrey L. Derevensky
International Centre for Youth Gambling
Problems and High-Risk Behaviors
McGill University
Montreal, Quebec, Canada
Email: jeffrey.derevensky@mcgill.ca*



*Rina Gupta
International Centre for Youth Gambling
Problems and High-Risk Behaviors
McGill University
Montreal, Quebec, Canada*

Abstract

It's been 25 years since Henry Lesieur's seminal research on understanding compulsive gambling was published. While still in its infancy, the field of gambling research has evolved and greatly added to a better understanding of this complex behavior, its measurement, its social and familial costs, ways of minimizing and preventing gambling problems, and methods of treating individuals with gambling problems. For most adolescents and adults gambling remains a form of entertainment without serious negative consequences. Yet, adolescent pathological gamblers, like their adult counterparts and independent of the negative

consequences resulting from their excessive gambling, continue to chase their losses, exhibit a preoccupation with gambling, and have an impaired ability to stop gambling in spite of repeated attempts and their desire to do so. Our current empirical knowledge of youth gambling problems is reviewed and recommendations for future research are provided.

In 1977 Henry Lesieur published his groundbreaking sociological study of the compulsive (pathological) gambler, *The Chase: Career of the Compulsive Gambler*. This work was based on Henry Lesieur's astute observations and clinical interviews with pathological gamblers in an attempt to better understand the career and behavioral patterns of individuals with severe gambling problems. Much has changed during the past 25 years since this seminal work was published. While the body of scientific knowledge has substantially increased so too has the widespread availability of gambling venues and types of games. We are still struggling with understanding why certain individuals continue to wage money in an excessive manner in spite of repeated losses. Henry Lesieur's early attempt at helping us understand the compulsive gambler marked the beginning of a long and illustrious research and clinical career. *The Chase*, along with his subsequent work, has helped facilitate our understanding of this complex disorder. The initial tenets outlined in *The Chase* provided a framework for much scientific research. Like most good research, *The Chase* provided insights into the pathological gambler and raised new and important research and clinical questions.

In the 1984 edition of *The Chase*, only seven years after its initial publication, Lesieur added an afterword. He aptly noted that there were six distinctive developments which were occurring in the 1970's and 1980's that he believed had an impact upon the perception of the traditional image of the pathological gambler: (1) legalized gambling had begun to increase at an unprecedented level. At that time, he noted that increased gambling venues likely results in an increased prevalence rate of pathological gamblers. He also suggested that the gambling industry and concomitant problems associated with pathological gambling would continue to grow and attract widespread media coverage, (2) the first in-patient treatment center for pathological gamblers was established by the Veterans Administration in Brecksville Ohio, (3) the National Council on Compulsive Gambling was established as a vehicle to help educate the general public on issues of compulsive gambling, (4) the first Commission on the Review of the National Policy Toward Gambling highlighted the necessity to more closely examine this disorder, (5) the American Psychiatric Association in its *Diagnostic and Statistical Manual of Mental Disorders* (1980) recognized pathological gambling as a Disorder of Impulse Control, and (6) treatment programs were begun in Maryland, Connecticut, and New York, with the first toll-free helpline (800 GAMBLER) being established in New Jersey. These developments marked a significant change in the recognition of pathological gambling as a treatable disorder, a beginning toward educating the public about the problem, and more widespread access toward receiving help for those in need.

In this same edition of *The Chase*, Lesieur proposed an agenda for research on pathological gambling. He articulated four major types of research which were needed: (1) ethnographic studies of subpopulations of gamblers, (2) solid epidemiological research on the incidence and prevalence of pathological gambling, (3) research examining the diagnostic criteria for pathological gambling, and (4) systematic evaluation of prevailing treatment programs in an attempt to establish "Best Practices". While scientific gains have been made in some of these areas much more research is necessary. Following Lesieur's call for an examination of subpopulations of gamblers, one area of concern was a growing group of underage youth who were not only gambling but also experiencing many similar negative behaviors associated with pathological gambling as their adult counterparts.

The chase to recoup losses, in which the individual becomes trapped in a self enclosed system, coupled with a desire to reach heightened levels of excitement found in so many adult pathological gamblers was also present in a number of adolescents and young adults experiencing gambling problems. As their gambling involvement increased, they too became trapped in this downward spiral. The adolescent pathological gambler, like his adult counterpart, get more engrossed in the action and intensity of the chase becoming so entranced that for the time they are gambling all their problems disappear (Gupta & Derevensky, 1998a, 2000). Their primary intention becomes recouping losses, and they continue playing despite their reported desire to stop and the negative consequences associated with their excessive pathological gambling behavior.

In April 1995, the North American Think Tank on Youth Gambling Issues was held at Harvard Medical School. Forty-two individuals from the United States and Canada, from public and private institutions, gathered to seek solutions to the growing social-health problem associated with adolescent gambling problems (George, 2003). Lesieur (2003) at that meeting talked of adolescent gambling research as being the "next wave of research." Early research reports provided clear evidence that high school students gambled in casinos in Atlantic City despite legal prohibitions (Arcuri, Lester & Smith, 1985). Further, Lesieur and Klein (1987) reported that 86% of high school students in New Jersey reported gambling in the past year, and 91% had participated in some form of gambling during their lifetime. These early studies eventually led to a plethora of prevalence studies, meta analyses and reviews, which concluded that gambling amongst youth was commonplace, and the prevalence rates for pathological gambling amongst adolescents was higher than that reported for adults (e.g., Haroon & Derevensky, 2002; Jacobs, 2000; National Research Council, 1999; Shaffer & Hall, 1996). The National Research Council (1999) reviewed the existing scientific literature and concluded that adolescents were indeed a high-risk and vulnerable population, likely to be at risk for developing gambling problems and may be especially vulnerable to their effects. The National Research Council, while urging caution as data sets were not always comparable, concluded that the proportion of pathological gambling among adolescents in the United

States could be more than three times that of adults (5.0% vs. 1.5%).

While the actual prevalence rates for adolescent pathological gambling remains somewhat contentious (see Derevensky, Gupta & Winters, 2003, for a comprehensive discussion), and there is concern about the screening instruments used for the identification of adolescents with gambling problems (see Lesieur, 2003, for some of the methodological weaknesses of the instrumentation), there is little doubt that a vast majority of adolescents report wagering money during the past year, and that an identifiable number actually experience many gambling related negative behaviors. In a recent study, Derevensky and Gupta (2000) reported that 91% of pathological adolescent and young adult gamblers have a preoccupation with gambling; 85% indicate chasing their losses; 70% lie to family members, peers and friends about their gambling behavior; 61% gamble as a way of escaping problems; 61% use their lunch money and/or allowance for gambling; 61% become tense and restless when trying to cut down on their gambling; 57% report spending increasing amounts of money gambling; 52% gamble as a way of escaping problems; 27% report skipping school (more than five times) to gamble in the past year; 24% have taken money from a family member to gamble without their knowledge; 24% have sought help for serious financial concerns resulting from their gambling; 21% have developed familial problems resulting from their gambling behavior; and 12% report having stolen money from outside the family to gamble.

Problem and pathological gambling among adolescents has been shown to result in increased delinquency and crime, the disruption of familial relationships and poor academic performance (Gupta & Derevensky, 1998a; Ladouceur & Mireault, 1988; Lesieur & Klein, 1987; Wynne, Smith & Jacobs, 1996). As well, youth pathological gamblers are reported to have high rates of suicide ideation and suicide attempts (Nower, Gupta & Derevensky, 2003) and a number of mental health and behavioral problems (Hardoon, Gupta & Derevensky, 2002).

There exists a growing body of research designed to help identify the risk and protective factors associated with gambling problems among youth, to examine the antecedents of the problem, and to identify effective strategies for the prevention and treatment of youth with serious gambling problems. Current research efforts have been focused upon basic issues of assessment of gambling severity; the identification of physiological, psychological and socio-emotional mechanisms underlying excessive gambling behavior among youth; understanding why some individuals continue to gamble in spite of repeated losses; and how to best educate, prevent, and treat these problems. There remains little doubt that gambling amongst youth remains an important area in of further basic and applied research, additional funding, and responsible social policy development.

Risk factors and correlates

What do we know about youth gambling? These findings have been reported elsewhere and our current knowledge in this area continues to grow. There is substantial empirical support and a growing body of research indicating the following:

- Gambling is more popular amongst males than females and more males than females exhibit pathological gambling behaviors (Fisher, 1990; Gupta & Derevensky, 1998a; Ladouceur, Dubé & Bujold, 1994; NORC, 1999; NRC, 1999; Stinchfield, 2000; Stinchfield, Cassuto, Winters & Latimer, 1997; Volberg, 1994, 1996, 1998; Wynne et al., 1996).
- Prevalence rates of problem gambling among adolescents are higher than those reported by adults (Gupta & Derevensky, 1998a; Jacobs, 2000; NRC, 1999; Shaffer & Hall, 1996). While there is some controversy in the literature regarding this conclusion, there is ample empirical research supporting this finding, given our current definition of pathological gambling and the screening instruments used for assessment (Derevensky et al., 2003).
- Among adolescents there is a rapid movement from social gambler to problem gambler (Derevensky & Gupta, 1996, 1999; Gupta & Derevensky, 1998a).
- Adolescent problem gamblers report initiating gambling at an early age (approximately 10 years of age) as compared with peers who report gambling but have few gambling related problems (Derevensky & Gupta, 2001; Gupta & Derevensky, 1997, 1998b; Wynne et al., 1996).
- Probable pathological gamblers are greater risk-takers in general and on gambling tasks in particular (Arnett, 1994; Breen & Zuckerman, 1996; Derevensky & Gupta, 1996; Powell, Hardoon, Derevensky & Gupta, 1999; Zuckerman, 1979; Zuckerman, Eysenck & Eysenck, 1978).
- Research data and clinical testimony suggest that adolescent pathological gamblers have lower self-esteem compared to other adolescents (Gupta & Derevensky, 1998b, 2001, in press).
- Adolescent problem gamblers report greater depressive symptomatology compared to both non-gambling adolescents and those described as social gamblers (Gupta & Derevensky, 1998a, 1998b, 2001; Kaufman et al., 2002; Marget et al., 1999).
- Adolescent problem gamblers score higher on dissociative scales (Gupta & Derevensky, 1998b, 2001; Jacobs, Marston & Singer, 1985).
- Adolescents between the ages of 14 and 17 with serious gambling problems remain at a heightened risk for suicide ideation and suicide attempts (Gupta & Derevensky, 1998a, 2001).

- Adolescents with gambling problems have poor general coping skills (Marget et al., 1999; Gupta & Derevensky, 2001; Nower, Gupta & Derevensky, 2000). As well, they report more daily hassles and major traumatic life events (Gupta & Derevensky, 2001; Kaufman et al., 2002).
- A high proportion of youth with gambling problems report having a learning disability as well as poor family connectedness and low perceived social support (Hardoon et al., 2002).
- Personality traits reveal adolescent pathological gamblers are more excitable, extroverted, anxious, tend to have difficulty conforming to societal norms, and experience difficulties with self-discipline (Gupta & Derevensky, in press; Hardoon et al., 2002). Adolescents with severe gambling problems also exhibit higher scores on measures of state and trait anxiety (Gupta & Derevensky, 1998b; Ste-Marie, Gupta, & Derevensky, 2002) and are more impulsive (Nower, Derevensky & Gupta, in press; Vitaro, Ferland, Jacques & Ladouceur, 1998).
- For adolescents with severe gambling problems, quality long-lasting friendships and relationships are often lost and replaced by gambling associates (Derevensky & Gupta, 1999).
- Adolescent problem gamblers remain at increased risk for the development of multiple addictions (Gupta & Derevensky, 1998a, 1998b, 2001; Kusyszyn, 1972; Lesieur & Klein, 1987; Winters & Anderson, 2000).
- Like adults (Azmier, 2000), children and adolescents often have a positive attitude toward gambling (Dickson, Derevensky & Gupta, 2002). These individuals fail to completely understand the risks or odds associated with gambling (Wood, Derevensky, Gupta & Griffiths, 2002).
- Only a small percentage of individuals scoring in the pathological gambling range on multiple screening instruments perceive themselves as having a gambling problem. This is one of the reasons for their not seeking professional help (Hardoon, Derevensky & Gupta, 2003).

Treatment

Current treatment paradigms for adolescents and young adults have, in general, been based on a number of theoretical approaches and parallel those used for adults (e.g., psychoanalytic or psychodynamic, behavioral, cognitive and cognitive-behavioral, pharmacological, physiological, biological/genetic, addiction-based models, or self-help). The resulting treatment paradigms have incorporated a narrow focus depending upon the therapist's theoretical orientation of the etiology of a gambling problem and their background work in the field of addictions. Unfortunately, we

have yet to achieve consensus on what constitutes "Best Practices" for treating both adolescents and adults with gambling problems (Nathan, 2001). Too few treatment centers see adolescents specifically for gambling problems, and the number of tightly controlled treatment efficacy studies is extremely limited.

There is considerable empirical support suggesting that gambling involves a complex and dynamic interaction between ecological, psycho-physiological, developmental, cognitive and behavioral components. Given this complexity, Gupta and Derevensky (2000) contend that each of these components needs to be adequately addressed and incorporated into a treatment paradigm for youth experiencing significant gambling problems. Empirical support for Jacobs' General Theory of Addiction for adolescent problem gamblers (Gupta & Derevensky, 1998b) suggests that adolescent problem and pathological gamblers exhibited evidence of abnormal physiological resting states, exhibited greater emotional distress; they also reported significantly higher levels of dissociation when gambling, and had higher rates of comorbidity with other addictive behaviors.

The treatment studies reported in the literature have generally been case studies with small sample sizes (Gupta & Derevensky, 2000; Knapp & Lech, 1987; Ladouceur, Dubé et al., 1994; Murray, 1993; Wildman, 1997) and have been criticized for not being subjected to rigorous scientific standards (Blaszczynski & Silove, 1995; Nathan, 2001; National Gambling Impact Study Commission, 1999; NRC, 1999). Ladouceur and his colleagues have long argued for a cognitive-behavioral approach to treating both adults and youth with gambling problems (e.g., Bujold, Ladouceur, Sylvain & Boisvert, 1994; Ladouceur, Boisvert & Dumont, 1994; Ladouceur, Sylvain, Letarte, Giroux & Jacques, 1998; Ladouceur & Walker, 1996, 1998). Underlying the cognitive-behavioral approach is the assumption that pathological gamblers continue to gamble in spite of repeated losses as they maintain an unrealistic belief that losses will be recovered. This perspective also assumes that it is the individual's erroneous beliefs (i.e. a lack of understanding of the notion of independence of events, erroneous perceptions about the level of skill required to be successful in predicting the outcome of chance events, and their illusion of personal control and skill) that foster their persistent gambling behaviors (Ladouceur & Walker, 1998). Ladouceur, Boisvert & Dumont, 1994), using four adolescent male pathological gamblers, implemented a cognitive-behavioral therapy program and reported clinically significant improvements with respect to the adolescents' beliefs about the perception of control when gambling and a significant reduction in severity of gambling problems. Six months post-treatment, three adolescents sustained treatment gains and were abstinent. Ladouceur and his colleagues concluded that cognitive therapy shows considerable promise as a treatment intervention for adolescents with significant gambling problems.

Gupta and Derevensky (2000) described a treatment model predicated

upon their findings that youth problem gamblers generally show evidence of depressive symptomatology; somatic disorders; anxiety; attention deficits; academic, personal and familial problems; high risk-taking; poor coping skills, and as such, use gambling as a way of escaping daily and long-term problems, in addition to experiencing erroneous cognitive beliefs and distortions. They contend that one must effectively deal with the underlying psychological problems in order to get the adolescent to stop gambling and to prevent relapse.

Of great promise is Nower and Blaszczynski's (2003) pathways approach to treating youth gamblers. Based upon Blaszczynski's (1998) and Blaszczynski and Nower's (2002) Pathways Model, it is suggested that a multifaceted constellation of risk and protective factors differentially influence adolescents who otherwise display similar phenomenological features and patterns following alternative and distinct pathways toward a gambling disorder. Originally designed for adult pathological gamblers, Blaszczynski and Nower suggest that a similar model is plausible for youth. Their model proposes that at least three subgroups of adolescent problem and pathological gamblers with distinct clinical features and etiologies exist: Behaviorally-conditioned problem gamblers, Pathway 1, lack specific or general psychiatric pathology but rather succumb to the highly addictive schedules of behavioral reinforcement found in most gambling activities; Emotionally vulnerable problem gamblers, Pathway 2, exhibit a biological and emotional vulnerability to pathology; their behavior is characterized by high levels of depression and/or anxiety, low self-esteem and a history of poor social support and emotional neglect by parents or caregivers; Antisocial impulsivist problem gamblers, Pathway 3, are similar to individuals in Pathway 2, but they are more impulsive, antisocial and often have comorbid addictions. Nower and Blaszczynski (2003) contend that the Pathways Model is composed of three major but distinct pathways leading to pathological gambling, all of which share certain similar processes and symptomatic features. However, each pathway is distinguished by empirically testable differences in vulnerability factors, demographic features and etiological processes, including ease of access and social acceptability of gambling.

While all youth pathological gamblers are subject to ecological variables, operant and classical conditioning, and cognitive reasoning, Nower and Blaszczynski suggest that differences between subgroups have significant implications for both diagnosis and treatment. They suggest that Pathway 1 youth gamblers are normative in temperament but lose control when gambling as a result of the intermittent reinforcement schedules and probabilities of success, so common in most forms of gambling. In contrast, Pathway 2 gamblers are characterized by having disrupted and/or poor familial and personal histories, affective instability and disorders, and inefficient coping and problem-solving skills. These individuals are more likely to view gambling as a means of emotional escape and mood regulation. Finally, individuals in Pathway 3 exhibit quite distinct biological vulnerabilities toward impulsivity and arousal-seeking, are more likely to have an early onset of gambling and exhibit attentional

deficits and antisocial traits. While empirical research is needed to determine the relative proportion of youth in each pathway and to validate the model, identifying the appropriate pathway for youth gamblers would provide a useful clinical framework that will ultimately improve the effectiveness of our treatment interventions.

Clearly, the research on the effective treatment of adolescent pathological gamblers is limited and in its early stages. Further research into the efficacy of alternative treatment models for youth problem gamblers is necessary before recommendations for "Best Practices" can be reliably established.

Prevention

While limited progress has been made in understanding the treatment of problem adolescent gambling or the characteristics of those seeking help (Gupta & Derevensky, 2000; Nathan, 2001), empirical knowledge concerning prevention of gambling problems and its translation into science-based prevention initiatives is also scarce (Derevensky, Gupta, Dickson & Deguire, 2002). Fortunately, prevention specialists in the gambling field can draw upon the substantial research on prevention of adolescent alcohol and substance abuse prevention.

Theoretical and empirical research that point to commonalities between problem adolescent gambling and other addictions (e.g. alcohol and drugs) suggests that successful prevention initiatives in other domains may be useful toward the prevention of youth problem gambling (Dickson et al., 2002). Current prevention efforts in the fields of alcohol and drug abuse have focused upon the concepts of risk and protective factors and their interaction (Brounstein, Zweig & Gardner, 1999). These efforts seek to prevent or limit the effects of risk factors (those variables associated with a high probability of onset, greater severity and longer duration of major mental health problems) and increase protective factors (conditions that improve an individual's resistance to risk factors and disorders). In doing so, it is believed that individuals will become more resilient.

Although few scientifically validated prevention initiatives currently exist for problem gambling (see Derevensky, Gupta, Dickson & Deguire, 2002, for a comprehensive review and list of current programs), the increasing widespread use of a harm-reduction approach in the field of alcohol and substance abuse may be useful for preventing gambling problems (Dickson, Derevensky & Gupta, in press). Based upon current theoretical and empirical evidence of common risk and protective factors across adolescent risky behaviors, it has been advocated that prevention initiatives move toward designing prevention strategies that are more inclusive and target multiple-risk behaviors (Costello, Erkanli, Federman & Angold, 1999; Galambos & Tilton-Weaver, 1998; Jessor, 1998; Loeber, Farrington, Stouthamer-Loeber & Van Kammen, 1998), including problem gambling (Dickson et al., in press).

As an overarching framework, harm reduction (also referred to as harm minimization) includes strategies, policies or programs that promote reduction and responsible gambling without requiring abstinence (Riley et al., 1999). By definition, this framework includes secondary prevention strategies, predicated upon the assumption that it is not feasible to believe that one can prevent individuals from participating in particular risky behaviors (Baer, MacLean & Marlatt, 1998), tertiary prevention strategies (DiClemete, 1999), as well as a "health movement" strategy (Heather, Wodak, Nadelmann & O'Hare, 1993).

If one accepts harm reduction as a health paradigm in lieu of, or as an interim step toward an abstinence model, a harm reduction approach supports strategies that aim to reduce harmful negative consequences incurred through involvement in risky behaviors (Dickson et al., in press). In contrast, an abstinence approach is predicated upon the belief that underage youth are legally prohibited from access, including the purchase of lottery products), and as such, should not engage in these behaviors. Yet, research clearly indicates that early gambling experiences amongst children and adolescents occur for both non-legalized forms of gambling (e.g., playing cards for money, placing informal bets on sports events, etc.), as well as all forms of legalized and regulated gambling (e.g., lottery purchases, casino games) (Gupta & Derevensky, 1998a; Jacobs, 2000). As Dickson et al. (in press) noted, this highlights both the paradox and the confusion as to which primary prevention approach to promote: abstinence or harm reduction? If one were to advocate an abstinence approach, is it realistic to expect youth to stop gambling when it has been found that large numbers of youth gamble (Gupta & Derevensky, 1998a; Jacobs, 2000; National Research Council, 1999), especially with family members (Gupta & Derevensky, 1998a), and that gambling has come to be viewed as a respectable form of entertainment (Azmier, 2000). As with adults, one could argue that it may be unrealistic to expect youth to stop gambling entirely, especially since it is exceedingly difficult to regulate access to all forms of gambling. While we remain concerned about the occurrence of serious gambling problems amongst youth, it is important to note that the vast majority of youth who gamble do so without developing any significant gambling-related problems.

The application and style of prevention approaches have shifted back and forth over the past decades, from abstinence to informed use (Dickson et al., in press). Beck (1998) describes the cycle of the "just say no" approach to the "just say know" approach that has taken place over the past years in the drug prevention movement. The "just say no" climate resulted from inaccurate information being conveyed to students in an attempt to intimidate and persuade youth to abstain from drugs, "... ultimately fostering widespread distrust and discounting of all messages — no matter how credible" (Beck, 1998, p.33). The "just say know" movement paralleled the harm reduction model, whereby prevention/education strategies focused upon providing cognitive drug education and fostering decision-making skills with the goal of minimizing the negative consequences associated with excessive drug use. While these early

programs often resulted in significant gains in knowledge, they were nevertheless found to be ineffective in either reducing the use of illicit drugs, nor in fostering healthier attitudes toward their use (Schaps, DiBartolo, Moskowitz, Palley & Churgin, 1981).

Despite the complexities of using the risk-protective factor model (see Coie et al., 1993; Dickson et al., 2002), this model can be used as the theoretical basis of harm reduction because of its role in science-based prevention and its empirical validity in adolescent risk behavior theory (Jessor, 1998). Still further, DiClemente's (1999) theory of intentional behavioral change has been used to understand the initiation of health-related behaviors, including gambling, along with the modification of problem behaviors, such as excessive alcohol use and problem gambling (DiClemente, Story & Murray, 2000). A strength of the risk-protective factor model is that it enables prevention specialists to create, evaluate and refine harm reduction prevention programs based upon changes in risk and protective factors that have been shown to account for changes in targeted behaviors, attitudes, etc. (Coie et al., 1993), rather than relying on traditional means of measuring effectiveness; quantitatively measuring change rates of harmful consequences of risky behaviors (Dickson et al., in press).

The examination of the commonalities of risk factors for problem gambling and other addictions provides sufficient evidence to suggest that gambling can similarly be incorporated into more general addiction and adolescent risk behavior prevention programs. Current research efforts (e.g., Costello et al., 1999; Dickson et al., 2002; Galambos & Tilton-Weaver, 1998; Loeber et al., 1998) suggest the utility of a general mental health prevention program that addresses multiple adolescent risky behaviors (e.g., substance abuse, gambling, risky driving, truancy and risky sexual activity).

While high-risk behaviors share many common risk factors, risky activities differ on several important dimensions, and our examination of harm reduction prevention strategies suggests that the harm reduction approach is most appropriate for targeting those risky activities that lie on a continuum of harm (when engaged in responsibly and moderately, yield no negative consequences) and are socially acceptable (Dickson et al., in press). As a result, a general mental health prevention program would seem to be most effective if it were to incorporate elements of both abstinence and harm reduction principles for youth gambling. For the vast majority of social and non-gamblers, a harm minimization approach will likely suffice. However, Gupta and Derevensky (2000) have argued that for those individuals exhibiting a significant gambling problem an abstinence model should be applied. Further research is required to determine the positive and/or negative consequences of universal harm reduction prevention programs that target multiple risky behaviors (Derevensky et al., 2001).

Only recently have health professionals, educators and public policy-

makers voiced an acknowledgment of the need for prevention of problem gambling amongst youth. As previously noted, controversy continues about the prevalence of underage adolescents with gambling problems. These same researchers suggest that individuals 18 to 25 years of age are the highest risk group for gambling problems (Ladouceur, 2001). If this is true, the question remains as to when these individuals began gambling, given the time delay between onset of gambling and pathological gambling behaviors. In light of the scarcity of empirical knowledge about the prevention of this disorder, the similarities between adolescent problem gambling and other risk behaviors (particularly alcohol use and abuse — a prohibited substance for adolescents, yet legal for adults) can be informative in our conceptualization of the future direction of youth gambling prevention programs.

Despite our limited knowledge of the role of protective factors in adolescent gambling problems (additional empirical work needs to be done in this area), there is ample research to suggest that direct and moderator effects of protection can be used to guide the development of prevention and intervention efforts to help minimize adolescent risk behaviors. An adapted version of Jessor's (1998) adolescent risk behavior model, delineated by Dickson et al. (2002), provides a useful framework from which to begin the much needed research that will ultimately lead to the development of effective, science-based prevention initiatives for minimizing problem gambling among youth.

Today's youth will mature and become adults, having free access to multiple forms of legalized gambling. The introduction of harm-reduction prevention initiatives to help youth become less vulnerable to the risks of a gambling problem is certainly desirable. Supported by research pointing to the critical task of targeting risk and protective factors in multiple domains (Coie et al., 1993), mental health organizations across Canada and the United States have been advocating for collaborative efforts among families, schools, social services and communities (Brounstein et al., 1999; Dickson et al., in press).

There remains little doubt that adolescents constitute a particularly high-risk group for acquiring a gambling problem given their high rates of risk-taking, their perceived invulnerability, their lack of recognition that gambling can lead to serious problems, and the social acceptability and glamorization of gambling throughout the world. It is important to note that gambling issues cut across a number of other public health policy domains: social, economic, health and justice, and is only beginning to emerge as an important social policy issue. Given that it takes several years to develop a significant gambling problem (the downward spiral presented in Lesieur's (1977) work), the true social impact upon youth will likely take years to realize. Equally important is that under most governmental statutes children and adolescents are prohibited from engaging in legalized/regulated forms of gambling. Yet, we know that most youth who want to purchase lottery tickets and access other forms of gambling have little difficulty doing so (Felsher, Derevensky & Gupta,

2003, in press). A concerted effort must be made to ensure that those statutes are adhered to and that there will be steep fines and penalties for operators and vendors violating such laws. Where such laws don't exist, government legislators are strongly urged to initiate strong legislative statutes.

Problematic gambling during adolescence remains a growing social and public health issue with serious psychological, sociological and economic implications. While the incidence of severe gambling problems amongst youth remains relatively small, the number of individuals with severe gambling problems combined with those at-risk for a gambling problem is substantial. The devastating long-term consequences for those youth with gambling problems, their families, and friends, are enormous. Problematic gambling among adolescents is part of a larger constellation of problems associated with youth risky behaviors that must be addressed.

The field of youth gambling is relatively new, and as a result, there are significant gaps in our knowledge. Much of the research to date has focused on prevalence studies. While there is ample research from the alcohol, drug and cigarette smoking literature to suggest that a risk-resiliency model may have significant benefits for our understanding as to why some individuals are at high risk for developing a gambling problem, further research is required. Governmental agencies, private foundations and the gaming industry would be well advised to help support research initiatives into better understanding this vulnerable population. Much needed basic and applied research funding is required to help identify common and unique risk and protective factors for gambling problems and other addictive behaviors; longitudinal research to examine the natural history of pathological gambling from childhood to adolescence through later adulthood is required. Molecular, genetic and neuropsychological research is necessary to help account for changes in gambling progression. Research that assesses whether certain gambling activities may become a gateway to subsequent gambling problems is required, and the development and/or refinement of current instruments used to assess adolescent gambling severity is warranted.

A better understanding of the effects of accessibility and availability of gaming venues on future gambling behaviors is required. Specific research needs to focus on gambling advertisements and the general availability of gambling opportunities and their relationship to the onset and maintenance of adolescent gambling and problem gambling. From a treatment perspective, funds must be made available to help those youth currently experiencing severe gambling and gambling-related behaviors and their families, and a variety of treatment models need to be tested and validated. Along with our current treatment initiatives, we must begin a thorough exploration of "Best Practices" for working with these youth and ways in which we can encourage youth to seek help for gambling problems (see Derevensky, et al., 2003; Griffiths, 2001; and Chevalier & Griffiths, in press, as to why youth often fail to seek treatment).

During the past 25 years, Dr. Lesieur's continued seminal research in the field has fostered a better understanding of this complex behavior, its measurement, its social and familial costs, ways of minimizing and preventing gambling problems and methods of treating individuals with gambling problems. The scientific community has been greatly influenced by his early work and continued research efforts. Much of the research described in this paper has in some way been influenced by his work. For most adolescents and adults, gambling remains a form of entertainment without serious negative consequences. Yet, adolescent pathological gamblers, like their adult counterparts, continue to chase their losses, have a preoccupation with gambling and have an impaired ability to stop gambling, despite repeated attempts and their desire to do so. This behavior continues independent of the accompanying negative consequences and ensuing problems. The short- and long-term consequences to the individual, his/her family, friends and peers can be devastating. The next wave of research, as Henry Lesieur (2003) articulated at the Harvard Think Tank in 1995, focused on adolescent gambling and problem gambling has only just begun in earnest.

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For correspondence:

Jeffrey L. Derevensky, PhD

Co-director

International Center for Youth Gambling Problems and High-Risk Behaviors

3724 McTavish Street

Montreal, Quebec H3A 1Y2 Canada

Phone: (514) 398-4249

Fax: (514) 398-3401

E-mail: jeffrey.derevensky@mcgill.ca

Jeffrey L. Derevensky, PhD, is professor of School of Applied Child Psychology, Department of Educational and Counselling Psychology, and associate professor, Department of Psychiatry, at McGill University. He is a clinical consultant to numerous hospitals, school boards, government agencies and corporations. Dr. Derevensky has published widely in the field of youth gambling, is associate editor of the Journal of Gambling Studies and is on the editorial board of several journals. Dr. Derevensky is co-director of the McGill University's Youth Gambling Research & Treatment Clinic and the International Centre for Youth Gambling Problems and High-Risk Behaviors.

Rina Gupta, PhD, is a practicing child psychologist and assistant professor (part-time) at the School of Applied Child Psychology, Department of Educational and Counselling Psychology at McGill University. She has published widely and focuses her research and social policy work in the area of youth gambling issues. Dr. Gupta is on the editorial board of the Journal of Gambling Studies and is co-director of the McGill University Youth Gambling Research & Treatment Clinic and the International Centre for Youth Gambling Problems and High-Risk Behaviors. Dr. Gupta has provided more than 100 clinical and research presentations at national and international conferences, has numerous publications in the field of youth gambling, and has provided expert testimony before a number of provincial and federal commissions in Canada and the United States.

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