

Child and Adolescent Gambling Behavior: Current Knowledge

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ABSTRACT

The past decade has witnessed a widespread proliferation of gambling venues, increased participation in gambling activities and gambling-related problems, and, as a result, an expansion of research in this area. Research concerned with youth gambling has revealed that children and adolescents are at an increased risk for the development of gambling-related problems. There is a significant amount of evidence that suggests that underage youth are actively participating in both legal and illegal forms of gambling. With increases in the availability and accessibility of gambling activities, the problems that youth gamblers face are likely to increase and/or worsen. The growth of the current generation of youth involvement in gambling has not occurred without personal, social and economic costs. Between 4 and 8% of adolescents report significant pathological or problem patterns of gambling, whereas 10–15% remain at risk for the development of severe problems.

KEYWORDS

addiction, adolescence, children, gambling, risk factors

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Introduction

TODAY'S YOUTH ARE living in a time in which gambling is widely available, legalized and socially acceptable. All US states (except Hawaii, Tennessee and Utah), Canadian provinces, and approximately 90 countries worldwide have legalized gambling (Azmier, 2000; Lesieur & Rosenthal, 1991; National Opinion Research Center [NORC], 1999; Stinchfield & Winters, 1998). In addition to its accessibility, gambling is also a widely accepted social activity (Azmier, 2000). For example, in a large-scale survey on Canadian gambling behavior and attitudes (Azmier, 2000), results revealed that gambling is perceived to be an acceptable activity as well as a personal right. Respondents did not consider gambling to be as serious a social problem as other issues such as a drug or alcohol addiction, smoking and reckless driving (Azmier, 2000). Similar attitudes were reported by Abbott (2001) in a large-scale survey conducted in New Zealand. However, Abbott (2001) noted that the findings suggest that there has been a steady increase in public awareness about problem gambling in New Zealand and that the majority of adults currently consider this an issue of some concern to them. Nonetheless, combined with the primarily positive societal attitudes towards gambling and the widespread social acceptability of these activities, the proliferation of gambling venues is alarming. Excessive, compulsive gambling has been shown to cause personal and financial difficulties in at least 1-2% of the adult population in various countries throughout the world (Ladouceur & Walker, 1996) and remains a significant burden on society (Ladouceur, Boisvert, Pépin, Loranger, & Sylvain, 1994; Lesieur, 1998; National Research Council [NRC], 1999; NORC, 1999).

Before one can review the existing knowledge base regarding gambling and gambling behavior in youth, a definition of gambling is warranted. Gambling refers to wagering money on games of chance (NRC, 1999). Gambling behavior involves risk-taking, may involve some skill, and may best be conceptualized on a continuum ranging from non-gambling, to social and recreational gambling, to problem gambling and to pathological gambling (NRC, 1999). Pathological gambling is characterized by a continuous or periodic loss of control over gambling, a preoccupation with gambling and with obtaining money with which to gamble, irrational thinking and a continuation of the behavior despite adverse consequences (American Psychiatric Association [APA], 1994).

The literature indicates that gambling is an extremely popular activity for children and adolescents, as well as adults (Derevensky & Gupta, 2000a; Gupta & Derevensky, 1998a; Jacobs, 2000; NRC, 1999; Volberg, 1998; Wiebe, 1999). However, much of the previous literature on gambling behavior has concentrated on the prevalence of adult gambling and pathological gambling at both national and international levels. In several surveys on adult pathological gambling in the US, results revealed that prevalence rates of pathological gambling range from 0.1 to 2.3% (NORC, 1999; NRC, 1999; Shaffer & Hall, 1996; Volberg, 1994, 1996). Research in Canada further highlights the growing trend of gambling involvement, with prevalence rates ranging from 2.6 to 4.0% for problem gamblers and 1.2 to 1.4% for probable pathological gamblers (Ladouceur, 1991, 1996; Wynne, 1998; Wynne, Smith, & Volberg, 1994). Overall, lifetime prevalence rates of pathological gamblers range from 0.1 to 3.1%, whereas rates of problem gambling range from 1.4 to 12.0% (NRC, 1999). The discrepant findings can often be attributed to different operational definitions and types of instrumentation used. However, the prevalence rates are nevertheless indicative of a serious problem. Furthermore, between 50 and 90% (median: 82%) of adults have reported engaging in some form of gambling activity in the past year (NRC, 1999).

More recently, problem and pathological gambling, previously thought to be an

exclusively adult phenomenon, is being studied in children and adolescents. Adolescent problem gambling rates are more than double those of adults (Derevensky & Gupta, 2000b; Gupta & Derevensky, 1998a; Jacobs, 2000; Lesieur et al., 1991; Wynne, Smith, & Jacobs, 1996). For example, recent rates of adolescent pathological gambling indicate that between 4 and 8% of adolescents exhibit seriously adverse compulsive or pathological patterns of gambling activity (Derevensky & Gupta, 2000b; Fisher, 1993; Gupta & Derevensky, 1998a; Jacobs, 2000; Shaffer & Hall, 1996; Shaffer, LaBrie, Scanlan, & Cummings, 1994; Winters, Stinchfield, & Fulkerson, 1993; Wynne et al., 1996), whereas 10–15% of adolescents are at risk of developing or returning to serious gambling problems (Shaffer & Hall, 1996). It should be noted that problem and pathological gambling rates for adults and adolescents are not always directly comparable. Many adolescent studies have used adaptations of gambling screens adjusted for adolescents. In addition, even the same survey items may have a different meaning for adolescents (i.e. debt incurred). Perhaps adolescent and adult scales are measuring different underlying constructs. In addition, there may be different thresholds for youth and adult gambling problems. The same gambling behavior that might not be problematic for an adult could be considered excessive for an adolescent (NRC, 1999). Nevertheless, the evidence suggests that pathological and problem gambling among adolescents is of significant concern for our society.

This concern is amplified by the large majority of adolescents who gamble. The percentage of adolescents in the US who report having ever gambled during their lifetimes ranges from 39 to 92% (median, 85%; NRC, 1999). A recent study investigating long-term trends and future prospects of youth gambling in North America (Jacobs, 2000) suggests that within the past year, two-thirds of legally underage youth have gambled for money. In the US and Canada approximately 15.3 million 12–17-year-olds have been gambling, whereas 2.2 million are reported to be experiencing serious gambling-related problems. Trends between 1984 and 1999 indicate a significant increase in the proportion of youth who report gambling within the past year and who report gambling-related problems (Jacobs, 2000). Lifetime rates of adolescent gambling in the province of Quebec are between 80 and 90% (Gupta & Derevensky, 1998a; Ladouceur, Dubé, & Bujold, 1994a), whereas 22–35% gamble once a week or more (Derevensky, Gupta, & Della-Cioppa, 1996; Gupta & Derevensky, 1998a).

Increased child and adolescent gambling activities are not exclusive to North America. In the UK, numerous studies have been conducted because of the increased use of legalized, small wager slot machines (fruit machines). Fruit machine playing, legalized gambling for a child of any age, is widespread among children and adolescents in arcade parlors throughout the UK and addiction to playing these fruit machines is worrisome (Fisher, 1993, 1995; Griffiths, 1990, 1991). Between 40 and 81% of adolescents are reported to have played fruit machines sometime during their adolescence, whereas approximately 5–18% play weekly (Fisher, 1993; Griffiths, 1991; Huxley & Carroll, 1992; Ide-Smith & Lea, 1988).

Of equal concern is the age at which children begin gambling. Adolescent probable pathological gamblers report having begun to gamble at 9 or 10 years of age (Gupta & Derevensky, 1998a; Jacobs, 2000; Wynne et al., 1996), whereas adult problem gamblers report that their pathological behaviors began in late childhood and adolescence, often between 10 and 19 years of age (Custer, 1982; Dell, Ruzicka, & Palisi, 1981). These reports are confirmed by research indicating that 86% of Canadian 4th, 5th and 6th grade students had wagered money and 40% reported gambling once a week or more (Gupta & Derevensky, 1996; Ladouceur, Dubé, & Bujold, 1994b), suggesting that a substantial majority of primary school children had gambled before the age of 11. In addition,

adolescents are reported to have begun playing fruit machines as early as 8–10 years of age (Griffiths, 1990). Despite these findings, there is a general lack of concern regarding youth who are participating in gambling activities and those who are experiencing gambling-related problems.

Thus, gambling behavior appears to be established early and begins earlier than other illicit behaviors such as tobacco, alcohol and other drug use (Gupta & Derevensky, 1996, 1998a). Given that there are few observable signs of gambling dependence among children, these problems have not been noticed compared with other addictions (e.g. alcohol or substance abuse) (Arcuri, Lester, & Smith, 1985; Lesieur & Klein, 1987).

Social acceptance of gambling

One of the primary reasons that gambling is prevalent among today's youth is its high level of social acceptance (Abbott, 2001; Azmier, 2000). Gambling is advertised widely, easily accessible to youth, and often found in places that are glamorous and exciting (e.g. bars, casinos). Gambling also provides opportunities for socializing, be it positive or negative (Stinchfield & Winters, 1998). Although betting in casinos, on electronic gaming machines, and lotteries, in general, are illegal for adolescents, the enforcement of these laws, as with underage drinking, is becoming increasingly difficult (Moore & Ohtsuka, 1997).

Not only is gambling easily accessible and socially acceptable, it has become something of a family affair. Results of several studies suggest that the majority of youth tend to gamble with their family (40–68%) and friends (55–82%) (Derevensky, Gupta, & Émond, 1995; Gupta & Derevensky, 1997; Huxley & Carroll, 1992; Ladouceur & Mireault, 1988; Moore & Ohtsuka, 1997). Parents do not appear to be concerned over their children's gambling behavior. Approximately 80–90% of parents know that their children gamble but do not object (Arcuri et al., 1985; Ladouceur & Mireault, 1988; Ladouceur, Vitaro, Coté, & Dumont, 2001). Research has also indicated that 78% of children gamble in their own homes (Derevensky et al., 1995; Gupta & Derevensky, 1997). More recently, in a comparison of parental attitudes from 1995 and 2000, Ladouceur et al. (2001) reported that 62% of parents complied with their child's request to purchase a lottery ticket for them in 2000 compared with 85% in 1995. Furthermore, the percentage of parents who agreed that gambling with a family member was a good family recreational activity decreased from 18% in 1995 to 9% in 2000. Thus, overall, results revealed that parental attitudes, knowledge, and behavior concerning youth gambling have evolved, to at least some degree, in a positive way between 1995 and 2000. However, the authors reported that many parental misconceptions regarding youth gambling remained unchanged or worsened (Ladouceur et al., 2001). A recent study by Felsher, Gupta, and Derevensky (2001) found that 76.7% of adolescents reported that their parents purchased scratch lottery tickets for them (4.6% on a daily basis), whereas 50.1% purchased lottery draw tickets for them (11.9% on a daily basis). Seventy percent of adolescents reported receiving lottery tickets as a present. Adults, especially parents, may be fostering adolescent gambling. A strong correlation has similarly been found between adolescent gambling and parental gambling involvement (Wood & Griffiths, 1998).

With respect to peer influences, Griffiths (1990) reported that 44% of adolescents participated in gambling activities because their friends were engaging in similar practices. As children get older they tend to gamble less with family members in their own homes and more with friends in their homes (Derevensky et al., 1995; Gupta & Derevensky, 1996, 1997; Ide-Smith & Lea, 1988). This trend reinforces the notion that for many youth gambling is perceived as a socially accepted and entertaining pastime. A recent

study by Hardoon and Derevensky (in press) reported that children in grades 4 and 6 who played a computer-simulated game of roulette, individually and in groups, demonstrated changes in their playing behaviors as a result of peer modeling. More specifically, average wagers of females and mixed gender groupings appeared to be most affected by the group condition, whereby their wagering increased significantly. These findings suggest a strong social learning component involved in the acquisition of such behaviors (Derevensky et al., 1996; Gupta & Derevensky, 1997).

A review of the current state of knowledge of youth gambling behavior would be incomplete without a brief review of the most widely accepted theories concerning gambling behavior. It should be noted that the following section is by no means exhaustive. It is intended to provide an overview of the major theories explaining gambling behavior. For more comprehensive theoretical reviews please see Rugle, Derevensky, Gupta, Winters, & Stinchfield (2001); Wildman (1997).

Theories of gambling behavior

There are multiple factors believed to be involved in the acquisition, development and maintenance of gambling behavior. Based on the available evidence, it appears as though biological, environmental and psychological processes interact in the etiology of gambling and problem gambling behavior. Blaszczynski (2000) recently argued that a model of problem or pathological gamblers should incorporate biological, personality, developmental, cognitive, learning and environmental factors. However, to date, the literature has kept these areas relatively distinct. As such, the following section will address personality, cognitive, learning/behavioral, general addiction and social learning theories of gambling behavior.

Personality theory

Personality factors are crucial to the study and the understanding of gambling behaviors as they may be involved in their development and maintenance. Personality correlates found to influence gambling behavior include sensation seeking and risk-taking. According to personality theory, there is some underlying personality characteristic(s) at the root of pathological gamblers' problems. Gupta and Derevensky (in press) sought to investigate whether adolescents rated as non-gamblers, occasional gamblers, regular gamblers and probable pathological gamblers differed on personality and risk-taking dimensions. Using the High School Personality Questionnaire (HSPQ), the Arnett Inventory of Sensation Seeking (AISS), and Zuckerman's Sensation Seeking Scale (SSS), the authors found that problem and pathological adolescent gamblers differed from the sample on 10 of the 14 personality factors, and from the normative mean on four of those traits. More specifically, they differed from the sample on the dimensions of Intelligence, Emotional Stability, Excitability, Cheerfulness, Conformity, Sensitivity, Apprehension, Self-Sufficiency, Self-Discipline and Tension. Furthermore, adolescent problem and pathological gamblers differed from the norm on Excitability, Conformity, Self-Discipline and Cheerfulness, which are reflected in impulsivity, distractibility, over-activity, self-indulgence and difficulty conforming to group standards. Gupta and Derevensky (in press) concluded that there are qualitative personality differences in adolescents who are problem or pathological gamblers, indicating that there may be certain types of individuals who are more susceptible to developing a gambling problem. More recently, Ste-Marie (2001) found that problem and pathological gambling adolescents had higher scores on measures of State and Trait anxiety. Further, findings of increased antisocial behavior and criminal offences among pathological gamblers

suggest disinhibitory tendencies (Blaszczynski & McConaghy, 1989; Cunningham-Williams, 1998). Research has demonstrated increased rates of childhood attention deficit hyperactivity disorder (ADHD; Carlton & Manowitz, 1988) and adult ADHD (Rugle, Semple, Goyer, & Rosenthal 1998) among problem and pathological gamblers.

Sensation seeking The concept of sensation seeking, as refined by Zuckerman and others (Zuckerman, 1984, 1990; Zuckerman, Eysenck, & Eysenck, 1978), has attracted much attention since its development. Sensation seeking has been described as 'the need for varied, novel and complex sensations and experiences, and the willingness to take physical and social risks for the sake of such experiences' (Zuckerman, 1979, p. 10). Sensation seeking has been reported to be related to dangerous driving practices (Arnett, 1990; Zuckerman & Neeb, 1980), a variety of sexual experiences (Zuckerman, Tushup, & Finner, 1976), alcohol use (Schwarz, Burkhart, & Green, 1978), drug use (Satinder & Black, 1984) and minor criminality (Perez & Torrubia, 1985). Sensation seeking can be thought of as a predisposition, a global trait, and may be directed toward a variety of specific behavioral ends, not just risk behaviors (Arnett, 1994).

Several studies suggest that personality variables of the sensation-seeking variety predict gambling behavior (Derevensky & Gupta, 1996, 1997; Gupta & Derevensky, in press; Moore & Ohtsuka, 1997). For example, Derevensky and Gupta (1997) reported that both the Arnett Inventory of Sensation Seeking and Zuckerman's Sensation Seeking Scale were positively correlated with the DSM-IV-J (Fisher, 1992), an adolescent pathological gambling screen. Overall, sensation seeking, as measured by Zuckerman's scale, appears to peak during grades 12-13 (age 17-19) and decreases during one's university years (Derevensky & Gupta, 1997). In a more recent study, which examined whether adolescents with different levels of gambling involvement differed on personality and risk-taking dimensions, it was found that problem and pathological gamblers obtained significantly higher scores than social gamblers on the Disinhibition, Boredom Susceptibility and the Experience Seeking subscales of the SSS and on the Intensity subscale of the AISS (Gupta & Derevensky, in press). The authors concluded that it appears as though degree of gambling involvement is directly related to certain types of sensation-seeking behavior (Disinhibition [SSS] and Intensity [AISS] subscales). Similar results were reported by Powell, Hardoon, Derevensky, and Gupta (1999), using a university population.

Risk-taking Risk-taking is another personality construct that has been studied extensively. Risky behaviors include actions involving potentially negative consequences (losses), which are offset by perceived positive consequences (gains) (Jessor, 1998; Moore & Ohtsuka, 1997). It has been widely accepted that adolescents engage in risky behaviors, for example, smoking, substance abuse (drug and alcohol), dietary fads, unsafe sexual practices and dangerous driving (Moore & Rosenthal, 1993). The positive consequences of these behaviors appear to be pleasure, peer acceptance and satisfaction of needs, whereas the negative consequences have been highly publicized and understood (Moore & Gullone, 1996). According to Jessor and Jessor (1977) adolescents actively seek out risks. They suggest that risky behaviors permit adolescents to take control of their lives, deal with anxiety, frustration, inadequacy and failure; and gain admission to peer groups. In addition, risk-taking is explained as a function of pleasure or fun-seeking behaviors. For a comprehensive review of the risk factors associated with adolescent risky behaviors (alcohol, drugs and gambling), see Dickson, Derevensky, and Gupta (in press).

Gambling is yet another risky behavior engaged in by adolescents that has potentially

serious negative consequences. Children and adolescents, particularly males, view risk-taking as a display of bravery and courage (Griffiths, 1990). Furthermore, they experience a sense of perceived mastery because of the false sense of control that they encounter while gambling (Gupta & Derevensky, 1996).

The psychological literature on risk-taking suggests that males are greater risk-takers than females, and that adolescents tend to be greater risk-takers than adults (Arnett, 1994). Given that gambling activities in and of themselves involve risk-taking, it is reasonable to assume that adolescents take greater risks on gambling tasks and remain at increased risk for the development of addictions (Derevensky & Gupta, 1997). In a study of gambling and risk-taking among university students, risk-taking was found to be positively correlated with degree of gambling involvement and was primarily male oriented (Powell et al., 1999). These results are similar for children and adolescents, as males have been found to make higher gross wagers and have greater gross winnings than females, suggesting that they are exhibiting greater risk-taking behaviors (Derevensky et al., 1995). Results from Derevensky and Gupta's (1997) study on the relationship between gambling and risk-taking indicated that there is a significant relationship between degree of gambling involvement and risk-taking, with problem gamblers being the greatest risk-takers among adolescents.

Cognitive theories

The cognitive perspective may be fundamental to the understanding of the regular gambler and to the explanation of the individual's perseverance despite persistent and repeated failures. Regular gamblers maintain a set of beliefs, many of which are false (irrational thoughts, erroneous cognitions and misperceptions) that include the illusion of control (Langer, 1975) and the misperception of the independence of chance events (Ladouceur, Dubé, Giroux, Legendre, & Gaudet, 1996). The underlying assumption is that the motivational component of the gambling activity, namely the hope of overall monetary gain and the desire to beat the game, combines with these erroneous beliefs and propels the individual to repeatedly engage in the activity despite losses (Ladouceur & Walker, 1996).

Empirical support for the cognitive perspective comes from studies conducted with both children and adults. A study examining children's perceptions of gambling revealed that although 70% believed that gambling behavior involves 'a lot of luck', 56% believed that 'a lot of skill' is involved as well (Baboushkin, Derevensky, & Gupta, 1999; Derevensky et al., 1996). Thus, although children acknowledge that luck plays a large role in gambling, they still maintain the illusion that a substantial amount of skill influences the outcome of chance events. Furthermore, in an investigation of the erroneous cognitions associated with slot machine playing, Walker (1992) concluded that it is the erroneous cognitions that maintain an individual's gambling behavior despite repeated losses. The occasional large payoff of the slot machines provided sufficient reinforcement for players who inaccurately believed they could influence the outcome and would inevitably win. Griffiths (1994) further investigated the role of cognitive bias and skill in gambling behavior and found that regular gamblers made significantly more irrational verbalizations than non-regular gamblers (personification of the machine [e.g. 'the machine likes me'] and references to the 'number system' [e.g. 'I got a 2 there']). Consistent with these results were findings reported by Baboushkin, Hardoon, Derevensky, and Gupta (in press). In a study examining the underlying cognitions involved in the selection of lottery tickets, Hardoon, Baboushkin, Derevensky, and Gupta (2001) reported that participants were engaging in faulty cognitive rationalizations when selecting lottery tickets that they perceived to be more likely to win. More specifically, participants selected perceived

'randomness' (i.e. numbers spread out across the number spectrum: 11, 14, 20, 29, 37, 43) as the quality that would make a lottery ticket more likely to be a winning ticket. In fact, *randomness* does not exist and all number combinations have an equal chance of being drawn (note: the lottery in question is the 6/49 in which 6 numbers are selected in a draw from 1 to 49.)

Learning/behavioral theories

There are multiple stimuli which can be perceived as rewarding in gambling settings. For example, the pre-race and race sequence at the race track, the spinning of the roulette wheel, and the croupier's calls in craps can be reinforcing because they produce excitement, arousal and tension. Still further, the bigger the win, the higher the reinforcing potential. However, winning is not the only reinforcing component of gambling, the idea of the *potential* monetary gains, the thrill of winning, as well as 'almost winning' have been reported to be equally reinforcing.

The perception that continued gambling may temporarily alleviate depression following loss may partially explain why gamblers continue playing despite losses (Dickerson, 1984; Gupta & Derevensky, 2000). A behavioral approach seeks to explain compulsive gambling as a result of exposure to specific schedules and contingencies of reinforcement (Dickerson, 1984; Skinner, 1974). The variable-ratio schedule of reinforcement that occurs during gambling has a powerful role in the maintenance of gambling behavior. Furthermore, the intermittent nature of the reinforcement leads to persistence in gambling and is most resistant to extinction (Hilgard & Marquis, 1961). Nonetheless, learning theorists believe that because pathology is learned, it can be unlearned (Lesieur & Rosenthal, 1991). Social reinforcement has also been shown to have a powerful effect on gambling behavior. For example, many individuals who are praised and admired for gambling and risk taking will continue to engage in these behaviors as the appraisals may increase their self-esteem. Furthermore, faith in oneself is likely to become contingent upon winning, making it very difficult for a compulsive gambler to accept losses (Gupta, 1994).

A general addictions model

Research demonstrates that pathological gamblers have a lot in common with other addicted populations (Ciarrocchi, Kirschner, & Fallik, 1991). Although pathological gambling does not involve the use of a substance, much of the research has termed it an addictive behavior (Jacobs, 1988; Levinson, Gernstein, & Maloff, 1983; Miller, 1980). Like alcoholics and drug abusers, pathological gamblers develop a preoccupation with seeking out opportunities to gamble and tend to gamble for longer periods and with more money than they intend. Many problem gamblers need to increase the odds against them in order to create excitement, similar to the notion of tolerance in substance abusers. These individuals use gambling as a way of escaping their problems and a number of them report a 'high' similar to that derived from cocaine or other drugs (Levinson et al., 1983). Furthermore, pathological gamblers, like those addicted to other substances, frequently try to stop their addictive behavior because it negatively affects social, educational and occupational obligations (Lesieur & Rosenthal, 1991).

In keeping with the zeitgeist, Jacobs (1986) developed his *General Theory of Addictions*. According to this theory, addiction is defined as a dependent state that is acquired over time with the goal of relieving stress. Accordingly, there are two coexisting and interrelated sets of predisposing factors which determine whether an individual is at risk for developing and maintaining an addictive pattern of behavior. The first is a unipolar physiological resting state that is perceived as chronically hypotensive or hypertensive.

The second pre-condition is a childhood and/or adolescence marked by deep feelings of inadequacy, inferiority and a sense of rejection by parents and significant others. According to Jacobs, these psychological factors may predispose an individual to become a pathological gambler. Further, a reinforcing quality that maintains the addictive pattern is that it enables the individual to escape from a painful reality and to experience fantasies in which they are important, successful and admired. These fantasy states are of a dissociative nature and when indulging in gambling activities, addicts experience a state of altered identity. Jacobs holds that the onset of addiction is triggered by a chance event in the life of an already predisposed individual. Given the ever-increasing availability of gambling activities and opportunities, today's youth are exposed to a variety of these triggering events in their environment.

Support for a general theory of addictions comes from findings that gamblers often possess multiple addictions, thus implying commonalities amongst addictive disorders. Fifty-two percent of a sample of Gamblers Anonymous (GA) members showed evidence of problems with alcohol and/or substance abuse (Linden, Pope, & Jonas, 1986). Similarly, Lesieur (1988) found that 52% of his sample of 50 women GA members had abused alcohol and/or drugs at some point in their life. Considerable research has focused on the commonalities and overlaps among addictive disorders (Jacobs, 1986; Levinson et al., 1983). Some researchers have found common personality traits (Blaszczynski, Buhrich, & McConaghy, 1985; Graham & Lowenfeld, 1986) and criminal behavior patterns (Brown, 1987). Jacobs (1988) has found common dissociative states among compulsive gamblers, compulsive overeaters and alcoholics. In addition, a study by Gupta and Derevensky (1998b) sought to test Jacobs' *General Theory of Addictions* using adolescent problem and pathological gamblers. Their results indicated that adolescent problem and pathological gamblers were found to exhibit evidence of abnormal physiological resting states, greater emotional distress, had greater levels of reported dissociation and higher rates of co-morbidity with other substances. They concluded that Jacobs' theory is a viable explanation for the development of a gambling addiction amongst adolescents (Gupta & Derevensky, 1998b). Similar findings have been reported with adults (Hardoon, Baboushkin, Powell, & Gupta, 1997).

Social learning perspective of gambling behavior

Bandura (1977) among other social learning theorists has suggested that observational learning and modeling play an important role in shaping an individual's behavior. Further, children are more likely to imitate significant and powerful role models such as parents, siblings and peers. Given that modeling has been shown to have a strong learning component for school-age children in a number of areas (Bandura, 1973, 1977; Bandura, Ross, & Ross, 1963; Rushton, 1980; Staub, 1978), it is likely that it would be a strong component involved in the acquisition and maintenance of gambling behavior.

It is well known that gambling activities are reinforcing, in and of themselves, as they produce excitement, arousal and enjoyment. However, gambling activities have social reinforcements as well; gambling behaviors can be encouraged and strengthened by peers depending on the individual's developmental level and social status (Gupta, 1994). From a social learning theory perspective, individuals learn, acquire and persevere with behaviors that are attractive and reinforcing. A social learning model of gambling behavior provides an explanation for why many youth are attracted to the gambling environment (Gupta, 1994). For example, being known as a gambler or risk taker leads to social recognition and often to a higher status among peers (Opie & Opie, 1969; Smith & Abt, 1984). Further, gambling venues have been found to be a social space for adolescents. Fisher (1995) surveyed adolescents who visited amusement arcades in the UK (commercial sites

for the playing of coin-operated fruit/gambling machines and video games). She discovered that the primary motivation of frequenting the arcades was to 'hang out or meet friends'. In addition, she found that regular arcade visitors differed sufficiently from casual visitors, suggesting a distinct social group (Fisher, 1995).

Kearney and Drabman (1992) have demonstrated that even preschool children will engage in a gambling-like situation longer and initiate more risks when exposed to an appropriate 'big win' model. This study demonstrated that modeling could enhance risk taking/gambling-like behavior in young children. These findings support modeling antecedents as viable links resulting in increased risk taking and parallels contemporary theories of compulsive gambling in adults.

Family and peer influences As mentioned previously, contact with gambling begins at an early age. Thus, it is not surprising that several authors have placed an emphasis on the relationship between gambling behaviors and gambling in the family (Custer, 1982; Dell et al., 1981; Derevensky & Gupta, 1996; Gupta & Derevensky, 1998a). Parents often serve as role models for gambling. Retrospective studies indicate that 25–40% of adult pathological gamblers' parents were problem gamblers (Custer, 1982; Jacobs, Marston, & Singer, 1985). Given that social learning theorists maintain that children often model and imitate their parents and other powerful role models, these findings are not surprising. Furthermore, the effects of parental gambling have far-reaching consequences. For example, children from homes in which parental gambling is a problem, report feelings of insecurity and a need for acceptance (Lesieur & Rothschild, 1989). Family and peer models have been implicated as important etiological factors in the development and maintenance of risk-taking behavior, such as drug and alcohol use (Santrock, 1990), and now with gambling behavior as well.

Our current state of knowledge

The literature reviewed thus far suggests that a large percentage of adolescents are gambling in most legal gambling venues, in spite of age prohibitions, as well engaging in non-regulated and illegal gambling activities. Further, they have been found to be more susceptible to the development of gambling-related problems. Their problem gambling prevalence rates are 2–4 times greater than adult rates (Gupta & Derevensky, 1998a; Jacobs, 2000; Shaffer & Hall, 1996). Moreover, adolescent problem gamblers report beginning gambling at earlier ages, approximately 10 years of age (Gupta & Derevensky, 1997; 1998a; Wynne et al., 1996) in comparison with adults who report initiation to gambling at ages of 19. Furthermore, there is evidence that youth move rapidly from social gambler to problem gambler (Derevensky & Gupta, 1996; Gupta & Derevensky, 1998a). Adolescent problem gamblers remain at increased risk for the development of multiple addictions (Gupta & Derevensky, 1998a, 1998b; Lesieur & Klein, 1987; Nower, Derevensky & Gupta, 2000; Winters & Anderson, 2000).

Gender differences

Despite some inconsistent findings, much of the gambling literature suggests that gambling is more popular amongst males than females (Derevensky & Gupta, 2000a, 2000b; Jacobs, 2000; Ladouceur Dubé, & Bujold, 1994a, 1994b; Stinchfield, 2000). Pathological gambling is twice as prevalent for males than females (Lesieur & Klein, 1987; Lesieur et al., 1991; Moore & Ohtsuka, 1997; Stinchfield, 2000; Stinchfield & Winters, 1998; Volberg, 1994; Volberg & Steadman, 1988, 1989). Males have been found to make higher gross wagers and exhibit greater risk-taking behavior (Derevensky et al., 1996).

Also, males have been found to gamble earlier, gamble on more games, gamble more often, spend more time and money, and experience more gambling-related problems than female youth (Jacobs, 2000). It appears as though parents encourage gambling in their sons, as more males than females report that they gamble with their parents (Ladouceur, Dubé, & Bujold, 1994a, 1994b) and that gambling remains more a part of the male culture (Huxley & Carroll, 1992). Griffiths (1989) has speculated that gambling allows boys to display their masculinity in a social environment by exhibiting 'courage and bravery' and thus may be more popular with them. With respect to gambling activities, research has shown that females prefer scratch tickets and lotteries, whereas males prefer sports betting and card games (Derevensky et al., 1996; Govoni, Rupsich, & Frisch, 1996; Griffiths, 1989; Gupta & Derevensky, 1998a; Jacobs, 2000; Ladouceur, Boisvert et al., 1994; NORC, 1999; NRC, 1999; Stinchfield, 2000; Stinchfield, Cassuto, Winters, & Latimer, 1997; Volberg, 1994, 1996, 1998; Wynne et al., 1996).

Physiological factors

Adolescent pathological gamblers have been found to have an increased physiological resting state, to have a greater need for sensation seeking, and are more likely to be aroused and excited during gambling (Gupta & Derevensky, 1998a). They have also been found to dissociate more frequently when gambling (Gupta & Derevensky, 1998b; Jacobs et al., 1985).

Personality factors

The literature indicates that adolescent probable pathological gamblers are greater risk takers (Arnett, 1994; Derevensky & Gupta, 1996; Nower et al., 2000; Powell et al., 1999; Zuckerman, 1979, 1994; Zuckerman et al., 1978). These individuals score higher on impulsivity (Gupta & Derevensky, 1997; Zimmerman, Meeland, & Krug, 1985), excitability, extroversion, and anxiety, and lower on conformity and self-discipline (Gupta & Derevensky, 1997, 1998a; Taber, Russo, Adkins, & McCormick, 1986; Vitaro, Ferland, Jacques, & Ladouceur, in press). Problem and pathological gamblers have been found to be more self-blaming, guilt prone, anxious and less emotionally stable (Gupta & Derevensky, 2000).

Emotional/mental state

Problem gamblers have a lower self-esteem (Gupta & Derevensky, 1998b), have higher rates of depression (Gupta & Derevensky, 1998a, 1998b; Marget, Gupta, & Derevensky, 1999; Nower et al., 2000), and report greater suicide ideation and suicide attempts compared with other adolescents (Gupta & Derevensky, 1998a; Ladouceur, Boisvert et al., 1994; Lesieur et al., 1991).

Coping skills

Adolescents with gambling problems have been found to have poor/maladaptive general coping skills (Marget et al., 1999; Nower et al., 2000). More specifically, problem and pathological gamblers use more emotion- and distraction-oriented coping styles. It has been suggested that maladaptive coping is a mediating factor for addictive behaviors (Marget et al., 1999).

Problem behavior

Adolescent problem gamblers engage in other addictive behaviors (smoking, drinking, drug use/abuse) and often have a history of delinquency (Ladouceur, Boisvert et al., 1994; Maden, Swinton, & Gunn, 1992; Omnifacts, 1993; Stinchfield, 2000; Winters et al.,

1993). They are also more likely to have difficulty in school, including increased truancy to gamble and poor grades (Lesieur et al., 1991; Wallisch, 1993). Although adolescents with gambling problems report having a support group, old friends are often replaced by gambling associates (Gupta & Derevensky, 2000). Problem and pathological gambling has been shown to result in increased delinquency and crime, disruption of familial relationships and decreased academic performance (Gupta & Derevensky, 1998a; Ladouceur & Mireault, 1988; Lesieur & Klein, 1987; Wynne et al., 1996). Adolescents with gambling problems are often preoccupied with gambling, planning their next gambling activity, lying to their family and friends, and obtaining money with which to gamble (Derevensky & Gupta, 2000a; Gupta & Derevensky, 2000).

Gambling behavior

Adolescent problem gamblers report consistently chasing their losses (e.g. return to win back money lost). They have also been found to possess erroneous perceptions during gambling (e.g. they feel that they can control the outcome of the game) (Derevensky & Gupta, 2000a; Fisher, 1993; Wagenaar, 1970, 1988). Many youth problem gamblers have had very early gambling experiences and/or an early big win (Griffiths, 1995; Gupta & Derevensky, 1997; Wynne et al., 1996).

Attitudes

Attitudes towards gambling have been found to be favorable. Gambling is viewed as a relatively benign activity that is significantly less harmful than alcohol, drugs or cigarettes (Gupta, Hardoon, & Derevensky, 2001). Perceptions and attitudes of individuals who feel that they 'gamble too much' were found to be concerning and reflect a susceptibility to gambling problems (Gupta et al., 2001). Further, gambling activities are highly acceptable, a belief which is reflected in the finding that very few children are afraid of getting caught while gambling, with even less being afraid as they get older (Derevensky & Gupta, 2000a; Griffiths & Wood, 2000). Adolescent attitudes and behavior have been shown to predict gambling behavior in later adulthood (Griffiths & Wood, 2000).

Familial factors

Adolescent pathological gamblers report that their initial gambling experiences took place with their family in their own homes (Gupta & Derevensky, 1997). Siblings appear to be the early predominant influence. As children get older they gamble less with their family and more with friends, in their friends' homes. Pathological gamblers are more likely to have parents with an addiction or parents who have been involved in illegal activities (Browne & Brown, 1993; Fisher, 1993; Griffiths, 1995; Gupta & Derevensky, 1998a; Ide-Smith & Lea, 1988; Wood & Griffiths, 1998).

Accessibility/availability

Greater accessibility has been found to be related to increased gambling, increased money spent on gambling and increases in the number of problem gamblers (Griffiths, 1995; Jacobs, 2000).

Conclusions

For many youth, gambling is considered to be the new 'rite of passage' into adulthood. Given that this is the first generation of youth exposed to legalized gambling venues we must continue to examine the long-term effects upon youth. Further, more basic, applied and longitudinal research is needed to investigate psychosocial risk factors, familial

HARDOON & DEREVENSKY: YOUTH GAMBLING BEHAVIOR

risk/protective factors, and the co-morbidity of gambling with other addictions (see Derevensky, Gupta, Dickson, & Deguire, 2001; Dickson et al., in press). More research is needed to examine the changes in prevalence rates, differences among gambling screens, and the effects of the availability and accessibility of gambling on youth gambling behavior and associated problems. It would also be important to determine if excessive gambling during childhood and adolescence leads to problem gambling during adulthood (Lesieur, 1989).

The early onset of gambling necessitates the development of prevention programs, which teach problem solving, coping skills and gambling awareness, for implementation in both the primary and secondary school levels. By developing a better understanding of individual, social, emotional, familial and personality factors which influence gambling behavior in children and adolescents, effective prevention and intervention programs can be developed and can target the appropriate age and at-risk groups. The development of prevention and intervention programs are greatly needed, as gambling is the most frequently reported potentially addictive behavior engaged in by children and adolescents (Derevensky et al., 2001; Gupta & Derevensky, 1997, 1998a, 1998b).

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CLINICAL CHILD PSYCHOLOGY AND PSYCHIATRY 7(2)

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HARDOON & DEREVENSKY: YOUTH GAMBLING BEHAVIOR

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